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[THE GARDEN.



STUART HENRY LOW.



AN

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OF

HORTICULTURE IN ALL ITS BRANCHES.

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W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

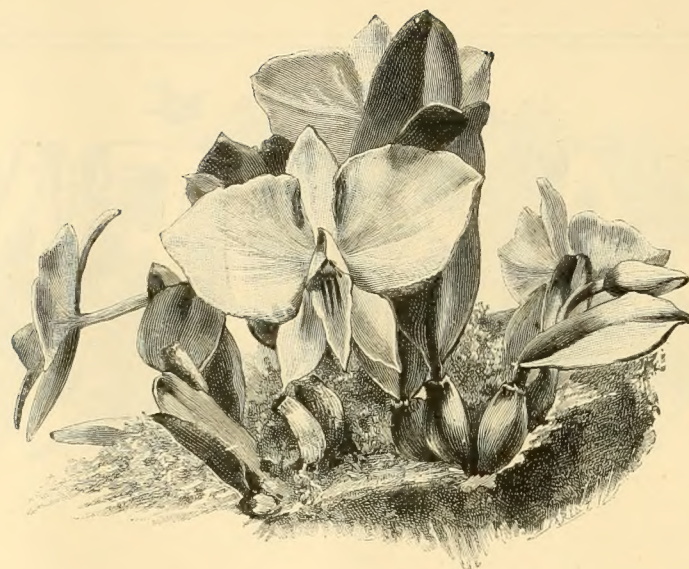
"You see, sweet maid, we marry
A gentler scion to the wildest stock;
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend Nature,—change it rather: but
The art itself is nature."

Shakespeare.

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STUART HENRY LOW.

MR. STUART HENRY LOW, to whose memory we dedicate the Thirty-seventh Volume of THE GARDEN, was one of four sons of Mr. Hugh Low, the founder of the house, who died in 1863, aged seventy years. Only one brother now survives, viz., Sir Hugh Low, who was for many years British Resident at Perak, in the Straits Settlements. Mr. Stuart H. Low, who was born on January 4, 1826, in early life went to sea. On the death of his brother James, which took place about thirty-five years ago, he gave up seafaring life, and joined his father in business. His father was a man of considerable enterprise, but it was left to Stuart Low to render the Clapton Nurseries famous. His whole energy was thrown into the work, and travellers scoured all parts of the globe in search of new plants. Mexico and California were requisitioned for Conifers, which at one time were as important at Clapton as the Orchids. New Holland plants, which were at one time in great request, were also well taken care of. In 1862 and up till the present time travellers have been sent from the Clapton Nurseries to Borneo, Brazil, Mexico, the Philippine Islands, etc., to find new things. To Mr. Low we owe some of the most beautiful Orchids that to-day brighten our stoves and hothouses. Mr. Low was rarely seen at any public functions, but, nevertheless, he was a warm supporter of the various horticultural charities. He took a great interest in the Gardeners' Royal Benevolent Institution, and was a life subscriber to the Gardeners' Orphan Fund. He never recovered the loss of his wife. He was a manly and genial type of man, much liked by all in his business, and by his own people, some of whom had been with him for many years.



SAXIFRAGA COCCINEA



THE GARDEN.

VOL. XXXVII.

ROSE GARDEN.

AMONG THE ROSES, JANUARY, 1890.

A NEW numeral amid the roll call of the years but inspires rosarians with higher hopes and summons them to new duties. In our fascinating pursuit there is no place for a note of finality, or rest-and-be-thankful stage of present attainment. True, the rosarian's past progress may have been a pæon of satisfaction or a peal of triumph. But that is so far a thing of the past, a page of modern or ancient history, according as we mark the march of time. We are not quite done with the past; its lessons, wisely pondered, may be of the greatest service to us, but it must no longer dominate, far less form our model for the present or the future. It may, however, remain for us far more than a charming romance, a pleasing memory, Rose-sweetened and Rose-garlanded. It may, it ought to become a powerful spring-board or vaulting plane to carry us into Rose pastures newer, richer, and sweeter. Still, among the Roses, as in life, the only safe motto at any time is, not as though I had already attained or were already perfect, but to follow after, if so be, I may reach the goal of higher perfection. Beginning the new year with such hopes, so free, and some may say so wild, who shall say what may be ventured upon before the year closes.

So much for our purpose this first day of January; what of our performances? To the uninitiated and not a few Rose growers even, there may seem absolutely nothing to be done among the Roses. On the other hand, the keen eyes of special knowledge, the tender heart of love, see and find many things to do. True verdure, grace and fragrance have vanished, and the Rose beds and borders are the mere ghosts of their former selves, stripped, stricken, and bare. As their naked branchlets tremble and shiver in the blast, stand up bravely to be coated with hoar-frost, or bend lowly beneath their snow coverlets, they appeal to their

growers for a helping hand to assist them through the severities or the yet more killing atrocities of our springs.

It is astonishing how little protection may suffice to carry semi-tender or doubtful Roses safely through the season, provided it is given at the right time and in the right place, and the right stuff in proper quantity is used. These are four rather knotty and interesting points to determine this first day of January, 1890. As to the third point, my mind is absolutely made up upon it. Of all the protective materials in the wide world there are none to equal in cleanliness, handiness, and efficiency dried Bracken. Neither is it possible to wander among the Roses at this early and wholly unclothed season of the year without noting how all unfurnished and unguarded standards are as compared to dwarfs or Roses on walls, rough bushes, ramblers, or pyramids. Readers of *THE GARDEN* may have often noted that I have a weakness for standards, as they bring their beauty and fragrance up to us instead of developing lumbago in our backs through our incessant stooping down to them. But in this matter of chances for life as against climatic severities, the standards appear to have the worst of it. There are, however, one or two redeeming qualities in these directions. The line of greatest cold seems to hug the surface of the Grass and the ground pretty closely. Hence we find plants, Roses cut down, frozen through at this line of greatest cold, while the self-same plants escape at atmospheric altitudes of from 3 feet to 6 feet. Another small, but really important point to rosarians who do their own protecting is the rapidity, facility and pleasure with which a handful of Bracken may be thrust into the heads of standard Roses.

I will not open the abstract question of protection or no protection, as so much depends on site, soil, local climate, Roses grown, and modes of culture and feeding. But assuming that a certain amount of protection acts as a life insurance to many Roses, as proved alike by bitter and pleasant experience, it should be applied on

the 1st of January. To finish planting without a day's delay, if not already done, should even precede protection, although we all know that Roses may be planted with more or less success up to April. Now, as a matter established by the concurrent testimony of generally experienced men, there is no fact more absolute than that November is the best month of the twelve for the planting of hardy Roses.

Protection of the roots or mulching should also be seen to at once, if not already done. Stakes and ties should likewise be made good or strengthened where needful. All these operations may be included in the general advice to make our Roses as safe and snug as possible to help them through the difficulties and dangers of three of the most trying months of the year.

D. T. F.

THE EARLY AUTUMNAL PLANTING OF ROSES.

SELDOM have the fruits of early planting been so quickly manifest as this season. The earth was moist as well as fairly warm towards the end of October and all through November. This favoured an immediate start after the inevitable check incident to transplantation. There are cultivators who practically ignore and make no provision for shortening the duration of this check. They can hardly make a more vital mistake, for the life of the Rose is in jeopardy, its health is in serious danger every day and hour that the interregnum to growth is prolonged. It is less the mere removal of plants from one place to another that injures them than the interval spent from one growing place to another, and this is more true of Roses than of such plants as fruit trees, Grape Vines, Raspberries, and others in which growths were thoroughly matured and the sap more completely at rest. Among all the causes of the high mortality among transplanted Roses, the most powerful of all are their long detachment and frequent removals from the soil. Transfer them quickly from one place of growth to another, and they will soon make a fresh and more vigorous start in their new quarters.

The start has seldom been more sudden and vigorous than this season, for in addition to the

warmth and moisture of the ground, the plants themselves were more fully flushed with active sap than usual, and in many cases the vital effects of the latter were so potent and so prompt, that even the green Rose leaves were kept on the freshly moved plants and assisted to quicken and foster the growth of the roots in their new homes.

Our first batch of Roses—from a distance this year—were lifted and came a hundred miles about the middle of October. These were planted on arrival, and so rapidly did they take to their new quarters, that now these earliest planted Roses look the forwardest and plumpest budded on the place.

Nor is this at all a solitary instance. Early root-disturbance seems to prompt an early start and abnormal activity of root growth. And doubtless it is of vital importance to the future safety of the Roses that this growth should have made considerable progress before it is suddenly and severely arrested, perhaps killed, through cold. As the new roots get larger and consequently harder, there is less risk of injury, and here possibly one of the strongest reasons for the exceptionally high life rate of early planted Roses. D. T. F.

THE PRUNING OF ROSES.*

In treating of the subject of pruning Roses, one is met at the outset by the question: Why is pruning necessary at all? Why should not our Rose trees grow as fine and large as they will? The answer is to be found in the manner of the natural growth of the Rose. By watching an unpruned Rose tree, either wild or cultivated, it will be found that the first strong shoot flowers well the following season, but gets weaker at the extremity in a year or two, and another strong shoot starts considerably lower down, or even from the very base of the plant, and this soon absorbs the majority of the sap, and will eventually starve the original shoot, and be itself thus starved in succession by another. A Rose in a natural state has thus every year some branches which are becoming weakened by the fresh young shoots growing out below them. And this is one of the first reasons why pruning is necessary. A Rose is not a tree to grow upwards and upwards, and as standards seem to be going out of fashion, and so many varieties are dwarf in their growth, it seems better to speak of Rose plants than of Rose trees.

OBJECTS IN VIEW.

The objects of pruning are: To maintain the life and strength of the plants, to mould and preserve their shape, and to give more vigour, colour, and substance to the flowers. Owing to the natural habit of growth before mentioned, a considerable amount of wood must be taken away annually to prevent the shoots robbing each other, and when Nature is thus once interfered with, art must step in to make and to keep a plant of well-balanced shape. And further, even for ordinary garden purposes, a considerable amount of strength and sap must be reserved for each bloom, or, in the case of the dark H. P.'s, they will not show their true colours at all.

WHY THE ART HAS DECLINED.

The principal art of pruning—that of forming and maintaining a shapely plant of well-placed shoots—has very much declined of late years, owing to (1) the decadence of really strong-growing varieties, (2) the waning popularity of standards, where a well-balanced head is more noticeable and necessary than in a dwarf or bush plant, and (3) the fact that most enthusiastic rosarians are also exhibitors, and therefore care more for fine perfect blooms than for well-

shaped plants. When I first learnt to prune, upwards of thirty years ago, H. P.'s were something new, and there were still a great many large standards of summer Roses, each of which was a study in itself for the pruner's art.

INSTRUMENTS.

First, then, as to the instruments. A pruner of the old school would condemn the use of scissors, be horrified to see a shoot cut off square, and would consider the neat, smooth, sloping cut of a sharp knife to be the only legitimate appearance, and he would also perhaps scorn the use of gloves and think he could do his work better without them. This last point must be a matter of taste, but it is useless to deny that Roses have thorns, which are especially hard and sharp at pruning time; and it is well to remember that in using a knife, especially with budded Roses of one year's growth, the plant must be firmly held with the left hand, or a serious breakage is very apt to occur.

Two good knives, an oilstone, a regular pair of pruning scissors, and a kneeling mat for dwarfs will probably prove a sufficient equipment. One of the knives should have a strong blade, the other a narrower and smaller one. The hone should be carried about, and not left behind, or the tearing off of a valuable branch will soon be the result of a blunted blade. The scissors will be useful for very small shoots, and sometimes for very large ones, and especially handy for bits of dead wood in awkward positions; in the two last cases the cuts should afterwards be trimmed and smoothed with a knife. For kneeling on the cold wet soil I have found a piece of waterproof about 18 inches square more satisfactory and less tiring than kneecaps; and remember that the weight of the body will bring moisture through any alleged waterproof that has not an actual skin of india-rubber.

THE SEASON OF THE YEAR.

Next as to the time of year. Some recommend a certain amount of thinning in early autumn, to ensure the ripening of the remaining shoots; but this may sometimes have the effect of causing low dormant buds to push, which is undesirable; it certainly lessens the number of our autumn blooms, probably checks the root-power, and the benefit gained does not seem to be large.

We may commence with Roses trained on south walls about the middle of February, and the pruning of H. P.'s and summer Roses begins in earnest with the following month. March will not be found too long for the cultivator who has a large amount of H. P.'s under his care, for there are generally many days in that "month of many weathers" when nothing but real enthusiasm will maintain the requisite amount of patience in the rosarian's breast, kneeling on the chilly soil over his dwarfs day by day, and exposed to the pitiless east winds. It is best to leave Tea Roses in the open undisturbed till April; a reckless pruner in the shape of Jack Frost has generally been before us, and often we are grateful enough if he has left us any life to prune back to.

THE METHOD.

Now as to the actual *modus operandi*. It must first be asked, Do we require handsome plants for general decoration with fair blooms for cutting, or are we pruning for exhibition?

We will take the former case first as the most complicated. The first care will be to cut out all dead wood, and all wood, however thick and old, which, as shown by the small growth made last season, is becoming weakly in comparison with other stronger shoots. Now we can study

the plant, and see what we have got left. Our object is to form a well-shaped head or plant; and by "well-shaped" I mean that the plant itself should be of the even globular form of a Rose. Rose petals are evenly arranged, and none cross each other in an inward direction; such should be the shape of the plant. Bearing in mind that the top bud left of each shoot will grow first, and in the direction in which it points, we should always cut back to a bud that looks outwards, and take care that the centre will not be too crowded. If we want to get rid of a misplaced shoot, it should be cut right out at the bottom, merely cutting it back will only make it grow the more. It must be our endeavour each year to do away with as much old wood as possible, especially in the middle of the plant, and, in the case of strong growers, we must harden our hearts and thin the number of shoots remorselessly. We should picture to ourselves what the plant will look in full growth, and remember that a lover of Roses is more likely to leave too many than too few shoots. There is a saying in East Anglia, "No man should hoe his own Turnips," meaning that he is not likely to thin them sufficiently, but those who are used to thinning Grapes and other garden produce will probably have got over this difficulty.

THE GOLDEN RULE.

The next question is, how many buds are to be kept on each shoot retained; and the answer is to be found in the golden rule of pruning, that more buds are to be left on each shoot in proportion as the plant, both as a variety and an individual, is strong, and less in proportion as it is weak.

To a novice in Rose growing it appears strange at first that we should cut away almost all there is left of a weakly growing and precious variety, which would seem to be almost exterminated by such severity, and yet leave longer shoots on a strong sort, which seems better able to stand the rough treatment; but the rule is, nevertheless, in strict accordance with the law of Nature—Darwin's survival of the fittest; and the law of God—"Whosoever hath, to him shall be given." It is of wide-spread application. In education, for instance, it is beginning to be found out that it is wiser to add to the knowledge a child possesses, and to concentrate all teaching on the one branch for which an aptitude is displayed, than to introduce a variety of fresh subjects. But I must stick to Roses; and we shall find the same rule apply in other branches of cultivation besides pruning. If we were to give directions to an ordinary labourer to apply liquid manure to the plants, we should very likely find him choosing the weakly ones as recipients of stimulant and nourishment, and omitting the strong, on the plea that that they did not want it. That would be a mistake: it is the healthy and strong who want it, because they can use it. The weak cannot; the nourishment they have is more than they can manage. Again, every rosarian finds that some varieties of Roses do well with him, and some do badly. The first idea is to grow less of the sorts of which we have plenty of good ones, and more of those which have not been so successful. And an exhibitor must do this to a certain extent, but it is a pity; it is doing that which we should always endeavour to avoid, viz., fighting against Nature, instead of directing, and even diverting, and yet siding with her. To get the greatest number of most beautiful Roses we should grow those sorts only which we find to do well.

The rule as to the number of buds to be left on each shoot therefore is: In proportion as a

* Paper read at the National Rose Conference at Chiswick, July 3, 1889, by the Rev. A. Foster-Melliar.

plant is strong in growth, either from the natural habit of the variety, or, in a less degree, from the actual condition of the individual, leave more buds on each shoot, because the strong grower has a capability of supplying several buds on each shoot with a sufficiency of sap for good blooms; and, if a due number be not allowed, the shoots will either not flower at all, or produce coarse and ill-shaped blooms. And, in proportion as a plant is weakly in growth, fewer buds should be left, because the weak grower has only sufficient strength to supply sap to one or two buds on each shoot, and if more are left, the power will not be sufficiently concentrated to form good blooms. The general habit of the variety should therefore be well borne in mind in determining how many buds to leave on each shoot, remembering always, with a view to the summer outline of the plant, to prune to an out-looking bud; and that, as a general rule, the more a shoot is cut back, the longer will be the growth from the bud left at the top.

METHOD CONTINUED.

After a warm summer, most of the young wood on a well-pruned and healthy plant will be moderately ripe, but we occasionally find an extra well-ripened shoot, almost as firm and brown as the old wood, with large buds ready to start at the first chance. This is very valuable, and plenty of space should be allowed for its development, less ripe shoots being removed to make room for it. On the other hand, we often find gross, strong, but late, unripened shoots, much thicker, but greener, with a much larger proportion of pith. These are comparatively useless, and should generally be cleanly and carefully removed. If any shoot, by its unusual size, evidently absorbs a larger proportion of the sap of the plant, it should be, according to its ripeness and the condition of the rest of the plant, either removed altogether, or left a good length, other shoots being cut out to make way for it.

A good deal may be done to remedy faults and defects by a careful examination of each plant in early May, when a further thinning of the young shoots may be practised if necessary. Of those growing too close together or filling up the centre, one or two may be rubbed off. But we must not be rash; if undecided, it may be prudent to postpone the examination for a week or so, when we can still rub the shoot off, but cannot put it back.

If a plant is carefully pruned from the beginning, it seldom presents many difficulties as long as it continues in health, but those which have been neglected for only one year often require to be cut back sufficiently to form an entirely new framework during the following season.

For bedding purposes, the pegging-down system is fairly successful with really strong-growing varieties, of not too stiff habit. All must be cut away say 2 feet or 3 feet (not too many) of the strongest shoots, which are bent down and pegged over the bed. They will break and bloom all over, and in late summer other shoots will probably spring from the base, which will take the places of the old ones if necessary in the following spring.

Standards of the Gloire de Dijon race may be trained to form umbrella-shaped or weeping Roses on a similar system.

PRUNING FOR EXHIBITION.

Pruning for exhibition is a different matter altogether; our object in this case is to get the finest possible blooms, and the exhibitor will not generally care a fig about the shape of his plants, so long as he has better Roses to cut

than his rivals. If number is required, the plants must be multiplied, as but few blooms must be expected from each.

Pruning in this case loses most of its art: almost all, and in some cases where there is not sufficient ripeness, all the new wood will be simply cut away, and the resulting shoots thinned as soon as separable, according to the habit of the variety. Exception must be made in the case of some of the strongest growing H. P.'s, which will bloom but sparsely and too late, if they are cut back too far; and of certain varieties, which are apt to bear coarse flowers, but this can sometimes be remedied by a discretion in thinning the flower-buds.

TEA ROSES.

We now come to the pruning of Tea Roses in the open. Roses of this class, if well fed and spared by the frost (of which latter contingency I have but little knowledge), might be pruned but little; and in a rich soil, and in a district of mild winters, or where protected by glass, I imagine a mere removal of dead and weak wood, and of budless tips, would suffice for these charming plants. But in many parts of the country, particularly in low-lying districts, we often find, in spite of our best efforts at protection, that the greater part of each plant has been killed or severely injured during the winter, and are only thankful, as I have said, if we can find some real life to cut back to.

For exhibition purposes, the pure Tea Roses should in all cases be pruned back as hard as the H. P.'s; there is no fear of these free-flowering Roses failing to bloom. But the now large Gloire de Dijon race, Maréchal Niel, and the Noisette hybrids must be treated differently; the long strong shoots of the year reserved to nearly their full length, and the old and weak wood only cut out.

MARÉCHAL NIEL UNDER GLASS.

I must pass over the pruning and training of pot Roses and Roses for forcing, as subject to the same general rules, but Maréchal Niel under glass seems to do best under the following special treatment: In a house fitted with wires up the roof, let a strong young standard be planted as a vine, with plenty of room for extension on either side. Prune it completely back in the winter, and select two shoots only, training them horizontally right and left immediately under the bottoms of the wires. If still growing when they reach the end of the house, or as far as the Rose is intended to cover, train each up the end wire, and, if they reach the top, stop them as you would a Vine.

No pruning whatever will be required the following winter, but the plant must be always highly fed. The Rose will probably bloom freely along the rods in the spring, and, as soon as this is over, the upright rods (if any) must be cut right back to the horizontal part, and an endeavour made to train a shoot up each wire, all other buds and new shoots being clean removed. The chosen shoots may appear weak at first, but they will gain in strength and the autumn growth, if the plant be healthy, and well nourished, will be very rapid. Probably all the shoots will not reach the top of the house this year; but let them grow as much as they will, stopping them when they do reach the top. Early in the following spring—dependent, of course upon the amount of heat supplied—a bloom will appear at almost every bud, and when the crop of flowers is over, probably about the end of April, every upright rod must be cut clean away again down to the horizontal branches, and during the summer fresh shoots trained up in their room, and

stopped as before on reaching the top of the house. It is best to do this cutting away of the upright rods gradually, during a week or so, and not all on one day, because we thus lessen the severity of the check to the plant.

This is a simple, systematic, and regular method, which I have found to answer extremely well.

CONCLUSION.

With this I must conclude—pruning is a most essential part of our art, which must be patiently and thoroughly carried out at an inclement time of year, when beautiful Roses seem but a dream of the future; but the ardent rosarian will at all times have the present season in view as the harvest and reward of his labours, and will work zealously all the year round, in cold and heat, rain and drought, frost and snow, shadow and shine, in behalf of the motto of our craft,

"Floreat Regina Florum."

Rose Marie Van Houtte.—Marie Van Houtte is one of those Roses that everybody must grow and that nobody can ever fail to admire. Exquisite in form and colour, vigorous in growth, hardly less free and ever-blooming than the common China, this Rose is invaluable to every rosarian. For exhibition, for button-holes, for bouquets, for general cut-flower purposes, or for making a display in the garden, it is alike admirable, and the plant thrives well whether grown on dwarf Brier stocks in the open, as a climber on a wall, or as a standard. The so-called *Rosa polyantha*, which in reality is nothing more nor less than *Rosa multiflora*, also makes an excellent stock for Marie Van Houtte, which grows and flourishes upon it especially well in very light and sandy soils. Marie Van Houtte was the first Tea-scented Rose sent out by the late M. Ducher, of Lyons, having been first distributed in 1871, and, as is so often the case, has not yet been surpassed by any subsequent productions of the firm, although these have included such beautiful varieties as Amazone, Anna Olivier, and Bouquet d'Or (all sent out in 1872), Jean Ducher (1874), and Innocente Pirola (1878). Considering the length of time that Marie Van Houtte has been in general cultivation, it is perhaps surprising that there should not have been raised more varieties following it in habit and character. The colouring of its flowers is so exquisite in its combination of lemon, yellow, and peach, and the beauty of the plant itself is such that it would have been thought probable that raisers would have made every effort to obtain from it other varieties of similar habit and with distinctly margined flowers of different shades; but whether the attempt has been made or not, there has not yet been raised any Tea-scented Rose with distinctly margined flowers whose sum of good qualities at all approaches that of the best of all the "Maries"; so in the meantime her many admirers will continue to worship undisturbed at the shrine of Marie Van Houtte.—T. W. GIRDLESTONE.

Windflower or Woodflower?—Without the slightest ambition to "have the last word" on the subject, I have to say that if Mr. Engleheart did not mean to refer the derivation of the name "Anemone" to the Latin word *nemus*, others as well as myself have been deceived by what he wrote (see Canon Ellacombe's note on page 498). I have no wish to prolong the discussion, as there is obviously no common ground of argument on the derivation of a Greek word with a disputant who explicitly rejects the authority of lexicons, &c., notwithstanding the fact that in some of these works the conclusions of the most profound philologists are embodied; but I may be allowed to remark that Mr. Engleheart has brought forward no proof whatever in support of his very confident—I might almost say *ex cathedra*—assertions that "Windflower" is an "incorrect and meaningless name;" that "Woodflower" is the correct translation of the name "Anemone;" and that the

derivation of this name from *anemos* is "an erroneous derivation which even Professor Skeat has perpetuated." If Mr. Engleheart has convinced himself without proof that he is right, he has full British liberty to do so; while I and other readers of THE GARDEN have, of course, equal liberty to draw our own conclusions from all the facts of the case which have come before us.—WILLIAM MILLER.

THE ORCHARD.

FRUIT GROWING IN BRITAIN.

THE following correspondence recently appeared in the *Times*:—

"The following facts may show to your readers that it is not all the English fruit grower's fault that so much fruit is imported into this country. I have lately found a delicious eating Apple imported from Denmark. It is crisp, juicy, sugary, easily masticated, and a real enjoyment to eat. It being a stranger to me, I sent a specimen to a friend who is one of the largest fruit growers in Kent, suggesting that he should get grafts and grow so delicious and marketable an Apple. In reply he says: 'I think you will find the Apple you sent me is Gravenstein, a Russian Apple. I had several trees of it, and most orchards in B— had some. They ripened rather earlier here than they do apparently in Denmark, and if left to fall from the tree they are perfection. But, as a market fruit, Apples considerably finer than the specimen you sent me made about 3s. per bushel, and expenses 1s. 6d. to come off that left no margin, so they have gone out of cultivation. We must grow what will pay, and the Goff—a very inferior Apple—will pay treble this.'

"Now the Denmark Gravensteins which I have bought cost at the rate of 10s. 8d. per bushel. Who can solve such a riddle? English consumers will not buy English-grown Gravensteins but at a price that will not pay to grow, but when the Danes send us the same Apple, not so fine in quality, they buy it at three-and-a-half times the price they would pay their own countrymen for growing it!

"Like anomalies have occurred in my own experience. I have sent the most delicious Pears to the English markets—*Louise Bonne*, *Maréchal de la Cour*, *Beurré d'Amanlis*, *Winter Nelis*—most carefully packed, and have had back the most miserable prices, say 1d. to 1½d. per pound. For two seasons that I have been unable to grow fruit I have not once been able to find a Pear in the shops equal to any one of these, and for inferior French or Jersey grown fruit I have been asked 4d. to 6d. a pound. It is certainly not all the English grower's fault that the best of English-grown fruit is not put more abundantly on the English market.—T. W."

— If the gentlemen who write about fruit culture will take the trouble to find out first what a really good Apple is, their remarks might be of some use. "T. W.," who writes in to-day's *Times* to blame people for not buying an Apple that I always thought of very poor quality, is one of this class. The public are not such fools as they are supposed to be; they rightly refuse to buy English grown Gravensteins! My experience is that people talk a great deal about fruit culture and often spend their money upon it without knowing what is really good among fruits. The nurserymen themselves give in their catalogues many fruits that are of very low quality; though they may be showy outside, very poor in flavour, like

the King of the Pippins and others, decay in no time, like Peasgood's Nonsuch, big and large, but useless. So long as people had no better Apples than these, they were contented with them, but now that we get Apples from other countries of the highest class, it is quite different. If the British fruit grower continues going on growing Apples of poor quality he must not be surprised if he finds a bad market for them. Early Apples of a showy class sometimes sell off quickly in populous cities, but when it comes to the late-keeping Apples most people buy these of the best qualities only, if they can get them.

The other day, in Mr. Webber's shop in Covent Garden Market, I bought some fine old Newtown Pippins, perhaps one of the most delicate flavoured Apples that exists, a perfect Apple to eat out of the hand and equally good for cooking. Some may say that unhappily we cannot grow this fine Apple, which comes to us some 3000 miles over the sea. But the lesson of it is a useful one all the same. When people can buy Apples of this fine high flavour, with all the freshness and crispness that one could desire in an Apple, they will not be satisfied with second and third-rate Apples common in our orchards and gardens.

Only the very best English Apples should be grown, and our efforts should be devoted to the production of great English Apples, as the *Blenheim*, *Cox's Pippin*, and the *Ribston*. When these are obtainable and at their best there is always a good market for them. For example, the *Blenheim*, a noble Apple, is grown far too little. If we grew enough of that for ourselves; if farmers and country gentlemen planted it as freely as they might plant it, there would not be much room—except in bad years—for any Apples that came from America or the Continent at the time of its ripening.—EDITOR OF THE GARDEN.

KITCHEN GARDEN.

FORCING AND GROWING SEAKALE.

It is not so very many years ago when most, if not all, of the Seakale then used during winter and spring was forced in the ground where it grew, and I well remember what a work it was to prepare and make up those hotbeds that were needed for giving the requisite warmth and bringing the Kale on, as well as the vexation and disappointment that often followed, for after much care it frequently happened that the crowns of the plants were spoiled through having too much heat, and a dish of the esteemed vegetable was looked for in vain. To ascertain the condition of things, much moving of material was necessary to have a peep into the pots, and if matters happened to be found right within, away went most of the warmth, or snow fell and bad weather came and drove it out, so that one never could calculate when he would be able to cut. All this is changed now, and under the present system of forcing Seakale we can almost time to a day when we shall have it in, and the trouble saved, independent of other gains, is something surprising.

The chief thing to ensure success is to obtain plants with fine crowns, as however regular and right the temperature and management may be, it is only these that can produce heads of any size, as all the plants can do is to unfold and send up what they have packed at the top, and no more can be got out of them, although it is easy to have less if conditions are not in their favour. Those which act most adverse are too much heat at starting, a dry unsuitable atmosphere, and an insufficient supply of moisture in the soil, any and all of which tell seriously against success, as the first mentioned draws the Kale out and up too quickly, causing it to come weak and

poor, and the latter has the same effect, as the plants cannot break freely if they shrink at the root. For the first or earliest lot it is a good plan to begin with large pots, tubs, or boxes, which should all be of the same size, so that one can be inverted on the other, as a covering to blanch the heads of the Kale. In the pots, boxes, or tubs used for the bottom, the plants may be packed in pretty closely, but it is important that they be well filled in between with fine rich soil, and to make sure of this, a heavy watering should be given, and as soon as this has drained away through, the whole may be shut down by putting the covers over, and then placed in a house, or plunged in a bed of leaves where a heat ranging between 60° and 70° can be had, which will be quite sufficient to bring the plants on. To keep out all light and air it is necessary to block the holes in the pots, if pots are used, with Moss, or stuff up any apertures, or the Kale will not be white, but coloured at the ends, which spoils its appearance. Where quantities of this esteemed esculent are required, provision may be made for the forcing under arches or stages of plant stoves, or by arranging a bed either by digging out a pit, or, better still, above the surface by driving in stakes and running boards along, when a lining of leaves and manure, placed at each side and on the shutters over the top, will give the requisite warmth. But the whole business is much easier if the forcing can be carried on in some pit or house. For a late supply I have found no way equal to covering the whole plantation with clean straw about a foot thick, as the light is then entirely excluded and the moisture of the earth conserved, and the Kale sends out splendid heads that are perfectly blanched, and as clear and clean as it is possible to have them; whereas when under ashes or soil they become discoloured and gritty, and in some cases unfit for use. Beds that are intended to be kept for late work and treated in the way referred to should be planted in patches of three plants, placed triangularly at 6 inches apart and the rows 3 feet asunder, but those intended for taking up to force may be planted singly 1 foot apart and the rows 2 feet from each other.

In taking up Kale, there are always roots that are too long and get broken off, and these form capital sets if cut into lengths and laid by for planting, till which time arrives they should be buried in ashes or soil to keep them plump and start them. During winter, ground should be prepared by trenching or double digging, as Seakale must have depth, for the thong-like roots strike straight down and penetrate far below the surface. Not only is it necessary to cultivate deeply, but it is also requisite to manure freely, or to use freely of any rubbish heap material, and to mix that well into the soil, as that just suits the Kale and makes it grow very strong. Being a marine plant, salt is a great help, and before employing the rubbish heap stuff a few bushels may with much advantage be added and turned over with it, as also a little lime and soot, when the whole will be of great value.

Any time during March or April does for the planting of the sets, which may be dibbled in sufficiently deep for the top end to be just below the surface, and, this done, a raking over the ground to make it neat and level will complete the job. Seakale may also be raised from seed, and this should be sown in drills in March at the distance mentioned above, and when the plants are up they must be singled out and left a foot or so apart, which will afford sufficient room for them to develop fine crowns. The treatment requisite during summer is simply to keep the land free from weeds, and a sprinkling of salt is a great aid in doing this, and will save a good deal of hoeing. S. D.

Chou de Burghley.—Much has been written concerning this, but the question as to whether it is entitled to the designation of Cabbage Broccoli yet remains unsettled. So far as my experience goes, it is worth growing, being tender when properly cooked and of good flavour. But as for the heart resembling a Broccoli, I have never been

fortunate enough to find it, notwithstanding the hundreds of plants I have cut and seen others cut open. I have looked for it early in the autumn, at mid-winter, and in spring when the plants were fully developed, but all to no purpose. As is well known, it is quite hardy, and has a common-place appearance, closely resembling the ordinary Cabbage. To produce the best results, it should be grown on good firm ground, the latter being very essential.—C. L.

Tomatoes.—As "B. C. R." seems to regard Tomatoes of the Perfection type as, on the whole, if well grown, too large for ordinary market purposes—and so far as the largest fruits are concerned I agree with him—I would advise him to try the new Chiswick Hybrid Tomato, as presenting at once fruits of medium size, perfect in form, rich in colour, and produced with wonderful freedom, not only in pots under glass, but outdoors. Also this Tomato excelled all others in cropping qualities. In regard to Tomatoes we are in the same danger that has grown up in connection with Onions, of favouring at exhibitions unduly large fruits. It is not at all an unusual thing in the country to find fruits of from ten ounces to fourteen ounces set up, fruits far too big for ordinary use, and specially for market.—D.

Long-necked Onions.—To have Onions really good, with fine, large, well-shaped bulbs, the seed must be sown early, the middle of March being about the right time, if the ground can be got in fair order and the weather is favourable, for if put in much after that the Onions come with large necks, and are only fit for soups or flavouring, and will not keep long after winter begins. We have had striking proof of all this, as last summer about here was a very bad one for Onions, which not only came up badly, but went off wholesale, owing to the maggot. Fearing we should be very short, owing to the failure of the crop, we sowed in May, and the plants have not bulbed, but have grown more after the manner of Leeks, and are as thick in the stem as one's arm. For all this they have been exceedingly useful, as we have held back the first sown ones and have been sending the last-named to the cook, as we had a lot laid in by the heels, where they remain sound up to the present.—S. D.

Celeries for market and exhibition.—One might say of the Lancashire people that they are a Celery-loving community, Celery being largely grown for market purposes, and very fine Celery indeed is sent into the market. A number of varieties are grown for sale, and they may be said to represent selections. They are considered by the Celery growers as quite distinct, although the differences may be small. Those that find favour among the Rochdale growers are Big Ben, a fine red variety grown extensively for exhibition round Ashton-under-Lyne; Blackpool Prize, a red variety grown about Blackpool for market purposes; and Wright's Grove Red, considered to be one of the best red Celeries in cultivation, standing long after all other varieties have gone rotten. It is of excellent flavour. It grows only about 15 inches high, but it is remarkably thick and never hollow. Lancashire Prize White, also a good Celery for market purposes, and for exhibition; Clayworth Pride: this is a pink variety, solid and crisp, coming in early and requiring no more blanching than a white variety; Wright's Grove White, a variety that grows to a large size and is always sound, and it is one that is popular for market purposes. One named Standard-bearer, a deep pink variety, has proved somewhat disappointing, being of indifferent quality. Evidently the two leading varieties for market are Wright's Grove Red and Wright's Grove White.—R. D.

Conference Tomato.—I observe it is announced that the seed stock of this Tomato is to be distributed amongst the Fellows of the Royal Horticultural Society. I understand it to be the same variety to which I referred recently as Chiswick Hybrid, and which was certificated at the Drill Hall some time since under that designation, but later was, to commemorate the Chiswick Vegetable Conference, re-named Conference. We shall

doubtless find the variety in wide cultivation next season, as its merit seems to be undoubted. As I have a Potato named Conference, which was also certificated at Chiswick in October, it may be worth mentioning that it was so named in honour of the Potato conference held in St. Stephen's Hall some two years ago.—A. D.

EARLY TOMATOES.

I FIND that early Tomatoes, or those which ripen in April and May, are more appreciated than any cut from old plants during December and January. Those with suitable house room at their command ought to be able to maintain an all-the-year-round supply, but it would really appear that a slight break, say in February or March, adds to the credit of those who make the attempt. We have fruit in all stages of growth on our roof-trained Tomatoes, some ripening, others half grown, and a good number only recently set. The plants are also breaking strongly, and these young shoots will doubtless flower and bear fruit to ripen in succession to those now being formed. Well matured or fairly firm shoots will usually strike readily in a moderately brisk heat, and if they can be had, say, towards the end of January, the plants thus obtained ought to surpass any seedlings raised in the same month. Many thousands of late autumn-raised plants are annually wintered by various growers for market, these being now available for either shifting into larger pots or for planting in shallow borders. Still more growers, including various private gardeners, are content to raise their earliest plants from seed, this being sown during the first or second week in January. Numerous market growers still cling to their own selection of Large Red, which they find sets the best of all in high temperatures early in the season, but Ham Green Favourite, Hackwood Park Prolific, and Perfection, if given a little timely attention in the way of fertilising the flowers with a camel's-hair brush, will set nearly or quite as well, while the fruit will, as a rule, be handsomer, heavier, and superior in quality. House room being limited, and the earliest crops are generally grown in comparatively small well-heated houses, it is of the greatest importance that the start be made with sturdy, short-jointed plants. These are by no means difficult to grow, but are not very often seen. Very frequently the seed is sown too thickly, more than double the number of spindly plants being raised than are required; then to make matters worse these are placed singly into 3½-inch pots, which would be certain to cause the plants to become so, a final shift into 6-inch pots being the preparation accorded the plants. Whether few or many plants are needed, the seed should be sown thinly in 6-inch pots filled with light, sandy soil and lightly covered with more of the same. The pots being plunged in a brisk hot-bed, the seed germinates in a few days, and the seedlings before they are much drawn ought to be raised up well to the light and eventually set on a shelf near the glass in a warm house. Thin out the seedlings where at all crowded, and when they are well into rough leaf, pot off, using rather light loamy soil, properly warmed and clean, and lightly drained 5-in. or 6-in. pots. Turn out the seedlings carefully from the pots, preserving all the roots with each plant, and either place one of these in the centre of the 5-inch pot, or two round the sides of the larger size. Each plant should be sunk into the soil up to the seed leaves and not hard pressed in the fixing. Given the benefit of a little bottom-heat and slight shade from bright sunshine for a few days, water being given very carefully, the plants soon recover their original green colour and commence to root strongly, when the sooner they are again placed on shelves or raised nearer the glass the greater the certainty of their sturdiness being preserved. By the time the pots are well filled with roots, the fruiting pots, tubs, boxes, or ridges of soil ought to be ready for the plants' reception. If necessary a light stake ought to be placed to each plant in order to keep the stems erect. M. H.

Lawn Grass as a manure.—Some few years back I wanted to clear up our refuse yard and had

no convenient place to put the short Grass gathered therein during the previous summer. It struck me, however, to apply it as a manure to a pasture field, and the effects were highly satisfactory. The Grass soon assumed a darker colour, and the dividing line could be seen distinctly at a long distance. This induced me to reserve the mowings afterwards as a manure for kitchen garden crops, and I am pleased to say with very gratifying results. This last spring I had a plot manured with short Grass refuse only that was well decomposed, and another plot adjoining was manured with cow manure which had been previously turned. The growth on each plot during the summer was watched closely, the crops consisting in each case of Onions, Parsnips, Beetroot, and Carrots. The results were that the lawn Grass refuse fully held its own against the cow-yard manure; in fact some who saw the trial thought the former had rather the best of it. I have been induced to pen these few remarks thinking they may be of service to those who are not over supplied with manure for kitchen garden crops.—J. H.

Parsley in winter.—In some gardens there is considerable difficulty during the winter months in obtaining a supply of green Parsley. At the present time we are enabled to gather more than I ever remember at the same time of the year, which I attribute to the position in which the Parsley is growing. In the course of an alteration and extension of the garden a large heap of soil, which was composed mainly of clay with which was mixed many large stones, had to be got rid of. A bank 4 feet high was formed on the east and north sides of the enclosed additional piece of land, and on the top of the bank was planted Spruce Firs as a shelter. In March of 1888 was sown in shallow drills on the southern slope of this bank seed of Imperial Curled Parsley, and a little fine sandy soil used to cover the seed. When the seedlings were large enough to handle they were thinned to 6 inches apart. The plants grew vigorously in spite of several spells of dry weather. During last spring a few plants only ran to seed. These were either removed or the seed spikes cut off. Early last May to increase the stock some seedlings were planted on the same border during showery weather, these growing freely. The leaves were stiff and hard and in a much better condition to withstand frost than if the plants had been growing on highly manured light soil where the growth might have been quicker, but sappy, and in a worse condition to stand through the winter. It is not everyone who has such a position on which to grow Parsley, I know, but the success of this trial only shows how such places may be utilised for many things. This being a warm sunny bank, single Violets would no doubt succeed admirably.—S.

FLOWER GARDEN.

LILIES.

"DELTA" has done well to tell us of his failures in the culture of Lilies. If everybody would be as explicit in detailing their failures in other directions the lessons taught would be often of more real value than are records of successes, because we should then learn what to avoid as well as what methods to follow. Lilies doubtless present more failures in culture than any other bulbs, or, indeed, any plants. Orchids, in spite of their costliness, seem to be grown easily enough in these days, but the Lily trade has fattened upon failures. Were these not so common, our gardens are now must have been literally flooded with Lilies. Their fate seems to be to be sold and to die. I am disposed to think one cause of the comparative failure found in imported bulbs is that our market is supplied with the largest, and the bigger they are the less are they fitted to withstand the exigencies of exportation. The bulbs at home are grown up to their highest blooming capacity, just as Dutch Hyacinths are, to satisfy the requirements of the British market, and they are in that condition less fitted to be robbed of their ordinary base roots than are they at any previous time in their existence. If the

bulbs imported were one half the age and size, the chances are they could be then grown on here with greater certainty and success.

A few years since I raised what proved to be a very fine form of *L. auratum* from seed. The bulb eventually produced several stems and a great head of bloom, then began to decay. I found it was needful, to save it from absolute destruction, to break it up into three parts, clean off every rotting scale, and repot them, in a sadly dwindled condition, into small pots. One died, two lived, and are now getting strong. I have no doubt they will become large bulbs, and bloom finely about two years hence, then go off as before. I take it that all big bulbs have gone through similar experiences, though it would seem as if the bulk died. *Lilium candidum* is so hardy a kind that it does not come into the same category with ordinary imported bulbs, and yet that is far from being the common variety it used to be. A dozen years since, even in our stiff soil, it was abundant everywhere. Now it is far from being common, and I attribute its decadence chiefly to the fungus, not unlike that of the Onion, which strips the leaves from the stems, leaving them mere bare poles, and it also materially weakens the bulbs, so that in time many are unable to throw up stems. The fine groups of Lilies we sometimes see at shows furnished by the trade are misleading in so far that they represent chiefly the pick of the importations, perhaps the best of thousands, whilst the failures are not heard of. If "Delta's" story of his misfortunes in Lily culture should lead to some practical discussion, from out of which it may be possible to glean information leading to the avoidance of failures in future, good service will have been rendered to thousands who now purchase Lilies and fail to preserve them.

A. D.

Blue Gem Primrose.—It may interest those who saw this novelty at the Westminster Drill Hall last spring to learn that blooming in the open ground it still shows the real blue tint in its flowers—evidence of constancy. Primroses seeded very sparsely last year; hence I have but two or three seedlings from the variety, and I shall not lift nor divide the original plant this year, as I want to get seed, and this is difficult when plants are disturbed. It is amusing to find how persons, so soon as a seedling Primrose is shown, jump to the conclusion that 50 or 100 plants will have been produced from it by division. Even with favourable seasons it would take five years to work up any appreciable stock of a thing of this sort. Therefore, when a certificate is granted, no one can say that the giving of such an award is a trade mark. But I have known the facility with which plants can be increased by the trade made a reason for granting a certificate of merit, whilst the converse has militated against the granting of a certificate. Members of committees authorised to make awards to plants of merit ought to be blind to the probable trade future of novelties.—A. D.

The common white Pink.—It may seem superfluous to allude to the merits of such an old favourite, but I have often thought that a more free use of it would do much to relieve the rather monotonous aspect of the outdoor garden in winter. There is something very cheerful-looking in the white Pink at this season, especially when, as is so often the case in cottage gardens, it is allowed to form masses of foliage 3 feet or more across. It is noteworthy of this old flower that it never suffers during the winter, the foliage remaining fresh and bright through periods of severe and changeable weather, that injure or ruin the appearance of many hardy things. With the exception of the old Clove, it is the only member of the family that enjoys such immunity from adverse climatal influences. There are not the annual propagation and troublesome details of planting and after care that must be incurred with Carnations generally and many of the choice kinds of Pinks, while every year there will be sure to be an abundance of fragrant flowers for cutting. What can be more beautiful than masses of this Pink covered with hundreds of pure white deliciously-scented blooms?

It is not in the least fastidious as to soil; only let it have plenty of sun and air and room to spread, and it will yearly yield a harvest of fragrant flowers. It makes a capital edging to walks and flower-beds, and has an especially nice appearance as a border to flower-beds on the Grass, with which the glaucous foliage contrasts well. In the foreground of shrubberies where the soil is impoverished and gets very dry the common Pink thrives admirably. Indeed, there is no spot so sunburnt and no soil so poor in which it will not grow and bloom.—J. C. B.

THE TULIP.

I AM interested in all that relates to the Tulip, and carefully read about *Tulipa vitellina* at page 530, last volume. We are not told very much about the Tulips, new or old, but the writer hazards the question, Where are the new Tulips coming from? He is evidently not aware that thousands of new seedling Tulips are being raised in Lancashire and Yorkshire on the lines of the best named varieties (seedlings of *T. Gesneriana*) now in cultivation. I saw a bushel basketful of seedlings of various sized bulbs, all raised from the best rectified varieties. There must have been a thousand bulbs, all different. Some of them have flowered and are a great advance on the old varieties. Some of them have broken into feathered or flamed varieties, but most are still in the heyday of their beauty. The difference between a garden variety of *T. Gesneriana* and the type is very marked, even although the garden variety is a self, as *T. Gesneriana* is. The improved garden forms have a full, open, well-rounded base, beautifully white like a delicate porcelain cup. The petals are broader and so formed at the top that they are almost as regular as the rim of the said cup, and when expanded form half a sphere. The colours are very rich and varied. Seedling breeders (that is, selfs) which may be expected to break into feathered or flamed bizarres are of various shades of yellow, some pale yellow, others orange at the base of the flower. The colour of the flowers varies from a reddish brown to deep red and rich dark maroon; by and by, in the course of years, it may be three or four or as long as ten, the colour instead of remaining solid breaks into streaks. In some cases there is an uneven longitudinal stripe of colour in the centre of each petal—this the fanciers term the beam—the colour strikes off from it in flakes and stripes and it is then termed a flamed flower. Besides the flame there is also a slight feathering of colour round the margin. The remaining colour is the same as the yellow base. The feathered bizarre has merely a light feathering round the upper margin of the petals.

The next class is the byblöemen, and in the breeder form the base of the cup is white, the body of the flower lavender and purple of various shades, some varieties such as Mrs. Jackson being almost black in the feather and flame, and show up so much better owing to the purity of the white. Roses in the breeder form have a pure white base, the body of the flower being rose, rosy red, and in some instances scarlet. It is rather singular that a scarlet Tulip should have a white base, because the base of the cup of the rich-coloured Vermilion Brilliant is of a rich deep yellow colour, and most of the other rich coloured forms are the same when we come to examine the early flowering section. Annie Macgregor (Martin) is described as a brilliant scarlet on a pure white ground, but when the scarlet is minutely examined there is a considerable tint of rose in it. It is really the brightest coloured seedling of the rose-coloured group. The rose and purple-coloured forms in the early flowering class have all white bases to the cup. Anyone desirous of testing the sportive character of *Tulipa Gesneriana* may plant, as I once did, 100 bulbs in clumps in the open border and leave them alone for six years or more; there will in time be plenty of flamed and feathered flowers amongst them, and very many of them slightly streaked with pure white. I have one now beautifully feathered and the white of the petals very pure, but the base of the cup is always stained of a

blackish blue colour. It is this bluish stain that the Tulip fanciers have removed during years of careful culture, the base being now of the purest white, or, as in the case of bizarres, a clear rich yellow. It is easy enough to raise seedling Tulips, but certainly it is not worth while to do so unless with some definite object in view, and well selected varieties should be chosen as seed and pollen bearers. Each class must be kept distinct by itself. For instance, I alluded to Annie Macgregor as being a good flamed flower; it is also found in the feathered state. I would cross the feathered form with a good feathered form of the old variety Heroine, a rich deep rose, with the white of exquisite purity; and the result of this cross would most likely give beautiful and distinct feathered varieties. Lea's Industry is also a lovely feathered rose, and would give good results. In the byblöemen class Talisman (Hardy) heads the list as a flamed flower, while Walker's Duchess of Sutherland would make a good seed or pollen parent. Boardman's Mrs. Cooper and Hardy's Nimbus are the best in the feathered class.

In the bizarres, feathered, Commander (Marsden) and Sir J. Paxton (Willison) are the best. In the flamed bizarres, Dr. Hardy (Storer) is the best red ground, superior to Everard's Bowler, which long took the lead in the south; these two are the only varieties that have a deep red ground colour. Masterpiece (Slater) and Sir J. Paxton both come in as delightfully flamed bizarres. With the above varieties to work with, or even those contained in one class, thousands of distinct and beautiful flowers might soon be obtained. When it is intended to save seeds from a particular flower the anthers must be removed from it before the pollen cases burst.

Seeds are easily obtained, and there is no great difficulty in the way of getting plants. One grower says, sow the seeds in November, another in January, and a third obtained the best results by sowing in April. The seeds may be sown in pots, pans, or boxes in light soil and be buried about half an inch deep; they will vegetate in cold frames, and it will be found at the end of the season that the small bulbs have gone down into the ground to a considerable depth—2 inches or 3 inches. The following season the small bulbs may be planted out of doors in the month of October. Some growers nurse their little seedlings for a second year in pots or pans, but this is unnecessary. Some of the bulbs will flower the fourth year, others in the fifth and later, but nearly all of them flower in the self or breeder form; but in a few rare exceptions the first flowers produced are rectified, and they ever remain so. The very distinct and beautiful byblöemen Mrs. Jackson was never seen in the breeder state. I may add that breeder Tulips are much more vigorous than they are when in the rectified state, and when the Tulip passes from one state to the other the transition is readily apparent, and can be seen in the slight variegation discernible in the leaves. There is a National Tulip Society in existence, and its head-quarters is Manchester. Prizes will most likely be offered for seedlings both in the breeder and rectified state, and these prizes may be the means of bringing out some good flowers. J. DOUGLAS.

SHORT NOTES.—FLOWER.

Galanthus Elwesi.—Our first Snowdrop (*Galanthus Elwesi*) unfolded its flowers in the herbaceous border on Dec. 23; the position is south, in front of the kitchen garden wall. The leaves of another batch of roots, not more than 20 feet away on the north side of the rockery, are only about 3 inches high. Is not this early for even this Snowdrop?—E. M.

Alpine Heron's-bill (*Erodium alpinum*).—In THE GARDEN, Dec. 21, 1889 (p. 587), "A. J. B." asks for information about *Erodium alpinum*. *E. alpinum* (l'Héritier) is a very pretty species, the flowers bright rose, appearing in May and June when the plant is growing wild, and, as far as I am aware, it is not in cultivation. It is not an alpine plant, and it can be found only on the low mountains of Greece and the south of Italy. I doubt if it is hardy at Geneva, but perhaps it might be in England.—H. CORREYON, Geneva.

TREES AND SHRUBS.

HEDERA DENTATA.

THE Ivy affords instructive study during the winter season, and no variety shows such a depth of green as the variety of *Ragneriana* named *dentata*, which is represented in the accompanying engraving. This is a noble Ivy and the largest-leaved of all, the leaves frequently 9 inches across, thick, leathery, and plentiful, so as to furnish a dense covering to wall, arbour, or arch. The illustration shows well the kind of position that suits the giant Ivy. It is useful for places where it would be folly to plant small-leaved kinds, and those who have a position as that shown in the engraving could not

The engraving shows the south face of a brick arch here some 11 feet in height, against the foot of which two plants of that grand Ivy, *Hedera dentata*, were planted about five years ago, one on either hand (unfortunately, that on the right is scarcely shown). They have now not only densely clothed the south side, but have grown over the top and down to the ground on the north side, covering just as thickly a much greater surface than is shown in the engraving.

There are good places in most large gardens for the Ivy in one or other of its various forms; and by planting this evergreen climber more, we should find less repetition of the coarse-growing Virginian Creepers that run riot in not a few places. This climber is useful in its proper place, but an undue preponderance of it



Hedera dentata over a gateway at The Ives, Winchmore Hill. Engraved for THE GARDEN from a photograph sent by G. Duffield.

do better than hide its bald ugliness by a covering of Ivy. For clambering over out-houses, large buildings that want covering, and rough structures, there are no finer climbers than the giant Ives, of which *dentata* is the best. In THE GARDEN of July 6, 1889 (p. 7), there is an illustration given of a characteristic shoot from a plant growing in the Royal Horticultural Gardens at Chiswick, where there is a rich collection of the various types. It is not often that we find such a noble specimen as that in Mr. Major's garden at Winchmore Hill, and we are pleased to be able to give an illustration of it, not only to present the variety in one of its finest phases, but to show the rich value of the Ivy as a climber in the garden. We append Mr. Duffield's own words regarding it:—

creates untidiness, through the litter of falling leaves, and it is excessively coarse, excepting such a form as the close-growing *Veitchi*. Another excellent large-leaved Ivy is *Rægnieriana*. It is a good kind, climbs well, the leaves sometimes measuring fully 7 inches across and 5 inches wide, leathery, rich green, and glossy, different to those of *algeriensis*, another big-leaved form, whose foliage is of thinner texture, smoother, and showing a greater diversity of shape. From now until the spring is the season for Ivy planting, though when the plants are in pots any season almost will suffice. The great point, too often overlooked, is to prepare the soil well, and plant as if it were intended the Ivy should grow. When that is done the growth made is astonishingly

quick, and the wonder is the Ivy should have got the reputation of a slow grower.

PICTURESQUE WILLOWS.

IN a few of our landscapes some of the more ornamental kinds of Willow are very beautiful, but in many instances the reverse is the case, either from want of knowledge in planting, or from the wrong kinds being chosen for particular positions. A group of the Golden Willow, if not too formally arranged, on the bank of a lake or pond, and particularly if backed up or placed contiguous to the Yew or Scotch Pine, is a most pleasing sight in winter. This showy kind can be used with advantage in many positions, and either as a single specimen or planted in a group. The White Willow (*Salix alba*) is another free-growing and very ornamental species, and one that associates well with the majority of our woodland trees. It always has a bright and cheerful appearance, and is not usually injured by the insect pests and boring beetles to which many of the Willow family so readily fall a prey. In the Royal Willow (*S. regalis*)—a little known form—we have another small-growing, but beautiful tree, or rather shrub, and one that could be used with telling effect along the margins of a wood, or indeed anywhere if there are clumps or masses of Pines and Evergreens not far away. It has a silvery tone that is far from common in our woodlands. The red-twigged Mountain Willow (*S. cortieriana*) is another by no means common, though interesting and beautiful form, the branches being of a dark red colour.

Not long ago we were enriched by the spiry-headed *S. sanguinea*, a distinct and very desirable kind that is rendered of great value for ornamental planting by the deep red tint of the twigs, which on a bright day and at a short distance away seem as if varnished with vermilion.

The Bedford Willow (*S. Russelliana*) and the equally well-known *S. Basfordiana* are a worthy couple for ornamental planting, as they are of large growth and with brightly-tinted bark. Attention might here be directed to the Kilmarnock Willow and the ringlet-leaved *S. babylonica annularis*, the latter a most remarkable and unusual form, and certainly when well grown one of the most picturesque plants I know. I would specially recommend this Willow to the attention of planters. Amongst other worthy species of Willow, mention might be made of the American Fountain Willow, which may best be described as a very vigorous grower, but hardly so ornamental as the Kilmarnock tree.

Few trees are more easily managed than the Willows, as they grow luxuriantly in anything but the warmest and driest positions. Then they are so readily cultivated and so easily raised in quantity from cuttings, that once a plant is procured it requires no great time nor skill to get up a stock. But not only from a purely ornamental aspect must we look at the Willow, for economically it is a tree of great value, the wood being largely used, its woolly nature and non-liability to splinter rendering it of value for many purposes. Osiers, too, though hardly so valuable as they were a dozen years ago, sell readily enough, and give a fair return for the almost worthless ground on which they can be cultivated.

A. D. WEBSTER.

Berberis concinna.—This is usually regarded as an Evergreen, but out of a number of seedling plants we have, not one can really be looked upon as such, though there is a very great difference to be found among them as to the length of time the leaves are retained. Some have been without foliage for the last month, while in the case of others the leaves are just changing to a bright glowing red colour. At all times *B. concinna* is a pretty little Barberry, but not vigorous enough in constitution to hold its own among the more strong-growing members of the same genus, being in fact more fitted for a good rockwork or in some position where it would not be encroached upon by more vigorous plants placed near it. It is a native

of the Himalayas, and forms a dwarf, much-branched bush, whose slender shoots are clothed with neat roundish foliage, light green above and of a beautiful silvery-white underneath. It is also very desirable from a flowering point of view, as the pale yellow blossoms, which hang from the undersides of the shoots, do not expand till July and August, at which time very few hardy shrubs are in bloom. Though some plants from the same region are rather tender, this Barberry seems to be quite hardy in most parts of England.—T.

THE PRIVET.

"J. I. R." (p. 159) has clearly libelled the Privet, for not only is the common kind when left alone anything but an unlovely shrub, but there are Privets and Privets, and perhaps under the circumstance a slight enumeration of the best may do no harm. They are capable of playing a rather important part in garden decoration, for as a rule they will grow in any kind of soil and with few exceptions are utterly indifferent as to climate.

The common sort, of which there is an evergreen as well as a deciduous form, is often the only shrub seen in a healthy condition in the central parts of smoky towns, but when seen as a vigorous undergrowth along woodland walks it is as attractive as anything can be. But when we come to the named kinds we find many exceedingly handsome shrubs.

LIGUSTRUM AMURENSE is a compact growing sort, generally attaining 3 feet or 4 feet in height by about the same in width. It is not a very leafy kind, the small spikes of white flowers being freely produced, and in the summer months they give it quite an attractive appearance.

L. IBOTA is a most distinct habited sort, dwarf in stature, and with small coriaceous Box-like leaves of a deep green colour, perfectly hardy and evergreen, and most useful in even the smallest garden.

L. ITALICUM is of free growth with erect, flexible branches, densely clothed with narrow, pointed, glossy foliage and small spikelets of white flowers. In some respects this resembles the evergreen form of the common kind, but is different in habit.

L. JAPONICUM in the warmer parts of the country grows into a tree 30 feet or so high, evergreen and handsome. The inflorescence is profuse, creamy white in colour and bears much resemblance in this respect to that of the Flowering Ash. It does not occupy much room, and is a distinct feature amongst the shrub and tree life of a garden. *L. japonicum macrophyllum* has larger leaves than the last, but in other respects differs but little. *L. Triomphe de Bordeaux* is a most vigorous and handsome evergreen shrub, and promises to become a valuable Evergreen in all mild localities.

L. LUCIDUM ranks amongst the most distinct of flowering shrubs, the glossy, evergreen leaves being at all times most attractive, while the large lilac-like panicles of pure white sweet-smelling flowers add greatly to its value. *L. lucidum macrophyllum* differs from the last in having more numerous, larger and deeper green leaves which are distinctly concave or channelled. Its habit of growth is rather more erect.

L. SINENSE NANUM, has, I think, no equal as a flowering shrub. It attains ultimately 6 feet or 8 feet in height, with an almost horizontal arrangement of branches. It is quite evergreen, and in late summer becomes a dense mass of lace-like, creamy-white flowers, so much so as to quite hide the foliage. As a single specimen in a small garden it is most desirable, but when three or five are planted together on the Grass to form a clump, it is seen to most advantage.

L. STAUNTONI in appearance is a good deal like *L. Ibota*, but of a more prostrate habit of growth. When on its own roots it spreads along the ground, and is then a good subject for the rockery, and when grafted 3 feet or 4 feet high preserves the same horizontal habit, and is then a most distinct and curious specimen. The flowers are pretty and produced in large panicles for the size of the shrub, but generally so late in the season that they never open well.

L. OVALIFOLIUM is a most hardy and useful oval-leaved Privet. As a vigorous town shrub it has no equal, and it thrives amazingly at the seaside. It will clothe a wall in a backyard where the sun's rays never reach, and it grows well under trees where scarcely anything else will live. If the soil is rich and deep, it grows vigorously, and if there is scarcely any soil at all it manages to hold its own. Where it can develop, it is a handsome flowering shrub—almost a tree—and is evergreen in all but the severest winters, when it sometimes drops its leaves.

I am not much in love with the variegated kinds, although in a small state they are no doubt all pretty; still the best variegated form of *L. ovalifolium* (of which there are two) makes a bright yellow-looking bush in good soil and clear air. Perhaps the best of all is a new golden-margined form of the large-leaved *L. japonicum*. Not only are the leaves of this broadly margined with rich yellow, but the yellow more or less suffuses the whole leaf. It appears to be a vigorous grower, and if it attains to the stature of the typical *japonicum*—and there seems no reason why it should not—it will produce an effect hitherto unattainable by any shrub I know. There are many other good kinds both evergreen and deciduous, all having some desirable feature, but often needing special climatic conditions and which it is not necessary to enumerate here. At any rate, I think I have made out a case for the Privets. T. SMITH.

THE BLACK JACK OAK.

(*QUERCUS NIGRA*.)

THE shining green leaves of this are so distinct from those of any other commonly cultivated species, that even the casual observer has little trouble in determining the particular kind.

Broadly wedge-shaped, describes well the shape of the leaves, which are, moreover, of a deep shining green above and somewhat lighter beneath, and frequently from 8 inches to 10 inches long. They have somewhat of a crested appearance from the wide and flat shape of the leaf tips, the lower portion narrowing sharply to almost a point. In many cases the leaf tips seem almost as if they had been cut across.

But not only for its peculiarly distinct foliage is the Black Jack Oak of interest to planters, but likewise from the autumnal tints displayed by the leaves, for before they fall off the tint is not far behind that for which the Scarlet Oak (*Q. rubra*) is so esteemed. It is a tree of great value for dotting here and there in conspicuous places, especially around the margins of plantations and where its distinctly shaped foliage and remarkable dying off colouring can best be appreciated. Of low growth, for the majority of our oldest specimens are not over 16 feet or 20 feet in height, this Oak is also of value for planting in confined spaces, or where little room for a great branch-spread can be afforded. In several gardens where there is hardly sufficient space for a Holly or Portugal Laurel this Oak seems as healthy as if it were grown under more advantageous conditions.

No tree is more readily suited with soil than the Black Jack Oak, for plant it where we will, unless indeed in places where its roots are constantly exposed to damp, it will flourish. Some of the Black Jack Oaks, whether from varietal difference or not, I cannot say, only attain to the dimensions of a good sized bush, from 5 feet to 7 feet in height, and nearly as much in spread of branches. This can hardly be due to the quality of the soil in which the tree is planted, for others growing at no great distance away and, I would say, under exactly the same conditions are three times that height. There are no differences that I can detect either in the size or shape of the leaves of the dwarf and tall-growing forms. A pretty form is that sold under the name of *Q. nigra nobilis*, but it does not differ much from the typical plant, the leaves being of more regular outline and without the flat tip, while they assume in autumn a bright ruddy hue that is much admired. Both the species

and variety are worthy of culture if only for their leaf-shape and the bright tint of the fading foliage. A. D. WEBSTER.

Tree Carnation Duke of Fife.—I lately saw a few fine plants of this new scarlet Carnation. The plants were about 3 feet high, each having several strong flowering shoots. Some of the plants had several blooms open and many more to follow. The flowers, of a clear bright scarlet colour, had broad smooth petals, but were not very full, which is, perhaps, an advantage, as the more double flowers do not open so freely in winter. Although we already have a number of scarlet varieties, this recent addition should become a great favourite, for it appears to possess several very desirable qualities, viz., a robust habit and an abundance of bloom which opens well and of a clear decided colour. Florain is another good scarlet, the flowers being a little deeper in colour. Mrs. Moore, a pure white variety, may also be strongly recommended. It is somewhat after Mlle. Carle, but appears to be a better grower and the flowers are larger. If this should maintain its character it will prove a valuable addition to the white varieties, among which there is room for further improvement. We cannot hope for much advance on old varieties, perhaps, but by adding new sorts and discarding those which have become weak and otherwise deteriorated, from being grown under artificial conditions, we may keep up a healthy and vigorous stock.—F. H.

GARDEN FLORA.

PLATE 734.

ALPINE PINKS.

(WITH A COLOURED PLATE OF *DIANTHUS NEGLECTUS*.)

IN the latest monograph of this handsome genus of hardy plants no less than 231 distinct species are enumerated, with perhaps about a quarter as many varieties. Notwithstanding all this, the number in cultivation may be safely estimated at something considerably under fifty. Names, we know, there are in abundance, and one may fill borders or beds with plants, but at flowering time he will find, much to his chagrin, that the majority are plumarius forms, and all the rest slight forms of *D. Seguieri*. Such, at any rate, has been our experience, and we have been for years trying to work up a collection of these lovely garden plants. They are distributed chiefly through Europe, temperate Asia, and North and South Africa. The great majority of them are perennial, from an inch to a yard in height. A few are annual, and a very few biennial. There are also a few garden hybrids of more than ordinary merit, amongst the most notable being *D. Atkinsoni* (a plate of which appeared in *THE GARDEN*, Jan. 12, 1884, p. 22) and that handsome hybrid *Grievei*, raised in Edinburgh some few years ago, between *D. alpinus* and *D. barbatus*. In *D. Grievei* we have the robust, free-flowering characters of the Sweet William with the size and colour of the fastidious *D. alpinus*. It is certainly a great acquisition, and we find it one of the most useful early-flowering rock plants we possess. One wonders at the small number of hybrids in this variable genus when we remember how easily the taller forms at least cross with each other when grown in a bed together. From Transylvania we have had several new species within recent years, and these when well established may prove of no little importance as garden plants. They are larger and more robust than

* Drawn for *THE GARDEN* in the Royal Gardens, Kew, June 16, 1889, by H. G. Moon. Lithographed and printed by Guillaume Severeys.



PLANTING IN THE SOUTH

our own alpine forms, and may be useful in forming a new strain of alpine Pinks. The group which is illustrated by the coloured plate is a very useful and important one in the rock garden, their success or failure depending to a very large extent on the rockery itself. The Pinks, like most alpine plants from these high elevations, are essentially moisture-loving plants, and during spring and summer moisture must be given in such a way as to interfere as little as possible with the tufty crowns. Moisture about the neck or a stagnant soil is almost certain death. Another essential to success is that the roots should be kept cool during the hot summer months, and this can only be done by burying stones inclined at about 45°, so as to give the roots an opportunity to get out of the way of drought, &c. The wireworm seems to be the deadliest enemy of this handsome group, and when an affected tuft is found, the only plan is to lift it, wash off all the soil, and replant again in a fresh mixture. In this way we have saved numerous tufts of *D. alpinus*, which in the south seems the most liable to its ravages.

Dwarf species not noticed in detail are *D. tenuifolius*, *vaginatus*, *callizonus*, *petreus*, &c.

THE ALPINE PINK (*D. alpinus*), a coloured plate of which appeared in THE GARDEN, Aug. 30, 1884 (p. 184), is a somewhat rare and very beautiful species, scarcely ever met with doing well under cultivation, unless in the north of England and Scotland. Our summers in the south do not seem to suit it very well, and although we get a wealth of foliage and of a rich green hue, the plants always flower sparingly. Wireworms rather than unsuitable soil are blamed for this failure, but we have found that unsuitable soil weakens the plants and renders them subject to this pest. Our plants in pure well-decayed leaf soil have always been healthiest and flowered the most freely. *D. alpinus* seems to require plenty of moisture, and may be grown as near the ground level as possible, if water be not handy to give it periodical drenchings. The more exposed the position the sturdier and healthier will be the clumps, and the more chance of a good show of lovely large deep rose-crimson spotted flowers. It forms dense masses, and may be increased readily by division, although we prefer propagation by seeds, which it rarely fails to ripen. There are several forms of *D. alpinus* in cultivation at the present time, notably one called *tener*, much more useful plant in the south at any rate, as it never fails to yield abundance of flowers, which, though smaller and not so bright, are produced in such profusion as to make it an acquisition. The best of this class, however, was distributed as *D. glacialis*, and is probably a hybrid between the two. The plant is altogether dwarfer, the leaves narrower and not so blunt; while the flowers, which are of a bright deep rose, are borne in rich profusion, and are nearly as large as those of *D. alpinus*. We have grown this form on the rockery for many years now, and although it has never failed to flower freely, we have never yet been able to obtain a single fertile seed. The pods appear plump enough, but when opened will be found to contain chaff only. It must not be confounded with the true Glacier Pink, of which, however, it is a near ally.

THE CHEDDAR PINK (*D. cæsius*), though not strictly belonging to this group, is such a valuable rock plant and so easily managed, that an effort should be made to increase its popularity. Sunny, dry, and stony exposed places suit it admirably, and all the better if it can be planted in chinks of limestone rock, failing which, old mortar will do very well. It forms dense mats of short, very glaucous leaves, and produces in May and June in the greatest profusion its large rosy, fragrant flowers. The seeds will vegetate freely if sown on old mossy grown walls, over which fine soil may be scattered with advantage. It may be increased by division also, but seeds are produced in such abundance as to render this course unnecessary.

D. GELIDUS.—This charming little Pink we have had recently imported from the Transylvanian Alps, and it seems to be taking to its new quarters very well. It appears to be intermediate between the glacier and alpine Pinks, and is placed as a sub-species or distinct variety under *D. alpinus* in Nyman's "Conspicua Europæus." It has much the same dwarf sturdy habit as *D. glacialis* and *D. alpinus*, the leaves thin, bright green, narrow, and acutely pointed, the large bearded flowers being rich rosy purple, spotted white near the throat. We have not had it long enough to speak with confidence of its merits as a rock plant, but so far it promises well.

THE GLACIER PINK (*D. glacialis*), which we have been able to obtain only from seeds imported direct from the mountains of Central Europe, is a handsome little species, and though the flowers are small compared with those of *D. alpinus*, they make up for lack of size in profusion and in richness of colour. We have had plants imported, but have never succeeded in establishing them, although we have no difficulty whatever with those raised from seed. It does better in crevices of the rockery as high up as may be possible, peaty or leafy soil well mixed with hard chips of granite or marble being all it requires. It forms compact little tufts of rather longish narrow-pointed leaves, which during the summer are thickly studded with charming rosy-tinted flowers, the petals serrated and slightly reflexed. Introduced about 1828.

D. NEGLECTUS, represented in the accompanying plate, is certainly one of the loveliest, the most easily managed, and, in our opinion, the best of all the dwarf alpine Pinks. As it grows with us on the rockery on open positions fully exposed to the east, it retains its dwarf sturdy habit, with which it combines the fine form and brilliant colour that always characterise it in its native haunts. When brought into cultivation, it is not unusual with plants from these high altitudes to become so strong and luxuriant as to be hardly recognisable even by those well conversant with the South European flora. This robust character, which is most undesirable with our alpine plants, is due either to the want of sufficient light or exposure and too rich a soil. The present species of Pink, as usually seen in gardens, grows from 5 inches to 8 inches high, while from 1 inch to 3 inches is the highest it ever attains in its native habitat. It will stand any amount of exposure and cold, and we find it keeps much healthier, and produces its brilliant flowers in greater profusion in a rather poor sandy soil than in any other we have yet tried. It forms tufts resembling short wiry Grass, the leaves slightly glaucous, differing chiefly from those of the alpine Pink in their being shorter, narrower, and more pointed. The flowers are surpassed by those of no alpine known to us in their vividness and purity of colour, and when doing well it is a most striking feature on a rockery. The flowers, as may be seen from the plate, are almost as large as those of *D. alpinus*, of a deep, pure, and most brilliant rose colour, the margins of the petals slightly notched or serrated, which enhances its attractiveness. As may be already gleaned, it has a vigorous constitution, with none of the fastidiousness characteristic of *D. alpinus* and *D. glacialis*; indeed it may be classed amongst the easily grown, as it gives no trouble either in pots or on the open rockery. It is a native of the highest Alps of Dauphiny, the Pyrenees, Switzerland, &c., and may be readily increased by division or seeds, which ripen in bright summers. It is by some considered a variety of the Glacier Pink, but it is distinct enough to warrant its being considered a true species.

D. K.

Bambusa Ragamowski.—This is a charming dwarf Bamboo which we find most useful for the rockery during the winter months. In appearance it is more like a dwarf *B. Metake* than anything else; the leaflets bright green and about an inch broad. It is perfectly hardy, and along with *B.*

nana, *B. Fortunei*, and the variety *variegata*, makes a very effective group. With groups of such graceful evergreen plants as these the rockery has a furnished and fresh appearance even in the depth of winter.

STOVE AND GREENHOUSE.

CROTONS.

WITHIN the last few years there has been a revival in the love of these beautiful plants, but hardly to the extent they deserve. The great diversity of form, the rich and varied tints of variegation, are not to be found in any other family of plants. Beautiful as the variegation is in the spring, when the plants are making their growth, their attraction is considerably enhanced later on, when the paler shades begin to change to the more ruddy tints. All the varieties do not take on the red tints, but a sufficient number do so to form a nice contrast to those which retain the golden-yellow variegation.

It requires some skill to bring Crotons to their highest state of perfection, and when badly managed there is little in them that is beautiful. Large specimens are very attractive, but the most beautiful plants are those of one season's growth with a single stem. Crotons are not difficult subjects to propagate. In a close propagating pit with a brisk bottom-heat cuttings may be rooted at any season of the year. There is no better time for propagating them than during the winter when the plants are dormant, and there is then generally a better command of bottom-heat than in the warmer weather when less firing is necessary. The cuttings selected from the best coloured tops of the old plants, may be taken off 2 inches or 3 inches long and put in singly into small pots, using light sandy soil. If the cuttings are taken off and put in without any delay, they will be better left for a short time without any water, but not long enough for them to get withered. With ordinary care almost every cutting will root and scarcely a leaf will be lost. As soon as the cuttings are well rooted they should be gradually exposed, and after a few days they may be removed from the pit and placed on a shelf near the glass in the warmest part of the stove. Unless a regular temperature can be maintained, it is better not to encourage the plants to start into growth until a little later in the year. The plants may be potted on into larger pots about the middle of February. Rather light peaty soil is most favourable to the variegation. If rich loamy soil is used, the plants will grow too freely and produce too much green in the foliage. An important point in the development of colour is to keep the plants up to the glass and to avoid shading as much as possible. It will be only during the brightest days of summer that any shading will be necessary, and then only during the middle of the day. Of course, plants so much exposed to the sun require careful attention to watering, &c., while red spider must be guarded against by frequently syringing the plants. Soot water may be used freely, both for watering and syringing, but for the latter purpose it should be quite clear. Where it is desirable to confine the plants to small pots, a little stronger stimulant may be used occasionally while the plants are making growth. The chief points towards success are to take the cuttings from well-developed tops while they are dormant, expose the plants to all the light and sun possible, avoid any check while the plants are making growth, and keep them free from all kinds of insect pests. From the great number of sorts that are now catalogued it is difficult to make a selection and confine the number within any limit, especially as there are hardly two persons who would be of the same opinion. Another point is that under different conditions the same varieties vary in character to a considerable extent. If I were confined to twelve sorts I should select the following: Countess, ruberrimum, Warreni, musaicum, Massangeanum, Gordoni, Etna, Comte de Germiny, nobile, Lady Zetland, caudatum tortile, and Weismanni. The selection is made from sorts

most suitable for ordinary decoration, where it is necessary to confine plants to, say, 5-inch pots.

F. H.

WHITE INDIAN DAPHNE.

THE beautiful *D. indica alba*, which is not seen half so much as it deserves to be, is a well-deserved favourite with all who succeed with it. In reality, its culture is simple if its likes and dislikes are properly attended to. It does better planted out than in pots, but in either case it must be kept cool at all times of the year, well shaded from the sun, and constantly syringed. Peat, loam, and coarse sea

well-arranged propagating pit will very soon repay its cost. It can be kept in use throughout the year if necessary, but is most useful when there is a fair amount of heat in the pipes to keep in check any probable injury from excess of moisture. Our pit for this purpose is arranged at the warmest end of a lean-to stove where the pipes enter the house from the boiler. Bottom heat is provided for by means of a flow and return 4-inch pipe underneath, over which is placed some old iron fencing, that being covered with slates to prevent the plunging material from being wasted. For the latter we use cocoa fibre refuse, which is one of the best mediums for promoting root-action under these conditions. The pit is divided into three compart-

menting material in place of hot-water pipes for bottom heat. It is not so steady, and, besides, there is a danger of scalding if kept too close. The quantity of plants turned out of our pits has been somewhat surprising, so also is the rapidity with which they establish themselves even in the winter months, when the pits are always full.—J. H.

Strobilanthes isophyllus.—This species of *Strobilanthes*, which was formerly included in the genus *Goldfussia*, is a pretty free-flowering subject, which blooms at this season of the year. It is a freely-branched, but somewhat upright growing plant with lanceolate leaves of a very deep green tint and lavender-mauve coloured flowers. They are borne in considerable numbers, and though they do not remain long on the plant, a succession is kept up for some time. Like many others of its class, this *Strobilanthes* needs an intermediate or warm greenhouse temperature to flower it properly at this season. The cuttings should be struck in the spring and grown on as cool as possible during the summer, as by this means the foliage is much better than when too much heat is used at that period. In the spring, after the required supply of cuttings has been secured, the old plants may be thrown away, as young ones are always more satisfactory.—H. P.

Darlingtonia californica.—In THE GARDEN (Dec. 21, 1889, p. 569) there is a statement inadvertently made that I had a specimen of this plant bearing a leaf pitcher 3 feet 9 inches high! There is such a plant at Mount Merrion Gardens, near Dublin, where it has been grown to its present state of vigour and luxuriance by Mr. Duncan Welsh, the well-known gardener at that fine old place. Mr. Welsh has had the plant in his possession about twelve years, having grown it to its present dimensions from a small plant presented to him by the late Dr. David Moore. It is at present growing in a pan 12 inches wide and about 7 inches deep, and has about forty pitchers or more all over 12 inches in length. Five of these pitchers are of enormous size, the tallest measuring 3 feet 9 inches high; then come three others quite perfect and over 3 feet 6 inches in height, and another or two over 3 feet. The lower part of the plant at the base of the larger pitchers is occupied by a mass of smaller pitchers varying from a few inches to a foot in length. I do not know of anything approaching this specimen in Europe, and hope by the kind courtesy of my friend, Mr. Greenwood Pim, to send you a photograph of the same.—F. W. BURBIDGE.

Pernettyas as pot plants.—You do well to call attention (GARDEN, Dec. 21, p. 569) to *Pernettyas* as pot plants. I have often wondered why gardeners and others responsible for the embellishment of cool conservatories, corridors, balconies, &c., were, as a rule, so slow in recognising the merits of these fine plants. *Pernettyas* do not usually produce fruit freely in this country, although enormous quantities of bushy plants covered with richly and variously coloured berries are annually imported into England from Ireland. These, if procured early in the autumn and put in suitable pots with a peaty compost, will prove valuable for decorations during the winter months. Great improvements in the habit of growth of these plants and colour of berries have been accomplished of late by various nurserymen who make a speciality of the *Pernettyas*. The varieties of *Pernettya mucronata* with white, cream, lilac, rose, crimson, and purple berries are the best for pot culture.—C. L.

Propagating Bouvardias.—In my recent note on this subject I am made to say that "the method described by 'T.B.' is undoubtedly the most popular among market growers;" whereas the reverse is the case. "T.B." recommended the old-fashioned plan of heading back plants that have bloomed after giving them a long rest in order to favour the production of young shoots. This, as may be seen, differs from the method mentioned by me, and which consists in taking the cuttings from plants propagated late in spring that do not reach blooming size by autumn, and that are kept



White Indian Daphne (*D. indica alba*).

or other sand suit it, but I believe the chief secret of success is in perfectly cool treatment. I have a plant in my conservatory against one of the pillars, and now about 9 feet or 10 feet high, from which, without exaggeration, a hundred heads of bloom have been cut during a single winter season. The delicious, spicy fragrance of the pure white blooms all through December, January, and February, besides that it is particularly useful for bouquets and button-holes, make it highly valued, and at other times of the year the glossy dark green leaves form a good background for other things. C. D.

Propagating pits.—Wherever a good supply of plants has to be maintained for decoration, a

ments, each having its movable light. I have had one of the three raised a foot or so higher for striking larger cuttings singly in small pots. Such plants as *Crotons*, *Ficus elastica*, *Dracenas* and *Aralias* strike quickly, each cutting being in itself quite large enough for decoration as soon as it is well rooted. Such a pit could be arranged in many a stove in accordance with the room at disposal. Two divisions at least should be arranged, so that the necessary treatment for given subjects can be varied. Lately I have added another pit, which is not, as a rule, covered at all, but it affords at all times an excellent spot for plunging young plants in the fibre after they have been removed from their closer quarters. I have found these pits to be most valuable, and would not be without them on any account. I do not by any means advise fer-

in a genial temperature through the winter. Such plants do not require to be cut back, but are growing away at a time when the old headed-in specimens are but beginning to break again. The plants that furnish cuttings early are by May bushy specimens in 4½-inch pots ready for shifting. Whether for cut bloom or for early sale as pot plants they have a good start on plants propagated in the usual way.—J. C. B.

ORCHIDS.

GRAMMATOPHYLLUM ELLISI.

I AM asked to say something about this species for the information of a reader who has recently had this plant sent him from abroad. The plant is a native of the island of Madagascar, having first been discovered and brought home in 1859 by the late Rev. Wm. Ellis, of Hoddesden, whose name it bears; he, however, does not mention much about it in his book, but he said he had brought home a large-bulbed plant something like *Anguloa Clowesiana*.

The plant, however, is not an *Anguloa*, as no *Anguloas* are to be found in that country, and one especial difference from that genus independent of its blooms lies in its compressed and sharply angled bulbs. For a long time this plant was exceedingly rare in this country, but more recently it has become tolerably plentiful through the large importations of the Messrs. Low and Co., of Clapton, where I have seen it in quantity and growing splendidly. It differs entirely from the other species of the genus; indeed, Professor Reichenbach has put the plant into a distinct genus, which he distinguishes by the name of *Grammangis*. It is a somewhat dwarf plant, making pseudo-bulbs, which vary from 6 inches to 12 inches in length, and bear upon the summit numerous leaves. The flower-spikes come up with the young growth, and they are freely produced when the plant is strong; the spike is long and pendent, bearing a somewhat dense raceme of flowers ranging from ten to twenty or more in number. The flowers would appear to vary somewhat in colour; the sepals have a ground colour of yellow, which is thickly covered with transverse dotted lines of reddish-brown. The petals are much smaller, the base yellow, the tips streaked with reddish-brown, lips small, the front lobe profusely streaked with purple. The flowers are produced during the late summer and autumn months, and they last a long time in perfection. The plant requires to be grown in the warmest temperature, and as Mr. Ellis says he found the plant growing upon the branch of a tree overhanging a river, it may be inferred that it enjoys an abundance of atmospheric moisture. It grows well under cultivation in a hanging basket. It also does well under pot culture, but in my opinion the hanging basket is more congenial to its requirements. The plants should be well drained, and the soil used may be good peat fibre and Sphagnum Moss. During the growing season the plants should be liberally supplied with moisture, and they may also be frequently syringed overhead. When at rest in the winter very little moisture will be needed, but, judging from its natural habitat, it should by no means be allowed to suffer from over-dryness. This is a plant well deserving every care and attention, for not only is it peculiar to Madagascar, but it commemorates one that devoted his spare time to the cultivation of this class of plants.

W. H. GOWER.

Lycaste Skinneri alba.—Few white flowers are more effective than this, and a very nice form is now flowering in the gardens of Mr. Jacomb, Cheam

Park, the flowers being large and the segments broad. It is a good thing to find this beautiful variety becoming more common, as it should be everyone's favourite. It is as easily grown as the typical plant.

Dendrobium Jamesianum.—This was recently flowering unusually well in Mr. Jacomb's garden at Cheam Park. The plant was strong and the flowers large and numerous. It lasts in bloom a long time, and the clear white of its flowers, set off by the cinnabar-red of the lip, renders it welcome, particularly at this season.

Catasetum Bungeorothi.—This plant is now finely in flower in Mr. Larkins' garden in Highbury New Park, and Mr. Rann, who has charge of the collection, tells me that this is the fifth spike of bloom the specimen has borne in twelve months. This should satisfy everyone of the freedom of flowering of the species, the large ivory-white flowers being a very great attraction. This *Catasetum* and the majority of the Orchids are growing remarkably well, and the London air does not seem to affect them.

Phalænopsids at Cheam Park.—These plants are thriving well in this establishment. Amongst the kinds now flowering are *P. amabilis*, some excellent varieties; *P. grandiflora*, *P. Schilleriana*, *P. Stuartiana*, and *P. gloriosa*. Of this last species, which is one of the novelties of Messrs. Low & Co., of Clapton, a coloured plate was given in THE GARDEN, April 20, 1889. Mr. May, who has charge of the collection, finds that they thrive with less heat than is usually given to them.

Odontoglossum nebulosum pardinum.—An excellent variety of this plant was recently flowering with Mr. White, of Winchmore Hill, the flowers being large, white, and heavily spotted with reddish brown. *O. nebulosum* is a species which usually appears to me amongst the least desirable kinds of this large genus, but such a variety is a superb gem and well deserves every attention. The species does not appear to have developed many varietal forms, although it is considerably over fifty years ago since it was first discovered, its usual flowering season being the end of spring and the beginning of summer.—W.

White Lælia anceps.—A very good form of this plant was recently flowering in Mr. Horsman's collection at Colchester, the sepals and petals being pure white, as also the lip, saving the inside of the side lobes, which were yellow striped with crimson, the disc being deep yellow. It was a form very much like *Williamsi*, which was imported by Mr. Sander some time ago, and named by him in compliment to Mr. B. S. Williams, of Upper Holloway, but the flower so named we have usually seen larger. There are more, however, to open from this importation, and some of the larger plants may prove it to be this fine form.

Oncidium splendidum.—In several collections round London I have found this plant either in flower or about to bloom, thus proving it to be a thoroughly useful winter-blooming species. The imported plants also keep up a continual and free display, which is more than can be said of the original form of the species. Naturally this is said to grow upon the ground, sending up its flower-spikes amongst the Grass and other herbage, but when at rest the herbage is all dried up. It thrives best under cultivation in hanging baskets well drained. It comes from Mexico.—W. H. G.

Odontoglossum Jacombianum.—This beautiful plant, which received a certificate some three years ago when exhibited by Mr. Jacomb, is now flowering in his garden at Cheam Park. It has a branched spike bearing some 36 flowers, which measure each about 3½ inches across. The sepals are much undulated, white, suffused with rosy-purple, heavily blotched and spotted with chestnut; the petals slightly smaller, with a purer white ground, spotted with chestnut, and with longitudinal lines of the same colour at the base; lip oblong, cuspidate, destitute of the shoulders so conspicuous in *O. crispum*, and quite resembling *O. Ruckerianum*, to which, indeed, the plant appears very nearly allied, but certainly finer than anything we have ever seen in this way. It is white, slightly stained with yellow at the base, with a semi-mar-

ginal row of chestnut-brown dots, and a large spot or blotch of bright chestnut-brown in the centre. In growth the plant resembles *O. crispum*.

Odontoglossum blandum.—I have received from three different sources flowers of this species, and I am pleased to find this plant becoming so well distributed. It is a charming species, and should be included in every collection of cool Orchids. In answer to Mr. O'Donoghue, I may say it is now twenty years ago since it first flowered in this country, but it is upwards of twenty-five years since it was first found by Blunt, when plant collector for the Messrs. Low & Co., of Clapton. In 1870 the late Professor Reichenbach lamented over the immense quantity of plants which arrived in this country in a poor condition. The flowers are very uniform in colour, the sepals and petals being about equal, white, more or less dotted and spotted with reddish-purple, the lip being of the same colour as the petals, with the addition of a little yellow at the base.—W. H. G.

THE WEEK'S WORK.

KITCHEN GARDEN.

PREMATURE SEED-SOWING.

SHOULD the weather be at all mild and the ground in fairly good working order during January, many will be tempted to carry out instructions contained in the particular calendar or oracle they may consult or be guided by, among these being the sowing of various seeds. As far as the open ground is concerned, nothing will be gained and much may be lost by sowing seeds thus early. It is worse than useless to bury seeds in the cold ground, only to lie dormant or perhaps to decay during February and it may be the early part of March. All seeds require a certain amount of heat to cause them to germinate, and even if this were forthcoming in January, the alternate frosts, thaws, and cold drying winds usually experienced in February and even later effectually check the growth of the poor seedlings. Both the tops and roots of nearly every kind of vegetable raised have their enemies, and the sooner therefore they attain vigour the better. This season the seeds generally, and notably Peas, are apparently well ripened, in fact I never saw better samples, and as a consequence there will, or ought to be, fewer complaints of non-germination. We never sow seed of any kind of vegetable in the open during January and but few in February, and in spite of a cool subsoil, our crops are generally as forward as any in this district. I hold it to be quite early enough to sow Peas, Broad Beans, and Spinach during the first or second week in February, and that the early part of March is quite soon enough to sow a pinch of seeds of early Carrots, Radishes, Parsley, Lettuce, or anything else needed rather early by those who are unable to grow or raise any under glass. As a matter of fact, there is a tendency throughout to sow seeds of the various crops too early or at a fixed date, and without paying due regard to the state of the ground and other local circumstances. On no account should seeds be puddled in, nor will they germinate properly if sown on rough, lumpy ground. In any case, some kind of shelter must be accorded delicate seedlings when these are raised extra early, or they will be eventually overtaken and surpassed by those obtained from much later sowings. Nor is it wise to raise plants under glass long before they can be either given more room or turned out into the open. For instance, if Lettuce, Brussels Sprouts, Cauliflowers, Celery, and Tomatoes are sown in pans or pots and placed in heat, the seed will germinate quickly, and the plants most probably soon touch each other all round. Now, unless after being slightly hardened off by being placed on a shelf near the glass in a somewhat cooler house, all will in the course of a few days become drawn and weakly, and rather than attempt recovering these in pans and boxes, I would much prefer to raise a fresh lot, taking care that these shall not be long in advance of the

facilities for properly growing them to a serviceable size.

PREPARING FOR SEED-SOWING.

Where the soil is naturally light and free-working, the conditions are most favourable to an even germination of seeds whatever the ultimate result may be, and, added to this, there are usually fewer insect pests, notably slugs, abounding. I am in hopes the heavier soils will break down more freely than usual this spring, especially where they have not been interfered with when in a wet state, but, whether they can be got into a fairly finely-divided condition or not, it is advisable to have a good heap of fine light soil in readiness for any emergency. If the surface soil of old Melon, Cucumber, and Tomato beds has been saved together with old potting soil and other accumulations of inferior leaf-soil, rotten tan, common sand, and perhaps the contents of a smother or slow fire, as well as an old Vegetable Marrow bed, a fine heap of compost may be formed. All should be run through a moderately coarse sieve or screen, then thoroughly well mixed together and kept in one large conical heap. This will be found very suitable for placing in frames and pits intended for forcing Carrots, Radishes and Potatoes, and also for raising early Celery and other plants, though enough should be saved for the open garden. If necessary, some of this light compost ought to be distributed freely in the drills prior to sowing seeds, and a covering of the same given. Thus treated, not a sound seed sown at anything like the proper time ought to fail, and all must admit that a good even start or "plant" is a decided gain, which more than compensates for the extra trouble taken in sowing and covering the seeds. W. I.

PLANT HOUSES.

STOVE.—CROTONS.—Where fine-leaved stove plants are grown to a larger size than the ordinary small stock that is used for grouping, it is necessary with a good many kinds to cut back the shoots, more or less, once a year. The best time for this is about the beginning of the year, as then all the succeeding growth that is made goes to refurnish the plants. Crotons especially require to be treated in this way. With them the knife may be freely used. Previous to cutting in allow the soil to get a little drier than it would be safe to let it get during the active season of growth. Where much hall and room decoration is done, Crotons are the most important of the variegated subjects, particularly the long, narrow-leaved varieties. Their graceful drooping habit and bright tints answer the double purpose of giving colour to the green plants associated with them, such as Palms and Ferns, and to some extent take the place of flowering subjects. When used in this way the plants look best confined to a single shoot, or with only a few small side branches near the bottom. To have sufficient stock in this condition it is necessary to propagate every year. The branches cut away will afford the requisite material for this, and it is better to get all that are needed struck thus early than to put off the work until spring. By this means there will be so much longer time before autumn in which the plants can reach a size that will make them of use for table decoration. The leading shoots make the best plants, and choose only those that have the leaves well coloured. It used to be supposed that anything in the shape of manure water, or stimulants applied in the form of surface dressings of concentrated manure would tend to the production of gross foliage; whereas the reverse is the case, so that if manure water is used freely during the spring and summer it gives the desired colour. This will be found more effectual than any addition of solid manure incorporated with the soil at the time of potting. Loam usually tends to the production of brighter coloured leaves than peat, and, where large specimens are required, the plants can be kept in a vigorous state in smaller pots than would answer without assistance in this manner. But the liquid should not be given until later on when the growth has begun to move freely. If the plants have been at all affected with any insects, such as mealy bug or thrips, ad-

vantage should be taken to dip in or syringe them freely with insecticide. When the softest shoots are removed it can be used stronger than the leaves would bear when young and immature.

DRACÆNAS.—As the plants attain size they begin to lose their bottom leaves. The only remedy for this is to head them down. The stools if properly treated will make new heads in less time than it takes to grow up stock from the ordinary newly-struck plants. To have the stove section of Dracænas in good condition, it is necessary to give them more warmth than will suffice for many stove species. Where there is the requisite amount of heat at command it is well to head down any plants that have got shabby; by doing this at the present time both the stools and the tops when struck will have a long start over those that are left until spring. Let the soil get somewhat dry before removing the heads, and cut back to within 4 inches of the collar. Stand the stools where they will have a warm stove temperature, and do not give much water until the eyes have broken, except by syringing moderately once a day. When the plants are well treated several eyes will push. These should be reduced to one, as they look best when confined to single stems. After a little growth has been made, turn the plants out of the pots and shake away most of the old soil and replace it with new. Afterwards grow them on in a warm, moderately humid atmosphere. Raise the plants so that they will be well up to the glass, as the more light they get the more colour the leaves will have. The tops, consisting of about four leaves, will make plants in much less time than such as are raised from cuttings made from the hard portions of the stem, but where stock is wanted the stems if cut into pieces about 2 inches long will root and make nice plants. If a bottom-heat of 80° can be given them they will strike quicker. To get the young plants to move freely they should have a warm stove temperature through the spring and summer.

DIEFFENBACHIAS.—These plants are the most useful when of medium size and confined to a single stem. To have them well furnished with healthy foliage down to the bottom it is necessary to propagate every year, as the leaves do not keep in good condition so long as those of things which are harder in texture. After allowing the soil to get fairly dry remove the tops at about three joints from the bottom. The stools will break and grow away freely where the necessary amount of heat is present. The tops with about three leaves attached will soon strike if treated in the way advised for Dracænas, and will attain enough size in a few months to be useful for grouping on the side stages of the stove amongst larger things. In summer they will bear the temperature of a living room for a few weeks, but under such conditions they suffer more quickly than plants with harder leaves. Pieces of the stumps composed of two or three joints root readily in sand, but during the time they are striking, less water must be given than in the case of plants that are not so succulent.

ACALYPHAS.—These quick-growing subjects are very effective when used in a small state for table and room decoration; their highly coloured leaves come true to character whilst the plants are quite small and in 3-inch or 4-inch pots. They are so easily propagated and take so little time to get of sufficient size, that it is best when they are used in the ways named and have got shabby to discard them. To keep up the requisite amount of stock they should be propagated in sufficient numbers to meet the demand. Cuttings put in now will be large enough for use by the end of spring. The extremities of the shoots make plants the quickest, but the lower portions that have not got too hard and woody will root by allowing them a little more time. They are best struck singly in small pots. The kinds that are in cultivation come from the South Sea Islands and New Caledonia, and consequently require a good deal of heat.

STOVE CLIMBERS.—Climbing plants, such as the different kinds of Cissus, that are useful for covering walls and draping pillars should now be cut in so as to get rid of as much of the old foliage as possible. Without sufficient pruning the shoots

get into a tangled mass that outgrows the space to be occupied. Where these plants are employed for covering hanging baskets, it is generally best to use fresh ones each year when the baskets are re-filled. The present is a good time to propagate all that will be required. Quick-growing things of this kind soon attain sufficient size to be effective. If kept in a warm stove temperature until spring, they will then be ready for putting wherever they are wanted. They succeed best with rich soil, and will do in either loam or peat, but whatever is used they should have a liberal amount of rotten manure and some leaf-mould mixed with it.

IXORAS.—Most of the varieties of Ixora that have originated from seed soon show a disposition to produce small heads of flower, unless the knife is used freely so as to get rid of much of the old wood. This requires to be done annually. If the work is now carried out it will be better than if left until later, as when deferred till spring it naturally interferes with the time of flowering. In the case of large specimens the tops may be removed to the extent of from one-fourth to a third, and afterwards give as much heat as circumstances permit. To grow Ixoras well and to make the most of the plants, they require as high a temperature as anything in cultivation. For though they may be kept in a fairly healthy state when they only have a medium stove temperature, so managed the plants never have the vigour nor produce the quantity of bloom that they give when in enough heat to keep the growth moving during winter. To do justice to them a night temperature of 65° should be maintained through the winter; 5° more may with advantage be used where it can be done without its being too much for the other things that have to be kept in the same house. After cutting in syringe once a day, but do not use the water-pot too much until the young growth is moving freely.

BILLBERGIAS.—Where these distinct-looking and somewhat neglected plants are properly treated they will be at rest, and should have the soil kept somewhat drier than they require it to be during the time they are growing. Like other things that are more or less of an epiphytal nature, their roots are impatient of too much moisture when not in an active state. The time of flowering varies in the different kinds, and it is likewise influenced by the temperature the plants are kept in through the season their growth is being made, and also in winter. As soon as the flower-stems are seen to be moving the roots may have more moisture.

TILLANDSIAS.—These are very similar in their requirements through the winter season to the Billbergias. They should only have as much water during the time of rest as will keep the soil moderately moist. If too wet the roots are liable to perish. The same applies to *Echmeas* and *Nidulariums*, both of which, in common with Billbergias and Tillandsias, should have less pot-room than the majority of stove subjects. Most of them are spare rooters. The texture of the roots is hard and wiry, and calculated to give an idea that they would be little likely to suffer from a slight excess of moisture; yet such in practice I have found to be the case. On the other hand, the soil must not be allowed to get too dry. T. B.

FRUIT HOUSES.

CUCUMBERS.—Plants which have been giving a full supply of fruit throughout the autumn and early winter will now show signs of failing vigour, particularly if they have been too heavily cropped, and conditions are not in every respect favourable to the maintenance of the proper degree of heat. Should this be the case, and younger plants in other compartments have been kept back, a few of the most promising fruits may be allowed to swell to maturity, and so soon as these are equal to the demand the old ones may be cleared out as a preliminary to a fresh start. A few seeds of Telegraph at the same time should be sown, singly or in pairs, in very small pots filled with light, rich, fibry soil, and plunged in a bottom heat of 80° quite close to the

glass. If top heat and atmospheric moisture are equally satisfactory, a fair percentage of seedlings will make good plants by the time they are wanted. Meantime the cleansing and preparation of the pit for their reception must be most carefully and efficiently performed, as this plant, with which I am acquainted so thoroughly, enjoys a soft, pure atmosphere, steady top and bottom heat, and an abundance of light. In the most approved pits the plants may be turned out upon very narrow cones or sharp ridges of compost, but the best plan at this dead season is confinement to 12-inch pots plunged to their rims in a good bed of sound fermenting leaves. These, I may say, should be thoroughly fermented and worked in the reserve ground, and when the violent heat has passed away they must be introduced and made as firm as a board. A depth of 3 feet is none too great, and the better to prevent sinking each pot should be supported on a few dry bricks placed in position before the leaves are introduced. The latter can then be turned and renovated at pleasure, and presenting such a moist, genial surface, the warm vapour constantly rising will counteract the drying influence of fire heat. When the plants have formed the first small, rough leaf, they may be turned out singly into the fruiting size, which need not be more than two-thirdsful of compost, as the stems will stand earthing up. Many people place their winter plants quite close to the top-heat pipes, but this is a most damaging mistake, as dry heat and scalding steam, the result of careless syringing, soon destroy the stem leaves. In some cases close proximity cannot be avoided, but injury to a certain extent may be prevented by facing the hot-water pipes with two or three thicknesses of coarse canvas or very thin boards.

Fruiting plants now in or coming into full bearing must be most carefully managed, as they will give the supply until the seedlings I have mentioned come in to take their place. The principal points here are scrupulous cleanliness of the structure throughout, including the frequent washing of the glass, a steady bottom-heat of 80° from fermenting materials, frequent top-dressing with very thin layers of light rich compost, and the preservation of all the stem leaves. If thinly planted and space admits, much risk will be avoided by extension training and allowing an abundance of room for the young growths and leaves, which must be kept quite clear of the glass. Direct syringing having been discontinued, atmospheric moisture must be supplied by damping the walls and paths with pure warm water, the surface of the bed with diluted liquid or soot water, and keeping the evaporating pans regularly charged. Light cropping and cutting young being so very important, no one, I presume, need be told to husband the strength of the plants until after the turn of the year, and then, aided by copious supplies of clear tepid liquid, they will go through that most critical period when fruit is of the greatest value to the grower for market or private use. Insects, as a matter of course, will put in an appearance, but the vitality of the plants being weak, no quarter must be allowed for a single day. The worst of these pests is red spider, the next are thrips and aphids, which may be kept in check by repeated fumigation with good tobacco paper when the plants are dry and the temperature rather low. Spider, on the other hand, must be met by moisture applied direct to the leaves, but, winter syringing being dangerous, the only safe remedy or preventive is careful syringing with soapy water before it has time to spread. Prevention, however, being better than cure, the plants should be kept in a high state of cultivation and the roof-lights, if possible, should be well covered throughout the night.

PEACHES.

The weather so far having been highly favourable for early forcing, progress down to the present time has been satisfactory, and that without the aid of sharp firing, especially where the fermenting material, a most important factor, has not been neglected. Indeed, so readily does the Peach respond to the most gentle forcing, that established trees which have been regularly started in November not unfrequently commence swelling their buds past

the critical stage before the hot-water valves are opened. Another great advantage is ripe wood which has had a thorough rest, as has been the case this year through September and October, for certainly some seasons have passed since well-managed trees have been found in better condition. Assuming, then, that a profusion of flower-buds are swelling fast, another supply of water at a temperature of 80° should be given, not only to help them forward, but also to dispel all doubts as to the roots requiring further attention during the time the latest trees are in flower. When the colour of the petals is perceptible, and yet there is no sign of dropping, the attendant may rest satisfied that the roots are at work, that the most critical stage has been tided over, and the vigour of the trees will justify a minimum temperature of 50°, with a corresponding rise by day, when, as a matter of course, the weather is bright and favourable. No fixed figures, however, must be insisted upon, as it is much better to proceed very slowly than attempt undue haste until days become lighter and longer. By giving and taking in this way, weak trees often unfold a vigorous blossom, and having had an abundance of fresh air, the fruit invariably sets and stones well, when time apparently lost may be redeemed at the finish. From this stage forward the trees must be regularly, but not too heavily syringed with tepid water, and the floors may be kept moist, but by no means sloppy, as an excess of cold condensed vapour is unfavourable to the ripening of the pollen and the setting of the fruit. The temperature during the flowering stage may be increased by a little additional fire-heat through the day, when more air, minus a cutting draught, must be given, fresh air being the element which prevents mischief when flowering trees against open sunny walls are often subjected to a temperature which would prove fatal in a badly-ventilated forcing house. If not already fumigated, the house should be smoked twice at least within the week preceding the opening of the first flower, for force we never so carefully, the prospect is sadly handicapped by the presence of a single pair of aphides when the blossoms are expanding.

The second house.—Where several houses are forced to succeed each other, this should be quite ready for closing at Christmas, when the lines laid down for the management of the earliest will apply. But once the buds commence swelling strongly and freely and January sun begins to tell, a higher temperature, always with a proportionate volume of fresh air, may be indulged in if only for a couple of hours during the brightest part of the day. Quite recently in a set of Peach cases in a northern county I noticed the trees in a very forward state indeed. The Chrysanthemums, I must admit, were extremely fine, but I question if the crops of fruit will not be thin and poor, another convincing proof that Peach growers who value their reputation should make a bold stand for suitable accommodation, for of all specialties, this flower especially rejoices in a certain temperature at a time when the wind should be whistling through the Peach cases. When the pets are gone, the houses are thrown open, but the rest comes too late, for the buds are on the move, the germs of the flowers are tender, severe weather most likely sets in, and the delicate organs perish. Another drawback to the trees is a deluge of the richest stimulating liquid constantly passing downwards into certain parts of the borders, whilst other sections near the front are allowed to become much too dry. A Peach tree, planted in a well drained border, rarely suffers from an excess of water during the season of growth, neither is it improved by being kept dry in winter. But winter is not the season for feeding; therefore, whilst keeping the borders thoroughly moist, plain water only should be used from the time the leaves fall until the next crop of fruit commences swelling. I do not wish to disparage the growers of popular flowers, but knowing that a great number of gardeners are obliged to attempt miracles, I think it is only fair to inform their employers that a moist, warm atmosphere through October and November is detrimental to the trees in late Peach houses.

HARDY FRUITS.

At last we have reached the dead time most unfavourable to planting, no matter how genial the weather, but opportune for taking stock and making notes for the coming year. One operation and that a most important one, the mild and generally open season may have induced the busy fruit grower to allow to fall into arrear. I allude to the advantage that may be taken of frosty mornings for getting out manure and mulching the autumn planted trees which as yet have taken no harm. Weak or over-cropped trees, too, which have not been disturbed at the same time may come in for a share, not that the roots at the present moment are in a feeding condition, but looking ahead it will be seen that the stimulating properties of the mulch will gradually improve the condition of hungry soils. The same use may be made of liquid manure with which many a good tank at this season overflows. If storage is ample, why then it may be husbanded until the trees are in full growth, but far preferable to allowing waste is casting it amongst bush fruits and Raspberries, or over compost heaps intended for top-dressing in the spring.

Wall fruit borders as a rule are not improved by the application of manure or liquid during the winter, as these dressings render the surface soil sour and force a gross growth in the spring. One tree, nevertheless, will stand and generously repay this attention, and that is the Pear on the Quince, especially when planted against dry south and west walls. Being surface feeders and compact growers, the roots of Quince Pears do not often get beyond the wall paths, which so often suffer from drought; therefore their descent should be prevented by forking off the old mulching and replacing it with new.

Pruning, nailing, and training, also cleansing must now be pushed forward with all possible speed care being taken that the walls as well as the trees are made quite free from the larvæ of the insects, which destroy such a large percentage of our choice fruit in the spring. If anyone doubt this, let him inquire how it is that the early-flowering and tender Peach is now so successfully managed on open walls, and he will be told that the walls as well as the trees receive more careful attention than any other wall or fruit, that success is not the outcome of one vigorous dash, followed by apathy and rest, but that it is won by increasing attention to the smallest details throughout the year. When Plums, Pears and Apples are as carefully cleansed, trained, and thinned, and as regularly root-lifted as Peaches, there will be an end to gluts, followed by failures, as no one will overcrop; but so long as this over-taxing goes on one season will be noted for a large quantity of fruit of inferior quality, the next by failure, as the trees must and will have rest. How frequently we hear people say, "Oh! that tree fruits every alternate year." But why is this hit-and-miss system allowed to go on, when timely and liberal thinning, the elements being favourable, would secure fair crops of fine fruits every year? Let those who have hit-and-miss trees first of all look to the spurs, and finding them capable of producing thousands of weak blossoms, they may safely introduce the knife until the weak elongated spurs are regularly reduced by one-half. The strong flower-buds ripened under the influence of solar heat and light will then set and swell off fine fruit, but so long as they remain puny and crowded, the fruit on each spur may be thinned down to one, but it will not be fine. Trees, in some cases, as I have often stated, may be divested of all their old spurs down to the single bud found nestling near the base, but this sharp practice means the loss of a crop the following year. Where trees are plentiful this apparent sacrifice upon one or two may not be felt, but otherwise very unsatisfactory trees may be restored to respectability by a methodical system of cutting away one-third of the worst spurs for three years in succession. When old trees have been spur-pruned they should be thoroughly cleansed by scrubbing with strong soap water or Gishurst compound, whilst Pears infested with scale may be painted with a mixture of stiff clay, Gishurst, and tobacco water, to which a small quantity of paraffin may

be added in the proportion of half-a-pint to a gallon. The same paint may be applied to Apples subject to American blight, whilst those fortunate in being free from insects may render their trees bright and clear of Moss and Lichen by syringing with soap-suds and dusting with quicklime. W. C.

FRUIT GARDEN.

WORK IN FRUIT HOUSES UNDER DIFFICULTIES.

WITH the opening days of another season the fruit grower will be busily engaged in preliminary operations in the numerous departments which must be kept going not only simultaneously, but not unfrequently under great difficulties. Those who must have ripe Strawberries in March, Grapes and Peaches in April and May, Pines, Figs, and Melons about the same time, have a formidable opponent in the weather alone; but when the convenience is altogether inadequate to their requirements, great credit is due to those who come out fairly successful, and the hand of sympathy and encouragement should be held out to those willing workers who through no fault of their own have failed. Gardeners in not a few places are obliged to attempt the happy family system of culture, not only of plants, but also of fruits, and sometimes they get into hot water by voluntary attempts at impossibilities as measured by the high quality of the produce of the present day. Many years ago, when timber and glass were dear, Pines were grown beneath Vines, with the natural result that the crowns of the first could be measured by the yard and the berries of the second were coated with lime in lieu of bloom. Such Pines and such Grapes in the year of grace 1890 would hardly pass muster, and yet quite recently we have been edified by articles upon the subject by correspondents who ought to be better employed. Within the past few months the editor of THE GARDEN has sent forth pertinent queries, and correspondents in all parts of the country have enabled him to publish much valuable information on varieties, good culture, and the mismanagement of the Peach. From nearly all the replies we gather the fact that sunlight and fresh air are elements which must not be ignored. What, then, would these dual growers of Pines and Vines say were their employers to insist upon having a fixed trellis for Peaches some 2 feet below a set of vigorous Vines? In a garden now noted for the superior quality of its exhibition fruit I once saw a large house planted in this way, and arrived at the conclusion that the Vines, the Peaches, and the owner were subjects for pity. Pot Strawberries in houses with Peaches and Vines are met with in one half the forcing gardens throughout the kingdom; but no gardener approves of a system which entails no end of trouble, and not unfrequently, by the introduction of red spider and mildew, ruins his Peaches and Grapes. This mode of culture, no doubt, will be continued; but being unsatisfactory to the grower and unprofitable to the owner, it is only right that the latter should be made acquainted with unpleasant facts. Hothouse building materials, boilers and pipes, now are cheap enough. British skill unfettered beats all opponents, including a changeable, trying climate; let each good man then have a suitable place for everything, and it will be his own fault if he does not keep everything in its place. Another drawback to success is the ridiculously conservative way in which some owners and agents

guard every bit of turf and loam, presumably ignoring the fact that bricks cannot be made without straw. A great number of estates contain all the earthy elements essential to the best results, but, notwithstanding the assertion on the part of the anxious gardener that he can take all he requires and make the patch he skins the best part of the field or park in three months, it rarely happens that he succeeds in securing for his own credit and his employer's pride and profit that coveted supply of light and heavy loam. Some are afraid or too proud to make repeated applications; others are daring and get a moiety of the supply they require by stealth; but how much better for all concerned were these persons to put forth their reasoning power and show by argument how the business may be done. Assuming, then, that an old sheep pasture or field which produces good herbage and fine timber is given over to the grower, that his kitchen garden is teeming with rich black soil full of manure, let him hurdle off the coveted patch and replace each load of turf with a load of his garden soil. Early in March is not a bad time for laying in a stock of turf. April is the month for sowing Grass seeds. March then let it be, as the eyesore will quickly disappear and become a sheet of vivid green. The soil, it is hardly necessary for me to say, should be made quite level and firm by treading or rolling; the seeds should be of the best, including a little white Clover, not rubbish from the farm hayloft, and in three weeks, the weather being favourable, it will be quite green, when the hurdles may be removed. If anyone doubt this theory, let him put it into practice on a small scale in any out-of-the-way part of his park, and he will soon find that the best of all judges, his sheep and deer, will graze and layer upon this in preference to any other part of the field. W. COLEMAN.

Apple Lord Suffield.—Here on our cold, heavy, retentive soil this Apple is tender, and very liable to canker if not planted nearly on the surface, using some light material for the roots to stand in and mulching afterwards with stable manure. By treating the roots in this manner we manage to get decent crops of fairly good fruit. Although our trees are of bush form, we do not prune them so closely as some people, as we find an extension of growth suits this kind best. At Woolton, which is really a suburb of Liverpool, where the soil is light, resting on red sandstone, this Apple produces extraordinary crops upon dwarf bushes. The trees grow freely, are closely pruned, and give excellent results both in point of quantity and quality. In the neighbourhood of Southampton also, where the soil is inclined to be sandy, this Apple produces capital crops.—E. M.

Bullfinches and fruit-buds.—Bullfinches were plentiful last winter, and they are still more numerous this season. Already they have commenced their work of destruction among fruit-buds, beginning with Gooseberries. Plums may next receive their misguided attention, then Pears, and finally the Apples will be visited. If a close watch is not kept and timely precautions taken, the prospect of a good fruit crop may be marred before the owner of a garden is aware of the mischief perpetrated—so rapidly and quietly, yet boldly, do they work. The birds should be either trapped or shot, and as soon as possible. These are the simplest and best remedies, especially where there are many fruit trees under the charge of the gardener. Where only a limited number of trees and bushes are cultivated, destructive birds, notably house sparrows, may be kept off if the trees are well coated with soot and lime, this either being dusted over them when in a moist state or applied sufficiently often to coat the branches in the form of a thin wash with the aid of a syringe. Even this is not always effective

against bullfinches, nor are these bold birds to be much scared by any other contrivance. The report of a gun does not frighten them.—I.

LAYERING AND PLANTING STRAWBERRIES.

I SHOULD be sorry to layer any number of Strawberry runners on pieces of turf placed on the surface of the ground. This work is done when the weather is likely to be hot and dry, and I do not see how it would be possible to keep the turves sufficiently moist to allow of the proper formation of roots in them. At the same time, there can be no objection to the employment of turves if the pieces are sunk into the soil or even slightly below it so as to form a little basin that would allow of the water going where needed. The object in using turf would naturally be to facilitate the transplanting, the runners filling it with fibrous roots, thus forming a ball, so that the young plants would not be so likely to flag when removed. It is, therefore, not the turf itself, but the way in which it has been recommended to use it that can reasonably be objected to. I must admit, however, that I should prefer pots for the purpose, as they offer the best facilities for ensuring the runners against sustaining a check in removal. The only objection to pots is that the roots curl round the sides and do not then so quickly push into the ground. Otherwise it is more easy to deal with them, as when taken off they can be stood in a shady place for a week until they have well recovered from the check. Then when planted they are not liable to flag. If the final runners are put out as soon as possible in good ground, they may be relied on to bear a fair crop the following season. But I am inclined to think that the advantages derivable from this method of making new Strawberry plantations are not sufficiently great to warrant the labour that is necessarily incurred. In a moist summer the labour is not great, but in a dry one, unless a considerable amount of watering is done, the plants will not come to any great size that year. I much prefer to plant either in autumn or in early spring, for it stands to reason that runners put out at that time have a great start over those planted in August. I do not approve of planting after the middle of October, as the runners cannot well get good hold of the ground by winter, and are, therefore, liable to be loosened by frost. In my opinion there is no better time than from the middle to the latter end of September, and I have invariably found that better results are obtained by planting at that time than at any other, the labour, moreover, being reduced to the lowest point.

My plan is to leave a certain number of plants expressly for runners. I annually require some thousands of them, and I find that the production of fruit and the formation of good runners do not go well together. It is a great mistake to rely on runners from plants that have borne a crop of fruit. Even if runners came, they are seldom so freely produced as one would like them, and they are liable to be infested with red spider and mildew. I pick all the bloom off the plants from which I require runners and then I know I shall have them strong and clean. These can be taken up either in autumn or in spring with a ball, and are established in a month from planting. Such runners may be put out as late as April with every prospect of success. I have planted thousands in that month and not two per cent. have failed. If the first runners are planted in this way, grand specimens, capable of bearing more than a pound of fruit each, will be formed, but even the latest ones will make good fruiting plants. There is nothing to do to them but to pick off the bloom and keep them free from weeds and runners, with the exception of a few that may be left for the following season's planting. In this way, and by planting every year, a good lot of plants will always be coming on, and there will be no dearth of good fruit. When the runners are not to be planted until spring, they need not be disturbed till then, as nothing is to be gained by taking them up and bedding them out for the winter. If such a system as this is followed much of the labour and expense of Strawberry

culture will be avoided; indeed market growers could not adopt the method often practised in private gardens. J. C. B.

ESPALIER TREES.

I QUITE agree with the remarks (p. 585) made by Mr. Allan respecting espalier trees, which mode of training, I am convinced, is the very best for Pears, as grown in that way the fruit is of far better quality than it is in any other, for it hangs clear of the foliage, and is therefore fully exposed to the influence of sun and light, which agents not only give colour, but convert the crude juices into luscious sweetness and make the flesh fine and melting when the Pears are ripe and fit to come on the table. On walls the fruit is not nearly so well circumstanced, as there, in a general way, the branches are much too close together, and the Pears hanging from one are smothered or shaded and hidden up by the leaves of the other, and the fruit never has the flavour of that which gets the full solar rays. Pyramids often have the same fault, that is, too many branches, which shade each other; but instead of trees being in that state they ought not to have their stems nearer than 2 feet, and the one growing up and trained midway between two or triangularly in the way plants are planted. The sun and light then have fair play round, but spurs should not be thick nor shoots allowed to grow without being stopped at the proper time during the summer, or they work much evil, not only in robbing and drawing off the sap, but in the shade they cast, as no fruit suffers more than the Pear if the solar rays cannot play on the skin. The finest dessert Apples I have ever seen were grown on espaliers, and those who desire these with all the rich colour some of the best kinds are capable of taking on must have trees so trained, or as cordons, which are much the same, the only difference being they have only one branch instead of several, and are toys compared to the others. Not only is fruit produced on espaliers of far better colour and quality, but the system of training the trees has much to recommend it, as they take so little room, and when judiciously arranged define and give character to the garden, as they may be carried along up each side of the main pathways and at the back of others, so as to have borders in front in which to grow low neat crops, such as Strawberries, salading, or flowers if the fancy is that way inclined. In some parts wind is very troublesome, and in autumn sometimes strips orchards of their fruit, but when such gales occur that on espaliers is safe, as there is no movement of the branches, and wind has but little effect on the heavy Apples and Pears hanging beneath. Wires for training espalier Apples and Pears should not be nearer than a foot, which is a very good distance, and before planting the trees the ground ought to be trenched and have a heavy dressing of rubbish-heap material worked in below, as this greatly improves the subsoil and is highly beneficial to the roots of the plants.

J. SHEPPARD.

Apples for Nottinghamshire.—Seeing your editorial remark on Lord Suffield Apple, I thought it might be interesting to you to see one in excellent preservation so late in the season. The Apple sent you was grown on a bush tree. Blenheim Orange, Lord Suffield, Bramley's Seedling, Northern Greening, and Normanton Wonder or "Domleo's Seedling," will be found the best kinds for an orchard in South Nottinghamshire. I believe the usual spelling of the last name is incorrect, and that the Apple was raised by a Mr. Domleo, in the adjoining parish of Normanton-on-Soar. The name is an old one in this part of the world, and, although pronounced "Dumelow," is spelt "Domleo." Perhaps some of your readers have better information.—G. E. PAGET.

Phylloxera and tank borders.—I am much obliged to Mr. T. Challis for the kind way in which he has interested himself in endeavouring to help me in this matter, and I regret that absence from home prevented me from replying sooner to his proposal. I could not do this until I ascertained

what had become of the affected roots. These, I find, have been destroyed, so that I am unable to forward them for the examination which you kindly promised to undertake. If, however, the disease shows itself on any of my other Vines, I will be glad to avail myself of your promise and to forward some of the roots after flooding. I may add that the flooding suggested by Mr. Challis has been carefully done ever since the Vines were replanted in spring, 1885. I am also obliged to Mr. J. Whitworth Shaw for his note on the subject. Perhaps he would kindly give me the name of the American Vine stock which is not liable to injury by the Phylloxera, and also tell me what he thinks of the Grape which it produces.—A. W. N.

MARKET GARDEN NOTES.

THE work of supplying the markets takes up more time than usual before and after Christmas, but growers will be glad of the extra demand to get some of the land cleared. There is a great quantity of green crops on hand, and as the time for getting in Peas, Beans, and other early crops is at hand, the work of clearing the ground must be pushed on. The short spell of frosty weather has given place to mild, damp days, and at present there are few signs of sufficient frost to allow of the carting of manure on to the land. The crops that are in most demand in market at present are

BROCCOLI, which for the period of year is very good, the winter protecting varieties yielding the present supply, as the great thickness of foliage was sufficient to ward off the late frosts. The latest lot of Autumn Giant Cauliflowers where they had not been cleared were quite blackened.

SAVOYS are in great demand at Christmas, and this season they are unusually plentiful. The mild weather that prevailed during November having caused them to make excessive growth, a good many, especially of the Drumhead kind, are rendered unsaleable by bursting.

BRUSSELS SPROUTS are now at their best, and are being marketed in quantity, as if mild weather prevails the sprouts soon start to grow and lose their firm texture.

HERBS of all kinds sell more freely at this time than at any other, and great quantities of Sage, Thyme, and especially Parsley, are sent to market. Horse Radish, specially prepared for the Christmas markets, is one of the crops that repays good culture, for when small sticks are a drug in the market, extra large ones realise good prices and sell freely.

The forcing houses, pits, and frames are now in active use or being prepared for cropping, as during the first three or four months of the year the best prices are realised for forced products. The most important crop is

SEAKALE. This is forced in great quantities and seldom fails to sell freely. The principal crops that go to market are grown from young plants raised from sets planted out very early in the year in good soil. These are lifted in autumn, and replanted in beds either in the bottom of Mushroom houses or on hotbeds made up specially and covered with mats and litter, so that the blanching is perfect. All the roots that are broken off in lifting are prepared as sets for next year's crops, as the old roots after forcing are discarded.

ASPARAGUS is forced in heated pits with bottom and top heat, young strong plants about three years old being usually employed.

RHUBARB sells freely early in the season, and great quantities are forced for market, as it is not a very profitable crop when grown naturally; the crowns for forcing are grown specially for that purpose. By cutting up large clumps in spring and planting the single crowns on rich soil and pulling none of the stalks during the season, they mature fine crowns, which if packed closely together in warm dark sheds or under the stages of forcing houses soon send up a fine crop of well-blanching growths.

FRUIT of home growth is now very scarce and prices for good samples are high. Amongst the

best and in greatest demand are Apples, that either for cooking or dessert find a ready sale at good prices, any good sort being worth 8s. per bushel, and any specially selected fruit 10s. and upwards. Pears that are really eatable are realising good prices, but the varieties that keep good until Christmas are not much grown for market. Winter Nelis is one of the best at present for dessert; a good many of the large cooking sorts are put on the market and usually sell well.

EVERGREENS form an important item in market supplies at present, but the almost entire absence of Holly berries robs the market stalls of one of their chief attractions. Mistletoe is this year well berried, and the ordinary mixtures of Evergreens seem in great request.

CUT FLOWERS are in great request, the latest sorts of Chrysanthemums being especially useful, with Arum Lilies and other white flowers, for church decoration. White and scarlet are the colours in demand with plenty of Fern fronds and other foliage for mixing with them, and green Moss for ground work. JAMES GROOM.

Gosport.

Scarcity of Holly berries.—Upon what principle can the remarkable scarcity of Holly berries be accounted for? Berried Holly has fetched an almost unheard of price in Covent Garden Market; a dozen bundles which in an ordinary season would be worth 8s. or 10s. have been sold for as much as 50s. It is said by those accustomed to the market that they have known the price as high as 20s. to 30s. per dozen bundles, but 50s. is an almost unheard of price. The scarcity appears to be general throughout the country, and in the south of England, where Holly grows abundantly, the scarcity is as marked as in any other part of the country.—X.

—In this district there was but little berried Holly to be found for the Christmas decorations; in fact I never remember seeing such a scarcity. Hollies, in common with nearly all other evergreen and deciduous trees and shrubs, flowered very freely, but evidently the flowers were imperfect or puny, as the greater portion of them failed to set. It was, however, by no means a complete failure, as we had a good quantity of berries on the green-leaved varieties especially, but flocks of improvident blackbirds and other fruit-eating birds cleared them off long before frosty weather set in. The consequence of this early clearance may be the death of a good many of these (to gardeners) unpopular marauders during the prevalence of a long spell of frosty weather, their food supply being already nearly exhausted.—I.

—Berried Holly has this year been extremely scarce in the London market, and, as a consequence, the price of this indispensable Evergreen for Christmas decorations has been proportionately high; much higher, indeed, than I ever remember to have been the case. In the week preceding the Christmas holidays, twelve moderate-sized bundles were sold in Covent Garden for five guineas, and the fortunate possessor of the top of a small tree that was well berried refused seven guineas for it, his price being ten guineas. In this neighbourhood I know of but two trees that had anything like a crop of berries on them, and these were literally cut to pieces; even the tops were cut off. These trees are upwards of half a century old, and are, of course, ruined. Such vandalism makes one almost regret that there should be such a thing as Christmas decorations, for Hollies of that size cannot be replaced in less than a lifetime. One of them was the smooth-leaved variety, that seems to be exceptionally sure-fruited. Curiously enough, I have raised numbers of seedlings from this tree, but all the plants have come prickly-leaved.—J. C. B.

The rubbish yard.—At this season of the year a general clear up is always advisable in this department. All material that can be burned should be gathered together in a heap in favourable weather. This rubbish when reduced to ashes will make a good manure, and can be mixed with soil

from old Melon and Cucumber beds, afterwards to be applied as a top-dressing to shrubs where they have become impoverished, or it may be worked into the soil when any replanting is being performed with very good results, especially in retentive soils.—J. H.

—“S. D.” in his note (Dec. 21, p. 569) on “Rubbish Heaps,” speaks of their value and how they may be used to enrich the soil. This is very true, but there is another side to the picture, for I think there can be no doubt that they are often the means of various pests being spread over the land, and that much that is thrown into the rubbish heap had far better be burnt—plants which are attacked by any fungus or insect, for instance. The spores of some fungi will remain many months without germinating; those of the finger and toe, or club-root fungus, for example. If Cabbages, Turnips, or other plants attacked by this pest are thrown on to a rubbish heap, when the contents of this heap are spread over the soil the spores of the fungus will certainly be carried with them and sown broadcast over a considerable surface of the ground; and if plants liable to be attacked by this fungus are grown in this infected soil they will assuredly suffer. Other fungi may be spread in the same manner. While dead or dying plants attacked by mildew are lying on the rubbish heap, the spores may be blown about on to other plants. Certain insects, too, may be propagated on rubbish heaps. The grubs of several kinds which feed and become chrysalides within leaves and roots will come to perfection just as readily if the leaves and roots be thrown on to a rubbish heap as if they had been allowed to remain where they were growing. The seeds of many weeds are often sown on land when a rubbish heap is dispersed, so that great care must be taken not to throw into a heap the remains of plants attacked by fungi or insects, and weeds whose seeds are nearly ripe. It is a much safer plan to burn all the rubbish, clippings of hedges, prunings of trees, weeds, &c., which should be destroyed. If the fire be so made that it will not burn too rapidly, but slowly smoulder away, a quantity of valuable ashes will be the result.—G. S. S.

PUBLIC GARDENS.

HAMPSTEAD HEATH.

WE reprint the following letter addressed to the editor of the *Express* :—

“SIR,—I am sure you are right in the belief expressed in one of your short leaders to-day that the formation of a carriage road across the Heath from Well Walk to Highgate would spoil the Heath. But we all want to know what is going on about Parliament Hill. When inquiry was made at the County Council we were told that nothing could be done until the Council came into formal possession of the land; yet a great deal is being done which artists and others think is proof of want of any plan, or of work on a bad plan. We should like to know who is responsible. Hampstead parish raised a liberal contribution towards the enlargement of the Heath, and so did St. Pancras; yet the two parishes, so far as reports of their Vestry meetings can be taken as a guide, are in complete ignorance of what is being done, or what is proposed—whether there is any plan agreed upon, and if so, what. It would be well if our representatives on the County Council would keep their eyes open, and not allow their body to be discredited, as the Metropolitan Board of Works was by their mistakes and mismanagement. The unpopularity of the late Board in these northern districts was kept up by the many mistakes they made about the Heath—an old highway closed, a useful public way for carriages converted into an exclusive bridle track for horsemen, useful public space covered by useless and ugly enclosed plantations—and all

without any attempt to make the Heath of more general benefit to the public. If the County Council make as great mistakes they will meet with similar unpopularity. Some months ago you published a scheme by one of the first landscape gardeners of the day for forming a boundary road and ride, well planted, all round the Heath. If carried out, this would add enormously to its use and beauty, and would prevent the perpetration of any such plan as a road from Well Walk to Highgate, or any such mistakes as seem threatened by all that any observer can ascertain from what is being done near Parliament Hill. The Hampstead Vestry and our members on the County Council must not be the victims of misplaced confidence in former officers of the disgraced Board of Works.—Yours, &c.,

“AN OLD RESIDENT.”

“Hampstead, Dec. 14.”

NOTES OF THE WEEK.

A new Orchid catalogue.—We learn that the Society of Dutch Orchidists, composed of twenty members, have just published a catalogue of Orchids cultivated in European collections, followed by a list of their principal synonyms.

St. Brigid Christmas Rose.—I have sent for your inspection a few flowers of the St. Brigid Hellebore, which is without a question the finest of this family.—THOS. S. WARE.

*** A very beautiful kind, but some of our growers think some of the other kinds are more attractive.—ED.

Rooting up of *Cyclamen europæum*.—The rooting up of this Cyclamen, we learn from *Le Moniteur d'Horticulture*, has increased so of late, that the prefect of Annecy is determined to try and stop it. He has prohibited the removal of this charming flower throughout the department of La Haute Savoie.

Winter Nelis Pear.—We bought some Californian Winter Nelis Pears from Mr. Webber, of Covent Garden, and which had the fine quality of this variety in a very high degree, but on the whole not better than English-grown fruits. We think the English-grown fruit fresher; the flesh is nicer, but unhappily we cannot get enough of it.

Odontoglossum Rossi majus.—I herewith enclose a bloom of *O. Rossi majus* for your inspection. It is taken from a spike 12 inches long, carrying seven flowers and seems to me an extra good variety. Would you kindly give your opinion through THE GARDEN?—J. R. HALL, Fox Warren Gardens.

*** A fair form, the flowers of good size.—ED.

Tree Tomato.—I have read your remarks on the Tree Tomato with some interest, as I have fruited it here, and whatever can be said of it as a pleasant fruit to eat, it is highly ornamental, and therefore worth cultivation. I do not know *Solanum fragrans*, but I have had plants of a *Solanum* called Melon Pear for several years, but it has never either flowered or fruited. I enclose leaves of both and will be glad to have information as to the treatment of the Melon Pear.—W. H. M., *Munches*.

Bambusa palmata is a new Chinese species, a specimen of which I send. It is quite the handsomest of the kinds at present in our gardens, the largest leaf being 13 inches long by over 3 inches in width—quite giant dimensions in a Bamboo. The habit of the plant is similar to that of the well-known kind *B. Metake*, hitherto one of the handsomest Evergreens we had, but which will now be quite eclipsed by the new-comer.—T. SMITH, *Neury*.

Ranunculus anemonoides.—This very beautiful, but somewhat difficult plant is promising well for abundance of flowers during the coming spring. One rarely sees it in good condition in the neighbourhood of London, although twenty or thirty miles out we have seen it a mass of the most lovely pink-tinted blossoms, enhanced by the pale rose of the outside. It is a typical alpine Crowfoot and ought to become a general favourite, notwithstanding it is at times fastidious.

Cytisus decumbens.—A charming prostrate Cytisus for rockery decoration is that known in gardens as *C. decumbens*. It rarely exceeds 6 inches in height, with creeping woody stems, well furnished with small bright green three-parted leaves, and bearing small axillary bunches of large yellow brownish

purple-tinted flowers. It is a native of the French and Italian Alps, and forms one of the most beautiful and interesting of the native plants. It is perfectly hardy and certainly a valuable acquisition to our list of dwarf rock shrubs. Nice turfy loam suits it admirably on exposed shelves or beds.

The Sallow Thorn, or Sea Buckthorn (*Hippophae rhamnoides*), is very beautiful just now when things generally are dull and flowerless. The plant grows from 6 feet to 8 feet or more high. In summer it is interesting on account of its silvery leaves, and at present its bright orange berries are very conspicuous. These berries, which are about the size of a pea, are clustered on the young shoots very thickly, the effect being very brilliant. It is quite at home close to a lake or pond, and given plenty of space it soon becomes established. It requires both the male and female forms to begin with.

Removal of Professor Reichenbach's collections.—We learn from the German horticultural journals that the collections of this celebrated orchidist have just left the Botanic Garden of Hamburg to be placed in the Imperial Museum of Vienna. No less than three days were occupied in bringing his collections to the railway station, and they filled four large wagons. These collections were in 59 cases, of which 26 contained the dried specimens, and 33 the library; 134 large boxes were filled with various materials, and 1149 packets of printed notes and manuscripts accompanied the specimens of dried Orchids.

Polypodiums, of which there are now a large number of distinct and beautiful forms, we find most useful for the rockery in winter; they have the advantage of being evergreen, and the graceful or variously crested fronds hanging from the crevices of rocks fresh and green almost as in spring is an effect to be welcomed and extended. These Ferns are almost evergreen, losing their fronds for a very short time only in late spring. The forms *cornubiense*, *trichomanoides*, and others of this set are almost as beautiful as a crisped Killarney Fern, and of course are available for more exposed situations. *Scolopendrium*, especially of the *Kelwayi* section, are also useful, and when grown in sheltered spots retain their bright varied green all through the winter months.

Hamiltonia spectabilis.—This ornamental and sweet-scented stove evergreen flowering shrub, mentioned by your correspondent “W. H. G.” on p. 605 of your last issue, seems to be more generally known to botanists under its synonym of *Spermadictyon*. Under this name, two other varieties of it, named respectively *S. suaveolens*, with small pure white flowers, and *S. scabrum*, with pale blue flowers, are figured by Dr. Lindley, the first in vol. iv. of Edwards' “Botanical Register” on plate 348, and the second in vol. xv. of same work on plate 1235. These plants are natives of India, China, and the Indian Archipelago, *S. scabrum* being most generally found in Nepal. *H. spectabilis* is well figured on p. 191 of the volume of the *Revue Horticole* for 1872. As to the origin of the name, it was first given by Dr. Roxburgh, who made it the foundation of a genus when the plants were first introduced, but finding that the name of *Hamiltonia* was already used for a different group, the present name of *Spermadictyon* was given to them by Mr. Brown.—W. E. GUMBLETON.

An insect pest.—At the meeting of the scientific committee of the Royal Horticultural Society on December 10, Mr. Morris read a letter addressed to the Director, Royal Gardens, Kew, by Mr. R. W. Blunfield: “I see in the August number of the *Kew Bulletin* an interesting account of the *Icerya* purchasi, and its depredations in South Africa, California, &c. During the past four years our gardens at Alexandria have been invaded by a coccus, which threatens now to destroy all our trees, and is causing the greatest alarm here.

It first appeared about four years ago, when I noticed it in quantities on the under side of the leaves of a Banyan tree, but it has since spread with extraordinary rapidity, and one of our most beautiful gardens, full of tropical trees and shrubs, has been almost destroyed. A breeze sends the

cottony bugs down in showers in all directions. It seems to attack almost any plant, but the leaves of *Ficus rubiginosa* and one or two other kinds of Fig seem too tough for it, and it will not touch them. It seems almost hopeless here for a few horticulturists to try to eradicate this formidable pest while their indifferent neighbours are harbouring hotbeds of it, and there will have to be some strong measures taken by law to put it down." The insect in question had been referred to Mr. Douglas, and was said to be an undescribed species of *Dactylopius*. Spraying with kerosene emulsion was recommended, but no remedy was likely to be effectual that was not carried out universally.

The late Clyde disaster.—At the final meeting of the committee held at the offices of Messrs. Protheroe and Morris on the 20th of December, Mr. H. J. Veitch presiding, Mr. Horsman, the hon. sec., announced that the total receipts amounted to £453 3s., and it was unanimously resolved (1) that the subscription list be declared closed, (2) that the sum of £452 be equally divided between Mrs. Hall and Mrs. Fraser, (3) that the arrangements for investing the respective amounts be left in the hands of Mr. Veitch and Mr. Protheroe, and (4) that as soon as the investment has been made a report be sent to all subscribers. Mr. Horsman was accorded a hearty vote of thanks for his services as hon. secretary, as also were the editors of the various gardening papers for their kind co-operation in giving publicity to the committee's proceedings.

A new Carnation.—We have to-day sent you a flower and growth of a new winter-flowering Carnation, Mme. Arthur Warocqué. The same was obtained from a sport of the well-known *Souvenir de la Malmaison*. The plant is of a sturdy, dwarf-growing habit, and does not exceed 12 inches in height. The flowers are large, well shaped, and brilliantly coloured. They are produced very freely, five to six being open at one time. We have a quantity in bloom now, to the admiration of everybody. We are certain that this will prove a grand acquisition to the winter-flowering Carnations. —SOCIÉTÉ ANONYME L'HORTICULTURE INTERNATIONALE.

A free, strong-habited variety, the flowers rich scarlet, robust in form, and showy. A good kind for pots.—ED.

New varieties of Tulipa Greigi.—We are already getting impatient to see our new varieties of Tulipa Greigi; they are already showing leaf, and so far promise well. T. Greigi far surpasses all other Tulips in cultivation at the present time for size and vividness of colour, a group looking like a huge flame of the most brilliant scarlet. There are no less than fifteen varieties offered by a Continental nurseryman, all of them said to be distinct, and to have broken into several distinct tints of colouring variously dispersed over the flower. If these prove as beautiful and interesting as the type they will be a handsome acquisition to our spring beds and borders, which, although at present anything but dull, will stand fresh additions if of the right sort. All these varieties have been raised from seed, and it opens up a wide field for those interested in the improvement of florists' flowers. They all seem to retain their beautiful and distinct leaf markings, which in themselves are a source of no little interest all through the early spring months. T. Greigi is not one of the easiest to propagate, but in good soil one has not to wait long for a reasonable increase. —K.

A valuable Cotoneaster.—A Cotoneaster, which has not flowered there yet, received at the Arnold Arboretum some time ago from Messrs. Veitch's nursery, under the name of *C. bacillaris floribunda*, is, says *Garden and Forest*, a remarkable and interesting plant at this season of the year. The foliage on Dec. 1 was fresh and bright green, and on the 6th of the month, when all the deciduous-leaved plants in the collection, with the exception of *Elæagnus umbellata* and two or three others, on all of which they were already much wilted and disfigured, had lost their leaves, those of this Cotoneaster, although they had been sub-

jected to a temperature as low as 10° above zero, were just turning to a deep, rich wine colour. This shrub, whatever its name and origin may be, is certainly worth growing for its late autumn and early winter foliage. It is vigorous and very hardy, of good habit, with large leaves, and slender, spreading branches, covered with bright green bark, which at this season of the year turns claret colour on the side toward the sun. It has the appearance of growing to a large size.

The Roman Hyacinth.—A nice group of the so-called blue Roman Hyacinth is now in flower in the greenhouse at Kew. It seems to belong to *H. provincialis* rather than to *H. albulus*, the true Roman Hyacinth, and agrees pretty well with a figure in the *Botanical Register* under the name of *H. orientalis*, but as the plant was gathered near "Grasse," it is no doubt intended for provincialis. Can any of your readers tell me the difference between the South European *H. provincialis* and the Asia Minor *H. orientalis*, if there is such a plant as the latter in a wild state? Whatever it may be, it will want a great deal of manipulating before it will be accepted as a rival to the good old Roman Hyacinth. It is said to force well, and to flower as early as the white one; this, however, has not been our experience. It is certainly not so early by a fortnight or more, the flowering being as irregular as that of *Scilla sibirica*. There are several forms found in South Europe as good as the present one, and under the same conditions would doubtless flower as early. It would be interesting to try them and see how they behave under cultivation. —K.

The Squills.—The Squills, *Scilla sibirica* and *S. bifolia* and its numerous varieties, are largely used for spring decoration both in the greenhouse and conservatory, and they well deserve their popularity. There are many others, however, belonging to the *hispanica* or *campanulata* set equally as beautiful and as easily forced. The flowers of this latter species are larger and more numerous than those of the two first, and, what is of great importance in early spring, have ample bright green foliage. The white form is very beautiful, the large bell-shaped flower being pure white with prettily fringed edges. *Grandiflora*, *Napoleon*, *rubra*, *cærulea*, *elegantissima*, *maxima*, and *carnea* are only a few of the numerous varieties one has to choose from. In forcing this set the plants had better be placed in an intermediate temperature at first, and as close to the glass as possible. This keeps them sturdy and allows the flowers to develop before the leaves become too luxuriant. If gradually hardened off after coming out of the forcing pit they are not readily damaged by cold, and may be placed in a cool conservatory or corridor. —K.

A meeting of Chrysanthemum growers will be held at the Royal Aquarium, Westminster, on Wednesday next, in conjunction with the midwinter exhibition of the National Chrysanthemum Society. It will be held in the course of the afternoon, and the subjects for discussion include, "Are Chrysanthemums wanted at Midwinter?" by Mr. J. Kipling, of Knebworth.

Flower shows at the Royal Aquarium.—I am entirely in accord with "B. C. R." on this matter (p. 611). It is undoubtedly "a standing disgrace to the National Chrysanthemum Society to hold their shows in such a building." I was there once only, to see the Chrysanthemum exhibition, and have no desire to go again. That was some few years back. Even then it was crowded most uncomfortably and full of stale tobacco fumes. No wonder "B. C. R." says he has "often heard gentlemen's gardeners complain of their having to exhibit where the ladies of the family could not think of going." He is not by any means alone in this matter, for I have heard the same thing said. I know a gentleman myself who would not permit his gardener to show at the N.C.S. whilst held in its present headquarters. They would do far better work in the long run if their meetings were held in more congenial quarters. The N.C.S. has

aided in a great measure by its shows to further the cultivation of the Chrysanthemum, but if the exhibitions were to be removed to the Crystal Palace, much more good might result.—FLORA.

THE GARDENERS' ORPHAN FUND.

THE concluding monthly meeting of the committee for the past year took place at the Calendonian Hotel, Adelphi, on Dec. 27, Mr. George Deal presiding. The minutes of the last meeting having been read, the hon. sec., Mr. A. F. Barron, read a communication from Mr. W. Richards in reply to the letter of condolence in his illness, conveying his grateful thanks for their expressions of sympathy. Several sums of money were announced, among them from Mr. G. W. Cummins, The Grange Gardens, Wallington, £1 19s., and from Mr. Chapman, gardener to Mr. H. W. Robinson, Romford, 13s., in each case from boxes on the occasion of opening the Chrysanthemum show in the gardens to the public. From Mr. R. Scott, The Gardens, Bradfield, Yorks, box in the gardens and at the Chrysanthemum show, £4 0s. 2d.; Croydon Chrysanthemum Society, donation £1 1s.; Isle of Thanet Chrysanthemum Society, per Mr. Miller, local sec., 13s. 2d.; Mitcham Chrysanthemum Society, per Mr. C. Gibson, Morden Park Gardens, 9s.; Gardeners' Mutual Improvement Society, per Mr. Soaring, Sevenoaks, £1; Mr. H. Deverill, seedsman, Banbury, box in office, £3; young gardeners at The Grove, Stanmore, fees paid to botany class (Mr. J. Odell giving his services gratuitously), £3; Ancient Society of York Florists, proceeds of flower service at one of the churches and flower sale at the recent Chrysanthemum show, per Mr. J. Lazenby, £10; Ealing and District Gardeners' Society, proceeds of concert, £20 2s.; with this amount came a request that the sum be divided in four sums of £5 each, and that the following promoters, Messrs. E. Chadwick, E. Cannon, E. Fountain, and A. Wright, be placed on the list as life subscribers. This was agreed to, and a cordial vote of thanks was passed to each of the foregoing donors. A letter was read from Mr. Gleeson, Clumber Park Gardens, announcing the sum of £56, including a few private subscriptions, and that it was the intention of the promoters to make the sum up to £60, so as to place a child from that neighbourhood on the fund for the space of six years, in accordance with the rule under which this can be done. A communication was read from Mr. Jas. Brown, The Gardens, Great Doods, Reigate, stating that the committee of the Reigate and District Chrysanthemum Society had presented £50 to the Gardeners' Orphan Fund, and a similar amount to the Gardeners' Royal Benevolent Institution. Mr. Barron announced that the proprietors of the Covent Garden Theatre had arranged a ticket benefit in aid of the fund, to extend from Feb. 3 to Feb. 14; that tickets could be obtained from him admitting to either a morning or evening performance on any one of the inclusive dates. A cheque was drawn for the quarterly allowances to children upon the fund amounting to £61 15s. A vote of thanks to the chairman brought the proceedings to a close.

Making lawn-tennis courts.—In reply to "Surrey," I should say that 2 feet of slope would, except for match-play, be no harm, if it is, as I suppose, spread over a length of 100 feet or so. It is more important that a lawn-tennis court should be free from Moss than absolutely a dead level. A full-sized court is 78 feet by 36 feet. A 20-foot space should be allowed between the two courts if side by side, and at least 24 feet behind the back lines. Nine out of ten lawn-tennis courts are spoiled by insufficient margins. A good game is impossible where the players are cramped by want of space, especially behind the service lines. —J. H. W. THOMAS.

Rosalaxa (*Experientia docet*).—See advertisement in THE GARDEN of this week.

Name of plant.—J. F. Wilkinson.—Form of *Cologne ocellata*.

Name of fruit.—Anon.—Apple, Waltham Abbey Seedling.

WOODS AND FORESTS.

QUALITIES OF TIMBER.

OUR ideas of the value of timber for various purposes are formed from its weight, its toughness, durability, or its hardness. Where the ligneous structure is dense, and the tissues are closely compressed, the wood is heavy; where there is a watery sap, which evaporates quickly, the wood shrinks considerably and afterwards decays rapidly when exposed. Thus all seasoned timber becomes lighter in proportion to this evaporation, some kinds losing much less than others both in bulk and weight. Oak and Pine shrink but little, and that slowly; Elm, on account of its glutinous sap, continues to shrink for a great number of years, while both the Poplar and the Willow shrink and season very rapidly. Where the sap becomes concreted in the cellular membranes, as in the case of matured Oak, or is fixed by its resinous qualities, as in the Pine, the timber attains a high value.

The hardness of a wood depends upon the closeness of its woody structure, while its toughness is due to the strength of the longitudinal fibres and the elasticity of the intermediate cellular matter. The durability of timber exposed to much wear or friction is proportioned to the size, strength, and compactness of its fibre. Most of the hard and durable wood used for manufacturing purposes is the produce of small and comparatively slow-growing trees, such as the Yew, Box, and Ebony. It is found that Norwegian Hop poles of small diameter, but from forty to fifty years old, are much more lasting than our native Ash, Sweet Chestnut, Maple, and Oak, which are used for the same purposes, and which—though of larger size—are the growth of from only nine to thirteen years.

The durability of timber is not wholly dependent upon the fibres of the wood, but is partly caused by the quality of the sap, which, in some trees, is of a highly preservative nature; thus the Oak has an astringent or tanning principle, as well as a ferruginous quality in its juices, and it is from a combination of these qualities that its durability in situations of exposure is obtained. The quality of Oak timber is never better than when the tree is grown in a good loam or loamy clay, resting upon a subsoil of blue clay, from which it obtains the oxide of iron with which the wood becomes impregnated. In the case of the true English Oak, it has been observed that the fast-grown tree attains the greatest strength of fibre, and its timber is on that account the most durable in situations where it is exposed to rough wear, as in gate-posts, and in spurs to posts and fencing. The general superior strength of fast-growing trees is due to the wider intervals between their concentric circles, or to the wood having fewer cells in comparison with the size of it. By comparing the structure of a hard wood, such as the Locust Tree, with the soft wood of Fir, Lime, and Horse Chestnut, it will be seen that the former has its cells confined chiefly to the annual rings, or else scattered in groups of irregular figures, so that the solid fibre exists in considerable masses, giving strength, toughness, and durability, while the cells of the softer woods are scattered pretty regularly through the whole mass. To form a just estimate of the value of timber for a special purpose, it becomes necessary to consider its rate of growth at all ages, and not to be misled by observations made at one stage of its existence. Again, by transferring any tree to a much better than its native soil, its rate of growth may be so

much accelerated as to lessen very considerably the value of the timber. The comparative rate of growth of trees varies considerably at different stages of their existence. During the first ten years the Locust Tree nearly doubles the rate of growth of the Oak, after which the latter takes the lead and maintains it to the end. For the first ten or twelve years of its life the Silver Fir grows but slowly, and is far outstripped by the Larch and the Spruce; but it soon distances all competitors, and by the time it reaches its fortieth year it surpasses them both in height and circumference. It may be observed that in the Pine and Fir tribes the cellular members forming the exterior part of each year's growth are possessed of greater strength and durability than the intermediate portion, as may be seen by the ribbed appearance of an old and well-worn deal floor.

The soundness of timber may be ascertained by placing the ear close to one end of the log, while another person delivers a succession of smart blows with a hammer or mallet upon the opposite end, when the continuance of the vibrations will indicate to an experienced ear even the degree of soundness. If only a dull thud meets the ear, the listener may be certain that unsoundness exists.

The quality of timber is greatly dependent upon the aspect in which it is grown. Where this is northern, the wood is generally soft and not properly lignified; consequently, it is better adapted for purposes of manufacture than for building. In this aspect the young trees suffer less from frosts in the spring in consequence of the vegetation being backward, but, owing to the tardiness of ripening, the summer shoots are frequently caught by early autumn frosts. An eastern aspect will grow trees of a good medium quality, fitted for the greatest number of uses; consequently, this is considered the best aspect for forests of large size. As the temperature is moderate and the wind dry, vegetation is here fairly rapid. Upon a southern aspect, the timber, though superior in lignification, is more irregular in form. When the growth of the trees will admit of such uses, it is well adapted for building purposes requiring extra length and strength of beam and scantling. Upon a western aspect the heat is generally considerable, on account of the sun shining upon it during the hottest hours of the day; but, owing to the frequency, the strength, and the irregularity of the winds, the timber is often ill-shaped. B.

Management of hedges.—Hedge culture depends much on the judicious use of the hedge-bill, and something also depends on the shape in which the hedge is cut. Some people recommend that hedges should be cut in the shape of an inverted A. This, if strictly adhered to, would hinder progress of the hedge greatly, as well as deprive it of body and strength. I lately saw some hedges that were trained with bellied sides, rounding off to a peak at the top. A section of the hedge represented a Gothic arch more than anything else—a broad bottom, straight sides and a peaked top. Trained in this form, the bush is sooner up, as the top is not shortened so severely in cutting, while the sides are sufficiently pruned to make a fence dense and strong enough to form a barrier against cattle of any kind. Such hedges need no inner paling as a protection. The plea put forward for Quick hedges that they are pretty and ornamental when in bloom is all moonshine. Well-kept hedges never produce blossom, or at least should not do so. Their correct pruning is essentially restrictive, hence flowers and haws are out of the question. Many of the hedges in England—the majority of them, indeed—have a rustic beauty about them from an artist's point of view, but in a cultural sense they are a wretched sight. Neglected at the outset, they

grow all to top; are then summarily lopped over, or are half-cut and bent down here and there to fill up the gaps. Here a stake is driven in, and there stones are used where the hedge has failed altogether, and in the end we have a fence that is neither a hedge, a paling, nor a wall, but a compound of all the three, concerning the keeping and repairing of which the tenants and the landlords frequently quarrel.—R.

THE WOOD OF THE BEECH.

THE Beech is one of the most useful British timber trees, although others are much more costly. It is well adapted for indoor purposes, but is less suited for use out of doors. In its natural state it is largely used for cogs and where hardness is required, and when properly treated in felling, drying, and preparing, it is not superseded by any other kind of English wood. The Holly, the Hornbeam, the Thorn, the Crab, &c., are often substituted for the Beech, but if treated in the following manner it maintains a decided superiority over these: When the Beech is to be used as mentioned, it should be felled during the months of December and January, but a few weeks prior to felling, several gaps should be chopped in the tree near the roots, in order to allow it to get rid of its sap freely. As soon as possible after felling it should be cut up as required, and put under cover in a perpendicular position. Often it is utterly spoilt by being laid aside horizontally, in which position it cannot dispose of its sap; consequently its hardest properties are destroyed, and it is thereby rendered practically useless for the best purposes for which it is required.

The growth of the Beech is very rapid, and it attains its prime in about from sixty to eighty years. If it is permitted to grow much older than this, it often becomes black-hearted, and this condition is followed by rottenness and shakes. In this state the wood is worthless for manufacturing purposes. The Beech is generally deceptive when hedge-grown, the reason being that in its early growth it is very tender and requires protection. Grown thus, it is exposed to blemishes of various kinds, and these turn black, the stain remaining in the wood ever afterwards. When stains occur the wood is valueless for steaming.

Nearly all the Beech is now steamed, as this process greatly improves its colour. The more sap it contains the better it can be steamed, and a skilful person can give the wood a very bright hue by careful steaming. If it is allowed to lie several months after being felled it can seldom be used for the best purposes to which steamed Beech is put. Steaming does not improve its strength as it improves its appearance; it rather reduces this quality, though strength is seldom required where steamed Beech is used. When required for steaming it should not be felled when in full leaf, but in the months of October and November and again in April and May, when it contains most sap. We may here mention that joiners, when buying planes, frequently ask for red, or, as they call it, "male" Beech, in preference to the white or "female" Beech; but if they were better acquainted with the process of steaming they might possibly reverse their preference, for it is by this process that the red hue is produced. The Beech develops a great quantity of sap, and feeds itself very much from its leaves. During a dry spring it will scarcely move its buds, but after a shower of rain the tree is soon in full leaf. Its growth always ceases early in the autumn. The best qualities of Beech are grown on light land, and when protected by other stronger kinds of timber trees. The Beech seldom attains to a large size in the open, and on account of the smallness of its roots it is more liable to be uprooted in open situations than most other trees would be.

In cutting up Beech timber when fresh and full, half an inch to 1 inch should always be allowed for shrinkage. There is only one other English timber, the Lime, which shrinks so much in drying. There are two kinds of Beech; one kind bears fruit and the other does not, and in the opinion of some the fruit-bearing tree is the softer of the two.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE ORCHARD.

IMPOVERISHED ORCHARD TREES.

DURING the past three or four seasons a great many fruit trees have been planted, and if the country is not in a few years' time well supplied with hardy fruit, it ought to be. In several instances, however, that have come under my notice there has been an almost unaccountable oversight on the part of those responsible for the work done. They would appear to have overlooked the fact that it is quite as possible for fruit trees and bushes to impoverish the ground almost as quickly as any other crop. Those who start growing vegetables for market usually select a site within easy distance of a town, railway station, or canal, this not merely for the purpose of getting rid of the produce without having far to cart it, but also and principally on account of being able to obtain abundance of cheap, solid manure. It would not be wise to plant orchards in valleys near water where spring frosts are often very severe, but they might well be located on higher ground within easy distance of a good manure supply. In bygone days considerable numbers of fruit trees were planted evidently without much regard to their free-bearing character, and many of the more shy bearers especially attained a good old age and were fairly profitable. The modern planter is content with a very limited variety, planting far greater numbers of each than ever his forefathers did; but the question arises, How long will they continue to produce really good fruit in profitable quantities? Not many seasons, I fear, unless the trees are liberally treated at the roots, and that, too, before they have long been planted. In but few instances are any but the best known productive varieties planted, the preference usually being given to those which commence to bear within about two or three years after they are in position. To make matters worse, the ground is generally closely cropped with fruit bushes and Strawberries, the latter being planted between rows of Gooseberries and Currants, and coming off at the end of the third or fourth season. This undergrowth must greatly impoverish the ground, and unless therefore the standard trees when in good bearing condition are well supplied with solid manure every second or third year, or a substitute be found for it, they will quickly wear out, nothing but crops of second-rate fruit being obtained from them. The manure question will have to be faced, and in any case it will be found a serious item in the expenditure. Already has the owner of one of, if not the largest fruit growing farms in the country discovered signs of failing health in the case of innumerable overcropped trees, and how to remedy it is the difficulty. Situated in Gloucestershire, far from any important town and not within easy access of either canal or railway, it is found an impossibility to procure a hundredth part of the manure required in the various orchards extending collectively over upwards of 500 acres of ground, and the best substitute, bone manure, if applied in sufficient quantities to be effective, is very expensive.

On going through the orchards just alluded to about the time Strawberries and bush fruits

generally were being picked, I noticed several men applying liquid manure to the trees standing most in need of it, and this is constantly being done as fast as the manure accumulates in the collecting tanks. This is found to be a rather slow, and, the horse and manual labour being reckoned, also a somewhat expensive affair, especially seeing there were no spaces left between the trees to admit of a roadway for a horse and cart. I have had some experience in Essex fruit gardens, and those that remain in the most profitable state receive a dressing of good London manure or home-saved farmyard manure every second year, this being applied during the winter. Sometimes it is very lightly forked in, but more often it is merely spread thickly over the surface, though in either case it acts as both a mulch and fertiliser. Thus treated, the Gooseberries, Currants and Raspberries are kept in a fairly vigorous state, rarely failing to produce fine crops of superior fruit, while the Apples, Pears, Plums, Damsons, and Cherries are also much benefited, very few stunted trees being seen. Nor should the value of a good supply of liquid manure be overlooked. Not a drop of this ought to run to waste, especially where there are any fruit trees in a half-starved state, and, on the whole, I believe the winter and early spring months to be the best time for applying this, as well as the contents of sewage tanks, to the ground about the roots. It is worse than useless to give liquid manure to fruit trees and bushes in hot weather, or when the ground is dry and hard and the roots, perhaps, tender; but the ground being moist and the roots at rest, strong liquid manure may safely be freely applied, much of its fertilising properties being absorbed by the ground and available as food for the trees when needed. Few think of using their manure among fruit trees during the winter, but it is a mistake not to thus utilise it.

There is yet one other way out of the difficulty experienced by those who have large orchards and are unable or unwilling to expend much money in manure for the same. In some parts of America, Peaches, I am credibly informed, are extensively grown in orchards, the fruit being far more plentiful than are Apples, as a rule, in this country. Such enormous crops do the trees bear that they soon become exhausted and useless, the cultivators being under the necessity of planting fresh orchards very frequently, if not annually, to take the place of those gradually wearing out. Supposing the trees and bushes are reared on the estate, as they now-a-days frequently are, it would not be very expensive for our fruit growers on a large scale to be constantly forming fresh orchards to replace those being exhausted, and in all probability this will be done in two or three instances I could name, as being in the end the cheapest and best way of obviating the use of manure.

W. IGGULDEN.

Lord Suffield Apple.—This Apple is not now so popular as it was twelve years since in market gardens. Possibly it requires specially favourable seasons, but the impression prevailing is that whilst first-rate on young trees, it becomes weak with age and far less productive. That is a matter with respect to which it would be well if the widest expression of opinion could be obtained. That there is an undoubted element of tenderness in the wood there can be no question, for it fails to mature at the points thoroughly, and any variety subject to that failing, as is the case with the Ribston Pippin, can never become widely grown or reliable. The Wellington Apple has in the form of old trees gone back sadly in popularity, as it crops indifferently after the trees have become twenty years old. To learn the aver-

age endurance of varieties would be useful, and, of course, information should be furnished as to soil and position. Our somewhat cold clay may not be favourable to productiveness in Apples after the trees have become aged, but, all the same, we have vast quantities of trees in the district. Generally, I think the best course, even with standard trees on the free stock, is to plant somewhat thickly, that the produce may be of the largest when the trees are from eight to eighteen years old, and to clear off all the trees at the expiration of twenty-one years, having other plantations some five years old following on fresh soil. Trees of moderate age give the best fruit, and it is doubtful whether aged trees, having regard to the modern market requirements of fruit samples, are worth retaining, except they are Blenheims or some especially robust varieties on favourable soils.—A. D.

—This Apple, like all the Codlin section, being a profuse cropper, requires careful thinning to insure moderate growth of wood, especially when worked on the Paradise stock and grown on cold, heavy soils. Under these conditions the trees should be planted hillock fashion, and certainly they need not be lifted more than once, just to spread out the roots in the way they should go. The end of the first year after planting is the best time to lift, and seeing that cordons 2 feet to 3 feet in height set four times as many Apples as they can carry to maturity, they will stand any amount of mulching all the year round and feeding with good liquid after the crop is thinned. Young trees on dwarfing stocks may then be induced to make shoots furnished with leaf buds, and once this style of growth is secured, its continuance will entirely depend upon the timely use of the scissors. For orchard planting this Apple should be worked on the Crab, and trained as an extension dwarf bush. For garden culture it does well on the English Paradise stock, and the less it is pruned, the healthier the tree. Apple trees of all kinds, especially the choice varieties on Paradise stocks, are crowded with flower-buds of the first quality, and the season proving favourable, they will produce a profusion of fruit. Those who wish to have the finest quality, and at the same time a supply of young wood, should clip out the weakest buds before the flowers expand.—W. C.

FRUIT GROWING IN BRITAIN.

TO THE EDITOR OF THE TIMES.

SIR,—The letter on this subject in the *Times* of December 30 puts the case obliquely and unfairly. Of the comparatively unknown Apple Gravenstein but little need be said. Occasionally an English growth is as good as any that has been imported, but the variety is best adapted for amateurs who grow collections, and is scarcely thought of for market culture. Of Newtown Pippin something similar may be said, but this is more often met with in fine quality of home growth than the other, but for all that it may be disposed of as one of the curiosities of the fruit garden.

Your correspondent does himself and the cause a wrong by declaring that the public taste is sufficiently discriminative, and then pronouncing King of the Pippins as "very poor in flavour," because this is one of the most popular of Apples, and the public taste has never had enough of it. It appears in the market when home-grown Apples of many kinds abound, but it carries all before it in price, and the stocks, however large, are soon cleared out. Nor is its good quality a matter of recent knowledge, for Rea, in his "Flora," published 1676, speaks of it as "better tasted" than the Juneating; and Dr. Hogg, in 1884, described it in the fifth edition of his "Fruit Manual" as "one of the richest flavoured early dessert Apples."

Your correspondent is unhappy in his choice of Blenheim and Ribston, for the first is slow to bear and the second is so liable to canker, that

no one can predicate that it will pay in any place until it has stood the test of years. Of Cox's Orange Pippin, the best of the three recommended, it may be said that it supersedes the Ribston for all general purposes. It may be grown in any form, on any stock, and in any fairly good soil south of the Trent, and on the western coast as far north as the Clyde; it is not subject to canker, bears abundantly, keeps until March, and is the equal of Ribston in size, beauty, and flavour.

The tendency of market growers is to turn their crops of all kinds into money as soon as possible; hence they grow early maturing Apples, such as Lord Suffield, Stirling Castle, the King, and Golden Noble. These and other favourites are cleared off before the Baldwins come in; but when the Baldwins are gone there remain so few Apples that it may be said the season closes with them. There we touch a weak point in British fruit culture. Apples are wanted until April or May, but both in private gardens and in market gardens the late-keepers appear to be least in favour.

There are, however, many Apples of fine quality and sure bearing that carry the supplies to March and April and even to June or July. Fearn's Pippin, a beautiful fruit, keeping to March; Boston Russet, of the finest flavour, keeping to April; and Cox's Orange, good until the end of March, are all free bearers of excellent constitution, and as well adapted for profitable cultivation as any Apples known. For a southern climate and a deep, light soil Golden Reinette on the Paradise stock is invaluable, and keeps well until April or May.

There are two grand Apples adapted for late use that, though in high favour with advanced fruitists, are not so well known to the general public as they deserve to be. These are Lane's Prince Albert and Dumelow's Seedling, also known as Wellington. These bear annually and abundantly; they have a fine appearance, are of excellent quality for culinary purposes, and keep well to March or April. Given a reasonable breadth of these on a fairly good soil, a fair return may be reckoned on, provided they are not sent into the market until they are wanted, for it is a miserable business to hurry such into competition with perishable sorts at a time when the markets are glutted. A handsome Apple is at this time worth 6d. retail. I was asked that price for a brilliant sample of Northern Spy a few days since.

As for the noble Blenheim, it has been much overrated as a fruit for profit. In whatever form it may be grown—and the free standard is the best form—its persistent slowness to show a crop is a serious obstacle to its general acceptance. Many good sorts of Apples may be found that will pay their way a dozen times ere the Blenheim of the same age has shown a single fruit. Moreover, it is not constitutionally adapted for general use, although in a place that suits it one has only to wait half a lifetime, and then it may prove a pearl of great price.—SHIRLEY HIBBERD, *Kew*, Dec. 30.

[Mr. J. Wright agrees with Mr. Hibberd.]

— Some letters have recently appeared in the *Times* in which the merits and demerits of certain varieties of Apples are discussed. English-grown fruits of the Gravenstein have been alleged to be not worth eating, King of the Pippins inferior, while the American Newtown Pippin was extolled for its high quality. Samples of all the varieties are sold that differ greatly in merit, according to the age of the trees, and the soil and district in which they are growing, or dying. The true German Gravenstein ripens in this country, and the fine fruits are delici-

ously refreshing, quite equalling, and even excelling, some of the imported Newtown Pippins, but not all. But it must be remembered that quantities of Apples are sold as Gravensteins which are not Gravensteins. King of the Pippins Apple is not so rich as Cornish Gillyflower, nor as the best examples of the two varieties above named; but if plantations of an equal number of trees of the four varieties were established in a field of good soil there is very little doubt that by the time sufficient fruit had been gathered from three of them to pay the rent of the land the crops yielded by King of the Pippins would have realised enough money to buy the freehold. It is one of the most certain bearers of all table Apples, and trees have often afforded good crops in "bad" years when those of most other varieties were barren. The correct name of this Apple is Golden Winter Pearmain, but the popular name is employed, as under that name trees are generally sold, and mistakes are not likely to occur, as the true King, a much earlier Apple, is scarcely grown in nurseries. It is a great mistake for persons who plant trees for profit to choose the most highly-flavoured varieties simply because they possess this one quality—an important merit no doubt, but there are others, such as hardness of tree and blossom, with productiveness, that are of more substantial value. Then some handsome and excellent sorts are notoriously slow bearers. Mr. Shirley Hibberd, in the *Times* of January 3, refers to the Blenheim Pippin as one of these. I agree with him and his estimate of varieties generally.—J. WRIGHT, in *Times*.

— Mr. Hibberd misleads your readers in various ways. (1) In saying that the Newtown Pippin is "often met with in fine quality of home growth." A monstrous statement, as no Newtown Pippin has ever been grown in England with any flavour. (2) That the King of the Pippins is an Apple of fine flavour. He quotes Rae, who wrote over 200 years ago in praise of this fruit, Rae being dead long before Cox's Pippin, the Ribston, the Newtown, or any of the best Apples of Europe or America were raised.

Then he quotes Hogg to show that this poor Apple is "one of the richest flavoured early dessert Apples."

The care that Dr. Hogg gives to the flavour of Apples may be tested by looking at his book, in which he describes 152 Apples as first-rate, 88 excellent, 6 delicious, 14 one of the best, 10 very good, 4 finest, 1 of great excellence, and in all 278 Apples, to which the highest praise is given!

Now, there are not thirty Apples of the highest class in Britain. (3) "I am very unhappy in my choice of Blenheim and Ribston." A pretty statement to make by anybody who knows anything of fruit culture. The Blenheim—the best Apple, take it all round, grown in England—must be rejected because it is slow to bear, but many of the best growers are too wise to follow this advice, as of all other Apples it seems most in demand in Covent Garden when it can be got. (4) The Ribston as "liable to canker." That is no reason for giving it up. English fruit growers and gardeners will, I believe, be able to get over this difficulty with the Ribston. I have planted many trees of Ribston to test how it grows on different stocks, using all the sorts of Apple stocks I could get in Britain. There is a wide difference, the growth being cleaner and harder on the English Paradise and the Doucin and Goff (a Kentish Apple) than it is on the Crab, which I think the Ribston hates. There are other

stocks I am still more hopeful of, but will have to wait for results. The fate of the Ribston in England is by no means hopeless.

A child who eats Apples would reject some of those Mr. Hibberd praises. I am as certain that some Apples are as hurtful to use as that others are wholesome. Flavour is not merely a matter gratifying to the taste; it is a question of health. The Blenheim makes a perfect dish cooked without sugar—the highest test of an Apple. The Blenheim is worth any ten of those Mr. Hibberd mentions—Boston Russet, Golden Reinette, and others of that ilk.—THE EDITOR, "GARDEN," 37, Southampton Street, Strand, W.C.

— As I have had some experience in the culture of Apples, and have to keep up a supply nearly all the year round, I should like to add a few remarks to those which appeared in THE GARDEN, Jan. 4 (p. 4). Three excellent Apples are named in the article in question, viz., Cox's Orange Pippin, Ribston Pippin, and Blenheim Pippin. The last-named Apple, in my estimation, stands next in value to Cox's Orange Pippin, but it requires quite different treatment. The Blenheim Orange succeeds best grafted on the Crab stock and cultivated as a standard. It does not bear freely in a young state, and is not a shapely tree grafted on the Paradise or any other dwarfing stock; whereas Cox's Orange Pippin succeeds splendidly on the dwarfing stock, forming either a dwarf bush, columnar, or pyramid-formed tree, the fruit always being splendid in quality. I do not quite know whether Ribston Pippin should be placed third; it is rather uncertain, and is the first to show signs of canker, and the fruit is usually irregular in size, not more than half of it being of the first quality. It can be grown either as a standard on the Crab or as a dwarf or pyramid. The nurserymen are blamed for growing too many varieties of Apples. Probably there is a good deal of truth in this, but the trade must grow what they can sell. I have frequently remarked to a large dealer in fruit trees when looking over his collections, "Why do you grow this, that or the other variety, when there are so many better?" and have been met with the cogent reply that they are grown because their customers want them, and will not be put off with anything else. This matter can only be righted by individual experience in different localities, and there is also much difference in taste. For culture in this district I would place Orange Pippin first on the dwarfing stock, Blenheim next as a standard on the Crab. It likes a deep, rather clayey soil with good drainage. The Ribston Pippin I would also plant if the soil was deep, and would lift the trees and replant them every second year until they had been six years planted, spreading the roots well out near the surface each time. The best early Apple I have is one I received many years ago under the name of Early Strawberry; the skin is crimson nearly all over when exposed to the sun. Early Margaret, Juneating, and Early Harvest are only fit for boys; they are too acid for dessert. The Irish Peach, when well grown, is a fairly good early Apple. Kerry Pippin is rather small, and a larger and better Apple, ripening about the same time, named Jefferson, does not bear freely—in fact, it is too shy—so it must give place to the Kerry Pippin, which always bears freely. I think very highly of Mannington's Pearmain, and one of the best-flavoured, very late Apples, though small, is Lodgemore Nonpareil.

One does not require many varieties of kitchen Apples. The best early one is Lord Suffield, which is large in size, and must be used from the trees or soon after the fruit is gathered. Golden Noble, from a standard on the Crab stock, comes next, followed by Cox's Pomona. Lane's Prince Albert comes in next, and is with us a beautiful, firm fruit, the trees always bearing freely. Blenheim is quite as useful in the kitchen as it is for dessert; and from Christmas to the end of March, or later, what can equal Wellington (syn., Dumelow's Seedling)? The excellent Brownlee's Russet will last to the end of May, and one may have the Winter Greening or French Crab until Lord Suffield is ready for use

Apple trees have been, and are being, planted rather extensively this year, but as far as I have seen many of the planters know but little of the varieties adapted to their individual localities. What is of perhaps even more importance is the preparation of the soil. I have known an instance of a farmer ploughing his land, good fruit land, too, about 5 inches or 6 inches deep, and planting the trees without any preparation. Were I planting a given space of ground—say 1 acre or 10 acres—I would cultivate the ground 18 inches deep. It is not absolutely necessary to trench it; the steam cultivator tears it up almost as well, and does not throw the subsoil on the surface, where it is not wanted. I would purchase young, healthy, two-year-old trees, enough to plant an eighth part of the ground at 3 feet apart, the remaining portion to be cropped with vegetables until the trees, as they increased in size, could be gradually replanted to fill the entire space.—J. DOUGLAS.

—“T. W.” (GARDEN, Jan. 4, p. 4) is wrong in supposing that the English public purchase foreign grown fruit and pay more money for it than home-grown goods. I have had a good many years' experience of growing and selling fruit, and during the last seven years have had a better opportunity than most growers of fruit have of forming an opinion of what the public want, for I not only grow it, but I sell it myself direct to the consumers, and no matter how full the fruiterers' shops close by are of imported fruit, I can always get a better price for my own, not in one or two instances, but in all the fruits I grow. In Grapes, Tomatoes, and several other kinds I get more than double the price of the imported fruit, while in the subjects under discussion, viz., Apples and Pears, we can compete with the most favoured nations under the sun, and my experience demonstrates every day that really practical growers can make a better living by fruit growing than by any crops they grow. But if they enter on it with the idea that a good deal of hard work will not be required, or that they will make a fortune in a short time, I would advise them to have nothing to do with it. Many and varied are the obstacles the fruit grower has to contend with, not only as regards a fickle climate and hosts of insect pests, but hindrances designedly put in his way by antiquated laws. But while we are waiting for changes that we trust will be improvements, let us not stand idly looking on, but do the best we can under even adverse circumstances. But to come to the case mentioned by “T. W.” of the Gravenstein Apples imported from Denmark. This variety may suit the Danes very well, but it does not suit me, and I would never plant it or recommend anyone else to do so for profit. It is a handsome Apple, and in a private garden a tree may do very well, as it is best when gathered fresh from the tree. But those who grow for profit should go in for either the largest cooking Apples or dessert kinds of the very best quality. After they have satisfied themselves what sorts they can grow to perfection, they should start with a few sorts and grow them really well, for I never have either very large or really good-flavoured Apples left on hand, let the crop be good or bad. I should hesitate to select kinds for anyone without knowing all the circumstances by which he was surrounded. We can grow many sorts of Apples without speck or blemish in either the trees or their fruits, but I do not find Ribstons profitable, although I know they are good where they can be grown. The same may be said of Pears. I have not succeeded with Glou Morceau and some other really good sorts. The public have very varied ideas of what is really first-rate in Apples and Pears, for some ask for the crisp, firm-textured Apples, while others expect them to be as melting as a Pear, and to meet these varied tastes as well as to suit different soils and situations, I think, even with the best intentions of fruit-tree producers, it will take some time and patience to produce a brief list that will satisfy both private and market growers of Apples and Pears.—JAMES GROOM, Gosport.

—It is satisfactory to find THE GARDEN adding to its columns a new department, “The Or-

chard,” a subject hitherto apparently neglected. This addition is further proof of the earnest revival of our fruit-growing industry that has sprung up on all sides.

It is hoped the practical knowledge thus disseminated will reach those interested in the cultivation of orchards, for it is a fact open to the most indifferent observer that there is no single department in horticulture displaying such a lamentable deficiency of knowledge necessary for the successful cultivation of fruit trees as is to be found in the case of those in possession of our ordinary orchards (those occupied by market gardeners and private practical gardeners excepted). Now these facts are positively injurious in several ways, notably by producing and glutting the markets with inferior and bad quality fruit, giving a notoriously bad name to home-grown fruit generally, with the consequent realisation of ruinous prices. Our forefathers have much to answer for by neglecting the planting, pruning and cultivating of young trees; consequently the majority of our orchards have grown old together and become crowded with useless wood, capable only of producing fruit of very inferior quality.

In addition to this, the subject of orchard tree planting and pruning properly has so long been abandoned, that at the present day the simplest elementary knowledge of the treatment of a fruit tree is conspicuous by its absence amongst those labourers that are otherwise engaged in agricultural pursuits. True, a great many trees have lately been “stuck in,” but how have the majority been planted? Simply by digging a hole about 2 feet square or less and about the same depth, stuffing the roots into the bottom, first dipping out the accumulated water, then filling up the hole and finishing off, the tree being left planted about 1 foot deeper than formerly, “for to prevent the wind from blowing it down.” This is only one instance of hundreds that have come under one's very eyes, it being part of our business to grow and supply fruit trees to tenant farmers and others for the permanent improvement of orchards in this and some adjoining counties.

The results of our six or seven years' experience have not been very encouraging on the whole, for the difficulties of prejudice, ignorance, conceit, and obstinacy have to be overcome with a ridiculously conservative class of men; still we hope that time and perseverance will mend matters. A good deal of unpractical matter on the subject of fruit growing has lately appeared in the *Times* and other leading newspapers.

It will generally be admitted that where intelligence and skill are brought to bear on a large area of this country, samples of Apples are produced equal, or superior, to anything our colonists or others send us from abroad; at all events, I have tasted nothing imported to equal good home-grown samples of Blenheim Pippin, Cox's Orange, or Ribston, and I have tried to arrive at an unbiased judgment. There can be no doubt that dwarf bush trees, highly cultivated, give the handsomest and finest fruit, but we must look to equally well cultivated standard-grown orchard trees as the sheet anchor by which our toiling millions of dwellers in towns can obtain at such prices as will compete with the foreigner on our own ground such kinds as Apples, Pears, Plums, and Cherries. We have much to unlearn and very much to learn before that happy state is reached, especially in the matter of proper methods of planting, attention, pruning, dealing with insects, sites, shelter, storing, and marketing, each of which I hope to touch upon in future notes.

The best season for planting being over, and the probable risk of having an indifferent selection of good trees at this late period, little need be said at present, but pruning should be persevered in during open and favourable weather, and grafts secured to be laid in by the heels. Old trees, hitherto neglected, resent severe pruning, and should be dealt with cautiously, and I am no advocate for grafting old, sickly, Moss-grown specimens, but younger and healthy trees may be advantageously

grafted with superior kinds and so save time.—W. CRUMP, *Madresfield Court*.

NOTES OF THE WEEK.

Crocus minimus.—It may interest some of your readers to know that *C. minimus* opened its flowers to-day on my rockery. People were skating near here on the 2nd and 3rd inst.—G. H. WOLLASTON, 24, College Road, Clifton, Bristol.

Odontoglossums at Highbury Park.—Here at the residence of Mr. Larkins these plants are very gay, several kinds being grown in quantity. At present in flower are various forms of *O. Pescatorei*, *O. grande*, *O. Alexandræ*, and *O. Insleyi*, whilst the beautiful *O. Rossi majus* in great variety forms quite a picture of beauty.—W. H. G.

Struthiopteris germanica forced.—The note about *Struthiopteris germanica* at page 560 reminds me that last autumn I frequently noticed in the streets of Vienna masses of *Scolopendrium vulgare* and *Lastrea Filix-mas* being sold for room decoration. To all appearance these two Ferns stand well the dry air of rooms.—LOUIS KROPATSCH, Vienna.

Schaueria calycotricha.—The *Schaueria* genus is small, comprising only about eight species of Brazilian stove shrubs, of which *S. calycotricha* is one of the best. It is sometimes labelled *Justicia calycotricha*, and is at once recognised by its yellow hairy corolla which gives the plant value at this season of the year. There are several plants in bloom in the stove at Kew.

The Loquat (*Eriobotrya japonica*) is worth a note for the richness of its foliage at this season. There is a plant on a south wall at Kew as verdant and vigorous as in full summer. The Loquat is quite ornamental enough for a wall, and those who have warm sunny positions might well plant it. It was first made known by Kämpfer in 1690, who saw it flourishing in Japan. The leaves are very abundant, of the deepest green, large, and downy on the undersides.

Blood Flowers (*Hæmanthus*) at Kew.—The well-known *H. natalensis* is now in full bloom in the stove at Kew. It is one of the most striking indoor things of the winter season. In the Cape house *H. albo-maculatus* is in beauty and it is a charming flower. It is dwarf, the crowd of filaments like a small brush, white, and tipped with golden-coloured anthers. The leaves are spotted with a creamy colour. It is a plant well worth growing, and amateurs should make a note of it. It was introduced from South Africa in 1878, and *natalensis* in 1862.

A good late Chrysanthemum.—There is no variety more beautiful this year in January than *Belle Paule*. A plant in the greenhouse at Kew is smothered with characteristic flowers, which are pure white with a margin of lilac to the drooping florets that appears more boldly on November blooms. It was shown well at the recent exhibition of the National Chrysanthemum Society, and was sent out by Marrouh in 1881. It is the same as *Belle Pauline*.

White Hoop-petticoat Daffodil.—I am sending you herewith a pan of *Narcissus Bulbocodium*, which is in capital condition. I thought you might like to figure it. I will send my man round for it tomorrow, or if you wish to keep it longer, kindly let me know.—THOMAS S. WARE.

* Perhaps the most beautiful thing we can see in mid-winter amongst hardy flowers; the very essence of the most delicately formed white flowers, with yellow anthers.—ED.

Lælia furfuracea.—Although this species has been introduced upwards of fifty years, it has been rare of late, and *L. autumnalis* has been used in its place under the same name. A plant blooming lately with Mr. Horsman, of Colchester, attracted my attention, its rosy pink flowers being very conspicuous and delicate, and quite distinct from those of *L. autumnalis*. This plant has declined in public favour by reason of its supposed difficult culture, but Mr. Horsman appears to grow this and all the Mexican species well, so that we hope to see it again become familiar to all Orchid growers.

Cypripedium Io grande.—This is a handsome form now flowering in Sir Trevor Lawrence's garden at Burford Lodge, Dorking. It is very beautiful, having the foliage handsomely tessellated with white on a green ground, flowers large, dorsal sepal white, flushed with rose and veined with rich

purple, lower sepals smaller, white, veined with green, petals rosy purple towards the tips, heavily marked with black wart-like spots; pouch large, rosy purple above, greenish below. It is a plant that appears to enjoy strong heat. *C. Io* is a cross between *C. Argus* and *C. Lawrenceanum*, and was raised by Mr. Cookson. I do not know whether *C. Io grande* is also one of Mr. Cookson's seedlings.—W. H. G.

Mushrooms.—I am sending you a photograph of a bed of Mushrooms that I have had taken here. I think it is an unusual thing to have such a show of Mushrooms in so short a time (five weeks). This is the second bed that I have had this season, the first being equally as productive and quick in coming into bearing as the one represented in the photograph.—JOSEPH HINTON, *Pull Court, Tewkesbury.*
* * The photograph showed a remarkably fine crop of Mushrooms.—ED.

Chimonanthus fragrans.—This charming hardy shrub has again delighted us with its highly fragrant and pleasantly perfumed flowers; moreover, our plant seldom fails to ripen a fair quantity of seeds, which are now hanging on the tree. This desirable shrub is found to answer well pruned and treated similar to a Peach tree, as it flowers on the previous year's wood. The seed germinates freely and the young plants grow vigorously, and it cannot be too strongly recommended to lovers of sweetly scented hardy flowers. I should add, our plant grows in a warm snug corner against the wall of my cottage, having a south aspect and sheltered from the east and north.—W. CRUMP, *Madresfield Court.*

Hypolepis Bergiana.—This is one of the prettiest of about a dozen species that constitute this widely spread genus. It is of erect habit, from 1 foot to 2 feet high, with fronds a foot long by half as much wide. They are slightly tomentose, and of a rich deep green. We have recently noticed it growing in a warm fernery, but in a decidedly unsatisfactory condition. It is much happier when grown in a low temperature. In the cool fernery at Kew and in the temperate house, where the temperature in winter is often down to 40°, it thrives perfectly planted out in sandy loam and peat. In a warm house it is usually infested with thrips. It is a native of South Africa, other species being found in such widely separate regions as Australia and North and South America.

Calceolaria fuchsifolia.—Although hardy in some parts of England, we find in the neighbourhood of London that this shrubby species can only be grown safely against a wall. It may be used, however, with advantage as a pot plant, and flowered in the greenhouse. Its bright yellow flowers and deep green, Fuchsia-like foliage are very acceptable at this season. Cuttings should be taken in February and struck in sandy loam with a little bottom-heat. By potting them on as they require it into 5-inch pots and keeping them stopped until August, bushy plants of convenient size may be obtained. They should be stood outside on an ash bed at the beginning of June and freely watered all the summer, occasionally with manure water. This species is a native of Peru, whence it was introduced about ten years ago.

Acacia dealbata.—This species may be said to usher in the flowering season of the genus. Although *A. platyptera* and one or two other less common species are already past, it is from now onwards that the great majority develop their blooms. Where a judicious selection of the numerous available kinds is made, some or other of the Acacias may be had in flower from now up to May. *A. dealbata* is not only a very beautiful species both in foliage and in bloom, but it is also a very useful one. Along the Riviera, from Hyères to Mentone, it is very common in the gardens. The bright and continuous sunshine of that favoured clime appears to exactly suit it; the growth is luxuriant, but firm and well ripened. In October the trees—some 30 feet or more high—were completely covered with flower-buds, easily enabling one to conceive what a glorious sight they must be when in full bloom. In the temperate

house at Kew there are several large specimens now commencing to open their flowers. The finely-divided, silvery foliage admirably sets off the bright yellow flowers. Being a very free grower, it should be well pruned each spring; indeed, it requires a rather lofty house to enable it to assume its best appearance. It may be used with good effect for clothing pillars, especially if it is desired that this should be done in a short time.

Late-sown Parsnips.—The majority of calendars and seedmen's catalogues invariably advise early sowing of Parsnip seed to ensure a good crop, and undoubtedly it is sound advice. The months of February, March, and the latest of all, April, are mentioned. In the kitchen garden here a bed was sown last February, and on June 8 not a solitary plant was to be seen, so I determined to wait no longer, but on this date (June 8) hoed up the weeds, raked them off, and in drills 18 inches apart sowed the bed afresh. Towards the middle of July the seedlings appeared, and some of my friends when looking through the garden smiled at the diminutive plants of Parsnips. To-day (January 6) I have dug from that bed Parsnips 2 feet in length and 12 inches in circumference at top, clean and tapering; in fact, a better bed of Parsnips I never saw. I should not, however, advise such late sowing, but record this for those who, like myself, might have a failure in first sowing and think late sowing would be of no use.—A. LOCKE, *Danesfield, Walton-on-Thames.*

The retirement of Mr. William H. Baxter from the service of the Oxford University, owing to impaired vision, will occasion for him general sympathy. Mr. Baxter succeeded to the office of Curator of the Botanic Garden on his father relinquishing the post more than forty years ago, and he has in addition held the appointment of Superintendent of the University Parks since the time they were first laid out. Although much concern has been felt for some time past owing to Mr. Baxter's increased weakness of vision, it was not anticipated that he would so soon be incapacitated by his infirmity from the performance of his duties. It is gratifying to be able to announce that in a convocation of the University authorities it has been decreed to pay annually to Mr. Baxter the sum of sixty pounds. The Botanic Garden Curators and those of the Parks each contribute in addition equal sums of twenty pounds, thus providing him with a well-earned annual pension of £100, which we heartily hope Mr. Baxter will enjoy for many years to come.

Iris Bornmulleri.—This most distinct and beautiful little Iris has been in flower in a pot in my greenhouse since the commencement of the new year, and seems to be in every respect a most desirable addition to the earliest blooming of our hardy spring flowers. It is a native of Armenia, where it grows close to the melting snow, and when I received my six bulbs in October I planted them in a clump in a narrow border, near a low wall, and in a position lying well to the sun. Here on the last day of the old year I noticed a bright yellow bud peeping out of the earth without any sign of foliage, but merely protruding from a white sheath or envelope. I immediately had the clump carefully lifted into a pot without separating or disturbing the bulbs, and in order to protect the delicate little flowers from the inclemency of the weather at this time of the year. Placed in the sunny end of a greenhouse, three more flowers soon showed themselves, and all four are now fully open on short stalks of about an inch in height. The flowers are about the size of those of *I. reticulata*, but the centre or upright petals are much shorter. The colour is a bright clear yellow with a few black spots on the lip. This pretty little plant belongs to the bulbous section of its family, and seems to be closely allied to *I. reticulata*, but blooms in a smaller state, as my bulbs were only of medium size.—W. E. GUMBLETON.

Chinese Primroses of to-day.—The Chrysanthemum is not the only flower debased by cultivators and those who profess to love it. The Chinese Primrose is a victim to the same craze for

size that has shorn a beautiful flower of its freedom, grace, and refinement. Anyone who doubts this would have been convinced at the recent National Chrysanthemum Society's show, where there were twelve specimens of Chinese Primulas which showed that by artificial tricks and assiduous attention it is possible to turn the plant into the likeness of a Cauliflower or overgrown Cabbage. They each measured over 2 feet across, one with a puny spike in the middle, surrounded by a mass of coarse leaves that told the old story of high feeding and forcing. Hard by were a number of plants in 5-inch pots, and these were full of bright bloom, cheery and pleasing to look at, not offensive from the coarseness of their growth. We should have thought it sufficient to spoil one winter flower by swallowing up its characteristic elegance and beauty in mere size without destroying another flower by the same debasing and silly tricks. Japanese tree monstrosities are held up as things tortured by a system of root and branch strangling that should find no place in English gardens, but those who distort beautiful flowers for the sake of prize money are boldly encouraged. There are few brighter things than *Primula sinensis* when it is not tampered with and forced into abnormal size by unwholesome condiments.

Orchids at Kew.—There are several interesting Orchids in flower at Kew besides the commoner things, as *Dendrobium Wardianum* and *aureum*. *Epidendrum Wallisi* is in bloom, and though not showy, has some interest. It is comparatively new, the flowers borne in drooping racemes at the top of tall stems; the sepals and petals are golden-yellow, and the lip creamy-white, spotted with rich rose-magenta in the centre. *Xylobium leontoglossum* is blooming freely in a basket. It has Curculigo-like leaves, the flowers produced in a dense spike and of a creamy-white colour, spotted with deep rose. *Platyclinis* (*Dendrochilum*) *uncata* is a graceful flower, its drooping racemes of pale green flowers hanging round the pots in a charming way. A rare *Masdevallia* is *M. Mooreana*, a New Grenadian species, with a large thick waxy flower, the tails of the sepals greenish-white, the remainder of the bloom rich purple-rose. It is of distinct beauty. *Cattleya luteola*, recently described, C. Walkeri, and *Angraecum eburneum* and its variety *virens* were in fullest beauty. The type is the finest, and compared with it the variety *virens* is poor. The spikes have a certain grace denied the parent, but the flowers are smaller and greener in colour. *Oncidium splendidum* and *Dendrobium eburneum*, synonymous with *D. Dracanis*, are two uncommon species. The *Oncidium* has been often described, and the *Dendrobium* should find more cultivators. It is a distinct Burmese species, the flowers of pure ivory-white, with rich vermilion markings in the throat of the lip.

The alpine house at Kew is now gay with Christmas Roses and a few other hardy winter flowers too frail almost to resist the storms of wind and rain that mark the winter season. The varieties of *Helleborus niger* are well represented, and the plants are in large masses, full of bloom, so that the distinctness of each can be verified. We have never seen the Christmas Roses in such beauty as this season. *H. niger major* is one of the most beautiful and pure, and also handsome is *St. Brigid*, a variety easily recognised by its bright self-green flower-stalk and green inside petals, which in such varieties as *maximus*, another beautiful variety, are tipped with gold. An Italian form is very striking, the large white flowers clustering amongst the deep green leaves. A large pan of *angustifolius* shows what a noble winter flower it is for a cold house. Also blooming freely are *Riverstoni*, *Mme. Fourcade*, and *caucasicus*, in which the flowers have a tinge of rose. The cold house is brightened by several *Crocuses*, as the golden yellow *aureus* and the finely striped *Imperati*, also the winter *Aconite*, the charming *Bulbocodium nivale*, and the fragrant netted *Iris*, *I. reticulata*.

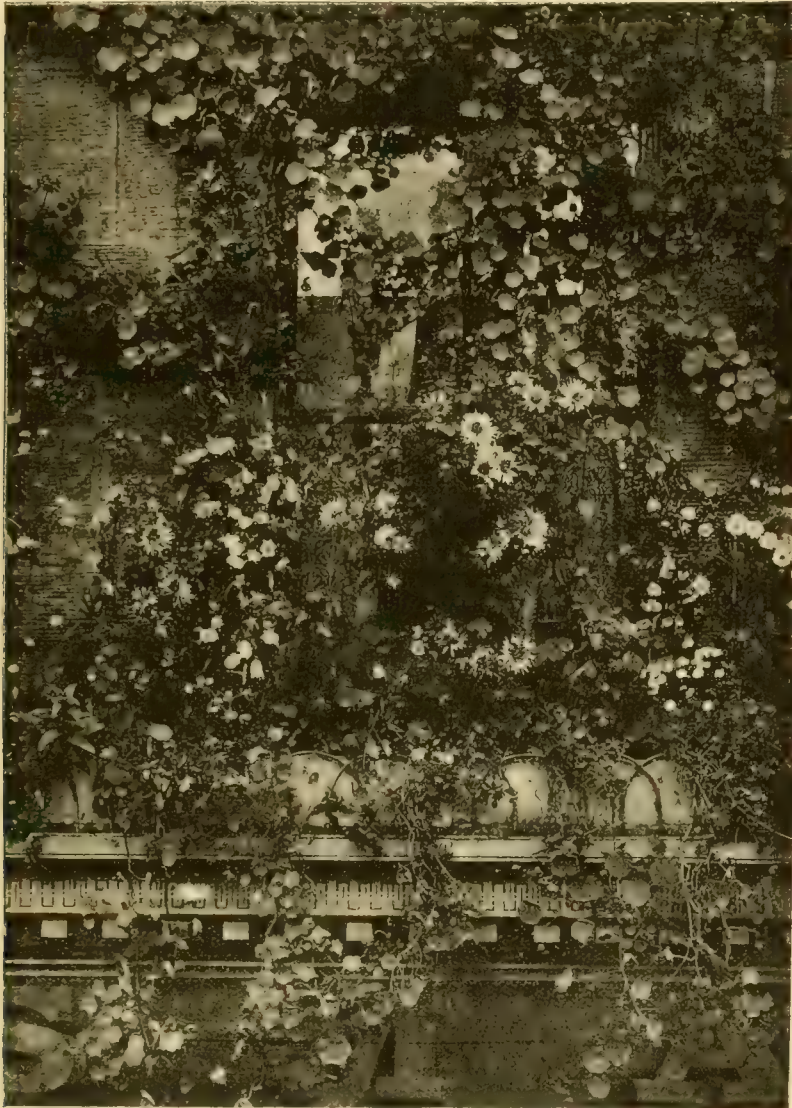
Chrysanthemum Mrs. E. W. Clark.—This is of American origin. The flower is large, solid, very deep; the colour a deep amaranth-purple, the reverse silvery-rose, thus adding much to its attractiveness either as a show flower or for conservatory decoration.

FLOWER GARDEN.

A TOWN WINDOW GARDEN.

Window gardening in London and our large towns is often poor enough, but, bad as it is, it is to be commended, and a stranger coming from cities where this kind of gardening is not practised is often surprised to find what can be done in the dirt and dust of London. Window gardening is commended

spreading Saxifrage; and he is often surprised at the splendid health of the Geraniums and bulbous plants in such places. The light is sufficient, and the dry air of the country cottages suits many plants perfectly; in fact, the positions for gardening in and about the house, apart altogether from the garden proper, are almost innumerable. We feel sure that our readers, who have window gardens, will feel encouraged when they see the pretty results Mr. Smail has obtained. He has kindly



A window garden on the first floor of a town house. From a photograph sent by Thomas Smail, 16, High Street, Jedburgh.

to the inhabitants of cities because it is supposed that it is the only mode of growing plants that they can enjoy. This is true to some extent, but we have often, in wandering in country places, noticed how much better plants do in windows in the country than in towns. It is very curious that the observer may see growing in windows in various parts of the country plants which he cannot find anywhere else in the same condition—for example, certain Cacti, and even the little

sent us the following notes on the engraving herewith given:—

I have practised window gardening for nearly a quarter of a century, and during that time I have tried a great variety of plants. I live in the centre of a street having a southern exposure. Over my shop front is a cornice or balcony, 10 inches broad, stretching the whole length of the house, viz., 28 feet; on this there is placed soil to a depth of 8 inches, and with a slight declivity each way for drainage. I knew little of flowers or plants at first, and had, consequently, to buy my experience at the expense of many failures. One of my princi-

pal difficulties was to get a proper plant for the outer edge, and, after a number of years' trial, I found Violas to be best. They bloom freely and well at the very commencement, and continue in bloom for a long time. Some years ago a sort of blight took possession of the Viola all over the south of Scotland. I did not escape this, and found a kind of grub at the roots, which was the cause of the mischief. To save myself, I now plant two or three sprigs of Lobelia between each Viola, and this has a good effect, particularly towards the end of the season. Another difficulty was to get a good climbing plant. I have tried a great variety, but for the last twelve or fourteen years I have had nothing else but Nasturtiums. They are very effective, and every year I use at least two dozen plants which must be struck from cuttings. I often make the plants meet round the tops of my windows, and at the same time have them hanging about 2 yards long over the front of the cornice, waving gracefully, with their beautiful dark red flowers and fine green foliage. The yellow Calceolaria and red Geranium never fail, and these are planted alternately across the whole length, broken here and there with a larger plant, such as a Lilium, Fuchsia, or Pelargonium. A few plants of Phlox Drummondii and Sweet Pea have a very fine, irregular effect in breaking the straight line, blending the colours, and making the whole front look effective and well. I have always of late years had some plants of Perilla mixed among the Geraniums and Calceolarias, and its dark foliage tells well. Petunias bloom freely and I never have less than eight planted at proper distances. Last year I tried four white-flowered herbaceous plants; two each of Matricaria inodora, and Achillea serrata fl.-pl. The latter bloomed beautifully from the end of June until August; but when the bloom passed away, the dust from the street made them very unsatisfactory. The Matricaria, last year, came into bloom somewhat later, and continued to grow in height and grace, and flower freely—"a thing of beauty"—till the frost nipped it in October.

USEFUL NOTES.

If an early show in the flower garden is required, plants should have attained a considerable size and be thoroughly hardened off by May, and to effect this, early seed-sowing and propagation are essential. This perhaps applies especially to the necessary material for furnishing boxes, pans, vases, &c., as these ought always to be filled with plants sufficiently large to make an immediate effect. Such things as small specimen Fuchsias, Marguerites, and Heliotropes are handy for the centre of vases, and excellent trailing plants for the edge are the green Tradescantia and the variegated Mesembryanthemum. Strike cuttings of the latter in small pots, as they can then be transferred to the vases without breaking up the ball. Where boxes or pans are placed against balustrades or railings the latter have to be covered, and to do this quickly and effectually there is nothing better than the Canary Creeper, the Japanese Hop, and Cobæa scandens. The two first-named may be sown in the pans, but the seed of the Cobæa wants sowing early in bottom heat, and the plants should be thoroughly hardened off before planting. It is a pity that other varieties of Tropæolum than canariense are not adapted for this work, as soil that is exactly suitable for the other plants in the boxes is too good for the scarlet Tropæolum, causing it to develop an undue amount of foliage. What a good thing for this work would be a scarlet Nasturtium of a similar habit and freedom to N. canariense. For the general planting of boxes and vases there is nothing much better than a few free-flowering Fuchsias, as Rose of Castile, Annette, and Mme. Cornélien, and erect and drooping Begonias both to mix with the Fuchsias and for the front row. All the foregoing should receive attention by the end of the present month, which is also a good time to sow seed of Acacia lophantha, Grevillea robusta, the Eucalypti and other foliage plants that are to be used as tall specimens to break the flat surface of the ordinary bedding plants. Nicotiana glauca is also useful and should be sown early, as the stronger the plant at

planting out time the more quickly does it make a show. Other things of a more bushy nature that are to be employed in a similar manner should also be seen to, as *Marguerites*, standard *Heliotropes*, double Ivy-leaf and Lady Plymouth *Pelargoniums*. The last-mentioned variety will attain large dimensions if grown as a single specimen, and forms a pretty break to a carpet of blue *Viola* or purple or scarlet *Verbena*, and it is also useful in a mixed bed of scented-leaved *Geraniums* along with the cut-leaved varieties, *Heliotropes*, and *Aloysia*. If, as in many cases, labour is rather scarce, now is a good time to make a careful inspection of the flower garden to see if there is not a chance of making one or two nice beds by the introduction of some hardy things. As an example I may cite a large bed that is already partially furnished with *Hyacinthus candicans*, and which will be planted with blocks of the old crimson *Clove Carnation*, the remaining space being devoted by-and-by to the dwarfest of the blue *Ageratums*. An odd border, where the soil is naturally poor and dry, will be planted with clumps of the old double *Camomile* and *Echeveria glauca*, using old plants that are not confined to straight lines, but are allowed to increase and flower at will. It is quite unnecessary to advocate the claims of the tuberous *Begonias*, as they have quite established their reputation as summer bedding plants. I find it a good plan to sow a pinch of seed yearly as early as possible, and if the seedlings are planted out on a warm border in suitable soil, they will not only flower freely, but show sufficient of their individual characteristics to enable a yearly selection to be made and good bulbs provided for another season's display. With much ground to fill, one cannot altogether dispense with the much-abused *Pelargoniums*, and the stock must soon be overhauled with a view to make up any losses, and spring-struck if well grown have the merit of keeping short and bushy, and making an immediate show. I suppose most people have their favourite varieties. Personally, I cherish most *Henri Jacoby*, *Warrior*, *West Brighton Gem*, *Surprise*, *Amaranth*, and *Flower of Spring* in their respective colours. If an immediate effect is required at planting time with very dark foliage, a few dozen small pots may have a seed or two of *Dell's Crimson Beet* dropped in them about the beginning of March. These make capital little stuff by the middle of May and experience no check from the planting. Where *Verbenas* do well, there are few brighter objects than a bed of mixed sorts which can easily be raised from seed, with the flat surface of the bed broken by occasional plants of *Grevillea robusta* or the tall variegated *Abutilon*. If special colours are required and the constitution of named varieties is not satisfactory, it is advisable to practise the plan advocated in the case of the *Begonia*, i.e., sow a pinch of seed each year and select and perpetuate the necessary colours in plants of vigorous constitution. I have secured a capital purple and a white in this way, but have never found a scarlet seedling to approach the well-known variety *Hampton Court*. In these few notes on preparations for the flower garden, I have purposely refrained from including any subtropicals of rather more difficult culture, *Palms*, *Ficus*, *Dracenas*, and the more tender carpet plants.

Claremont.

E. BURRELL.

Winter Aconite on Grass.—This bulbous plant will not succeed in the Grass if there is much Moss. Four years since I planted four dozen bulbs at the foot of a tall *Tulip* tree. The first two seasons they bloomed well, but since then there have been but few flowers, the plants gradually getting weaker as the Moss covers the Aconites.—S.

Phormiums by waterside.—The New Zealand *Flaxes* (*Phormium tenax* variegata and *P. Colensi*) are excellent for growing beside water or on the rocky, and being so hardy their leaves do not get disfigured by the weather. I have the variegated form springing from a carpet of mossy *Rockfoil* (*Saxifraga hypnoides*). Division of the roots is a quick way of obtaining a stock of suitable plants of *Phormium* for any position.—S.

Primroses.—With plants so robust and full of blooming crowns as this winter, I am persuaded that

if a pit were filled with leaves early in the winter so as to induce a gentle bottom warmth and they were pressed hard down, that if a quantity of strong old plants of *Primroses* were lifted from the open ground and either planted in 9 inches of soil on the leaves or put into large pots and stood on the leaves, that it would be very easy to have the plants in full bloom at Christmas. I find many which would bloom so if they were not outdoors during a fairly open season, but white frosts, heavy rains, slugs, and other troubles come and the flowers suffer. Some plants in pots in which they have been all the summer simply stood in a cool frame are blooming prettily, and it is evident that with just a little warmth there would be bloom in abundance. I believe the gentle and moderately moist heat from leaves would be better than that from a small hot-water pipe or two, as this generates spider. If the plants are in pots and stood in a greenhouse their chief trouble is with damp, should wet weather ensue, as the flowers do not thrive in damp, foggy weather, except there is just enough warmth to keep the air from becoming too moist. It is not so easy to give air in a house as in pits or frames, where the lights tilted top and bottom will allow of a free passage of air. Growers of *Violets* in frames know the value of that form of ventilation. Strong plants of *Primroses* root deeply in the open ground, and therefore if lifted should be got up with considerable care, so as to save the roots from injury. To preserve these intact is of more consequence than is the preservation of soil, although some, of course, should be retained. A little extra care in lifting the plants, whether for pots or frame planting, is invariably repaid later.—A. D.

HARDY FLORISTS' FLOWERS.

THE AURICULA.—The *Auricula* aphis thrives amazingly in warm weather, but dislikes to be frozen in the soil; therefore we allow the plants to be fully exposed to the frost up to the first week in the new year. We had some rather sharp frosts in December, the thermometer falling to 20° one night, and 22° on another. I am not sure if the plants like this freezing over, as it kills off the larger outer leaves very rapidly, and may injure some of those forward varieties that have their trusses already formed. An enthusiastic amateur and good cultivator, the late Mr. Kirke Penson, told me that he never would allow the frost to touch his *Auriculas*. Next week all the plants will be looked over, and the flowering specimens placed in the *Auricula* house, where frosts can be excluded by artificial heat. We clean the plants and in certain cases use some rich compost to top-dress with. Abundant supplies of air are admitted, except during frosts. The *Auricula* more than any flower dislikes a close atmosphere, and if artificial heat is added to this, the flower-stems and leaves are drawn up weakly and look miserable. I have had much conversation with amateurs upon the *Auricula*, and I find nearly all of them admire the *Auricula* in some form or other. This is not to be wondered at, because the flowers are so varied, and the plants being so hardy and easily grown, very few take to show *Auriculas* at the first, one lady remarking that "they might be rare, but certainly they were not beautiful." Such a one greatly admired the bright colours of the alpine *Auricula*. Another lover of hardy plants thinks the yellow selfs are the most beautiful. Another, after carefully inspecting all the collections at a recent *Auricula* and *Primula* exhibition, preferred what are described in the schedule of prizes as "fancies." These comprise a rather odd section, being merely green or grey-edged varieties, without what fanciers term the body or ground colour. The diversified character of the *Auricula* is therefore not the least of its claims to the attention of amateurs.

THE CARNATION AND PICOTEE.—These, up to the end of the old year, have been very satisfactory, the seedlings planted out being very promising indeed. Even those planted a year ago have also passed through the alternate frosts and thaws much better than I expected; as a rule, I find

these old plants, unless they are layered, do not stand the winter well. The plants in small pots in frames are also in capital condition; they are kept dry at the roots, and air is at all times freely admitted, the lights being removed during fine weather. The winter-flowering varieties claim attention now. I usually begin to propagate them about the middle of January, but those anxious to obtain a large stock of plants need not wait so long. I called upon a large trade grower a week before Christmas and found he had begun propagating by taking off all the small side growths he could obtain. I noticed some of them had shrunk up considerably, but was told that they would recover again. This may be, but it is better to keep the leaves and stems quite plump, and there is no difficulty in doing this if the cutting pans are partially covered. I merely take a square of glass and lay it flat over them; the labels support it at the right height above the cuttings, and sufficient moisture is retained about them to prevent their shrinking. They form roots very speedily with just a little bottom-heat.

THE DAHLIA.—We cannot forget these gay denizens of our gardens even at this season of the year. I find that in seasons when we cannot water *Dahlias* freely, some of them have scarcely any tubers, and when the time comes to place the plants in boxes or some other convenience, tubers and stems have taken the form of dried touchwood. This year I planted all those with attenuated tubers in pots and placed them in one of the vineries. The others have been placed in a very dry shed where frost cannot get in however sharp it may be, and nothing has been put near the tubers. I have just examined them and find they are all in capital condition, not any mould or decay anywhere. Those with poor tubers in pots have not received any water, but we will have to give them some next week, and by the end of the month the whole of them will be planted in boxes, the latter afterwards being placed over the hot-water pipes in an early vinery. There is not much heat in the pipes, but sufficient to start the *Dahlias* strongly and slowly, so that the earliest cuttings will be taken off about the middle of February. Pot roots are useful; sometimes a choice or scarce variety might be lost altogether but for a reserve of pot roots. These are obtained from cuttings taken from the plants when the shoots are being thinned out during the summer, but those put in during June or July are the best. Tubers form in 4-inch or 5-inch pots, and they may be kept in a dry cool house, and also dry at the roots until March 1, when they may be started. Shake the tubers out of the pots when the shoots have grown an inch or so, and if two shoots have come up, divide the tubers with a sharp knife, repeating them again.

THE HOLLYHOCK.—We were so annoyed with the *Hollyhock* fungus, that I determined to leave our whole stock of plants out in the open borders, in the earnest expectation that if the plants were not killed outright the disease might disappear. We propagated none, and those that survived until the end of the past autumn had no trace of the disease upon them. They have all been dug up and carefully planted in pots. The plants are producing plenty of growths from the base; these will be cut off with a heel attached and be carefully set in pots of fine sandy soil. Each cutting ought to be planted in the centre of a 3-inch pot. The cuttings will strike very freely in bottom-heat this month in a forcing house. As soon as it is seen that any of them have formed roots, these must be removed, and those that are not rooted treated as before. The ground should be prepared for these as well as for the *Dahlias* early in the autumn, but if it has not yet been done, take the first chance to do it. Trench about 2 feet deep and put in plenty of rich manure. J. DOUGLAS.

Arum Lilies at Christmas.—Much has been written lately upon planting *versus* pot-culture of *Callas* during the summer. For saving of labour, certainly the former method is to be recommended, and as far as my experience goes, the planting-out system is the best. When the plants were re-

potted at the end of September of last year, they were rather rudely lifted from the ground, many of the roots being broken. This gave a check to growth, resulting in the early formation of flower spathes rather than leaves, and enabling us to cut a nice lot of blooms for Christmas decoration.—S.

ROSE GARDEN.

TEA ROSES.

THE coloured drawings of good Tea Roses which now frequently appear in THE GARDEN will doubtless greatly tend to popularise them, and we may reasonably hope that ere long these beautiful Roses will be grown in hundreds of gardens. Mr. Girdlestone is quite correct in saying that the charge of tenderness brought against Jean Pernet can hardly be substantiated, and this remark applies to many more kinds which are equally as beautiful. As a matter of fact, the plants of Jean Pernet which produced the flowers from which the plate was prepared were only planted the previous November as a bold group in a bed of deep, but heavy loam. They were neither earthed up nor protected in any way, and yet by June were bearing flowers. It may be argued that conclusions as to hardiness are prematurely drawn, as they embrace so short a period of observation and trial, but other kinds near at hand of equal repute and supposed tenderness have withstood the same test for four winters, and these in the past summer when laden with blossom were striking testimony that the most desirable quality of hardiness is inherent in them, provided we grow them in a way to foster it. There are plenty of warmer gardens and better soils for Tea Rose growing than those in which the flowers of Jean Pernet and of Innocente Pirola, which was figured a fortnight previously, developed. Doubtless ere long these fine Tea Roses will be largely used for the permanent adornment of the garden, and when we have them well established in bold groups we shall fully realise their exceeding beauty. These isolated groups of fine Tea Roses can be permanently placed and the intervening spaces filled in each year with the summer flowers. With large beds that would admit of several groups of Roses it would be very interesting to make each one distinct from the other. For example, one might contain white Tea Roses, another yellow ones, another those embracing the different shades of pink and rose. It is now at planting time that we should consider and arrange these things. There is no lack of good Tea Roses to carry out the idea. One bed may contain white Tea Roses, such as Edith Gifford, Innocente Pirola, Devonensis, Mme. Hippolyte Jamain, and Niphetos, whilst The Bride may also be added. Another bed may be filled with creamy and light yellow Teas, such as Mme. Hoste, Jean Pernet, Perle de Lyon, Primrose Dame, Amazone, and Comtesse de Frigneuse. Marie Van Houtte, Dr. Grill, Mme. de Watteville, and Souvenir de Gabrielle Drevet may occupy another bed, these kinds having flowers somewhat alike in form, with shell-like petals. These examples are merely selected to make the idea clear, and besides those mentioned all the other really good Tea Roses can be grouped in a similar way, and associated according to form or colour. The beautiful effect of Roses in bold masses has been frequently written upon in the pages of THE GARDEN, and although groups of any really good Rose can be formed, none are better than the Tea varieties for this arrangement. They are always beautiful in foliage as well as flower, and those who grow them for their own sake and for the effect they produce in the garden

can have and enjoy flowers by the hundred, whilst the man who grows for exhibition is pulling off scores of buds to force individual blooms to the full pitch of development. Unlike some flowers, the Rose has not been spoilt by exhibiting, and probably had it not been for the exhibitions we should not have such a wealth of variety wherewith to adorn our gardens at the present day. Apart from the exhibitions and the good work they have done and are still doing, there is room for work of a different character in finding out the capabilities of Roses grown in quantity for permanently beautifying the garden throughout the summer and autumn. Too much has been made of the supposed tenderness of some kinds, and, granted that in exceptional gardens it is necessary to protect during severe weather, that is as nothing compared to the trouble and expense we have gone to to preserve tenderer plants, the beauty of which when put out in summer could not be compared with that of the Rose. But as we extend our Rose culture and raise strong plants in a hardy way, it will be found there is less need for protection. So long as we continue trying to grow all, or even half, the many kinds of Roses in order to have a complete collection, we shall miss the mark and fail to find out their true capabilities. The number of kinds should be proportionate to the size of the garden. Some gardens would have enough in six of the very best Tea Roses, twelve or more plants of each kind; other gardens might have room for fifty groups. A.

ROSE COLOURS.

THE coloured plate of the lovely Rose in the last number of THE GARDEN for the year just closed doubtless brought a new sensation to not a few rosarians. My first exclamation was, An exquisite example of Jean Ducher. But the accompanying notes, with the occasional experience of many of us, prove your artist correct, though it is probably the first time Marie Van Houtte has appeared under the auspices of art in this colour or character. Full exposure is probably needed to develop so much more than the normal amount of colour in this delicately tinted Rose.

The colour varies according to the month, the sun, and the weather, but the flowers are nearly always beautiful. Sometimes they are almost white, with a faint flush of yellow at the base. In the summer season the side of the Rose next the sun takes a colour as rich as that of the deepest form of Mme. Lambard. On the other side of the Rose it is almost white. It is curious to see the flowers of both shades sometimes open together, and there is considerable variety in the intensity of the colour of the buds in THE GARDEN (pp. 600, 601). I would strike the word "nearly" out of the above high estimate of the beauty of Marie Van Houtte, and add that such sharply divided coloured flowers have been rare in my experience. Rose-tinted single petals or parts of petals as deep as the under one on the upper flower in the plate are common enough, and are unmistakably rich associated with the soft lemon or creamy white of the lighter blooms. But I have seldom grown or seen such deeply coloured blooms as your lower one in the plate. This is by no means intended to imply that your artist has over-coloured them, far less to disparage the Rose, but rather to encourage its more extended cultivation in all sorts of out-of-the-way places, and by different methods, in order to add to its usual delicacy of colouring this new and comparatively rare brilliancy.

Those who have chiefly grown Marie Van Houtte in pots or on walls, especially on shady aspects, may doubt the possibility of suffusing this favourite Rose with so much rich colouring. But there can no longer be any doubt that this can be done, and it will be something for the many Rose

growers of THE GARDEN to attempt to match your plate of Marie Van Houtte in colour during the year 1890. Might I also suggest that fair blooms of Marie Van Houtte from the open air, covering the entire field of colour, from purest white to deepest salmon-rose, might be forwarded to THE GARDEN, accompanied with notes as to culture, site, soil, date, locality, &c., during the coming season. By such means we could hardly fail to acquire more power over the colouring of Marie Van Houtte and other Roses, while the additional interest excited would lead to its more extended cultivation. D. T. F.

DECORATIVE ROSES.*

It is a curious thing how few people seem to consider the value or beauty of a Rose as a growing plant in the garden. Nearly everyone, when supposed to be describing some particular variety of Rose, in reality merely describes an individual blossom. In almost every Rose catalogue it is just the same; the individual flower is described, and it is only as a cut flower that its beauty is dilated upon. The reason of this may be easy to find, but hardly the justification. No doubt the Rose has always been the most popular of all flowers for cutting for the decoration of our rooms and houses, a position from which it is never likely to be deposed, and from this it has probably come about that the value of the Rose is so generally estimated only in its capacity as a cut flower. But this is restricting the Queen of Flowers to a limited monarchy with a vengeance, and it is high time that her right to reign out of doors should be better recognised, and that more attention should be paid to the capabilities of the Rose as a decorative garden plant.

One sees sometimes offered in catalogues collections of (say) 100 Rose trees in as many varieties; and such a miscellaneous assortment planted all together would certainly not be likely to make an effective Rose bed, nor at all a decorative display; and one is tempted to think that it is from Rose growing of this kind that those who declare Roses to be always ineffective and untidy, and deserving only of cultivation in the kitchen garden to supply cut flowers for the house, must have gathered their experience.

A great source of failure in making a decorative display with Roses has, undoubtedly, been the frequent and perverse employment for particular purposes of varieties utterly unsuited thereto. For instance, the number of Roses really suitable for cultivation as standards is comparatively small, yet people persist in attempting to grow all varieties in this form; and when, instead of handsome trees, an army of gawky scarecrows is the result, the unlucky Roses are blamed. Similarly, effective Rose pillars can only be made with a limited number of sorts, amongst which few of the ordinary Hybrid Perpetuals are included; yet who has not seen innumerable attempts made with varieties of this class, of which the outcome has been, after unremitting pains on the part of the misguided cultivator, the production of a solitary shoot a foot or two taller than the rest of the plant, which is carefully tied to the stake, and looks as though it were longing to hide behind the great Larch post it so vainly essays to cover?

Again, it has often been urged that although Roses are gay enough just while they are in full bloom, that afterwards, for the rest of the season, they are dull and unsightly. Apart from this being only half true, and becoming

* Paper read at the National Rose Conference at Chiswick, July 2, 1889, by Mr. T. W. Girdlestone, F.L.S.

annually less so, as more and more thoroughly perpetual Roses are raised, if the objection were to be admitted in the case of Roses, it must apply equally to a great majority of herbaceous and bulbous plants; and our gardens, hardly emancipated from the dreary tyranny of "bedding-out," must again relapse into the inane monotony of ribbon borders and carpet beds, in the latter of which especially the enforced primness of the poor little plants, that are never allowed to grow as they please or to have a leaf awry, is as unnatural as children that never have grubby fingers or rumpled collars. It is said that there are some people so oddly constituted as to dislike children, and so also there must presumably be some folk whose sympathies are so strangely arranged as to cause them to love carpet-bedding; such are not likely to admit the claim of Roses to be considered as decorative plants; but it may be hoped that those who are disposed to under-rate the attractions of the royal Rose in the garden will eventually be found to be in a small and constantly decreasing minority, for it can hardly be doubted that loyalty to the Queen of Flowers in her every capacity will outlive the mere fashion of transferring the patterns of the drawing-room carpet to the flower garden.

There are four ways in which Roses may be employed to make a very decorative effect as growing plants in the garden, namely, in beds of dwarf plants; as large isolated bushes or real tree standards; for the formation of Rose pillars; and as climbers, whether on walls or over arches, &c.

In planting dwarf Roses in beds for the purpose of making an effective display, the great thing to avoid is the employment of too many varieties. If a bed of seventy-two dwarf Rose trees is to be planted, half a dozen varieties is ample, the twelve plants of each variety being grouped all together; and these varieties should be selected for their freedom of growth, abundance and continuity of flowering, handsome foliage, as little liable to mildew as may be; and, most important of all, their sturdy habit and ability to carry their flowers erect, pendulous blooms being necessarily ineffective on the plant. The flowers, moreover, should be substantial and of good quality, capable of enduring sunshine or shower without either being burnt or getting all their petals stuck together.

It is also important that the plants of a particular Rose should be planted at the distance apart best suited to the habit of that variety. In old days it was commonly recommended to plant Roses 3 feet apart each way; and, no doubt, when the vigorous hybrid Chinas were in vogue, this amount of space was quite necessary. But there are now so many modern varieties, such as the races sprung from Victor Verdier and Baroness Rothschild, which, although vigorous enough in the sense of possessing abundant vitality, make such compact sturdy growth, that to make the best display they should not be planted much more than a foot apart. Of course, some of the modern Roses are as vigorous and strong in growth as many of the old sorts, and these will need to be planted at greater distances apart; but if the distance be carefully proportioned to the habit of the variety, and a dozen or more plants of each variety employed be grouped together, there will be little fear of the display of bloom being considered ineffective, or of Rose beds so planted not being decorative.

The cultivation for several years of almost every variety of Rose at all generally grown in this country has resulted in the selection of the following kinds as the best suited for planting

in beds, in groups or masses, for the purpose of producing a decorative display in the garden.

Varieties of which the plants should stand about 1 foot apart: Baroness Rothschild, White Baroness, Merveille de Lyon, Marquise de Castellane, Earl of Pembroke, Alphonse Souper, Marie Finger, Caroline Swales, Mrs. Baker, Hippolyte Jamain, Captain Christy, Mme. Bois, Marguerite de Roman.

Varieties of which the plants should stand about 1½ feet apart: Cannes la Coquette, a flesh-coloured seedling from La France, and one of the most charming and useful of Roses, whether for massing, for exhibition, or for cut flowers; Alfred K. Williams, Comtesse de Paris (Lévy, 1882), a very pretty rose colour, immensely free and perpetual; Viscountess Folkestone, Annie Laxton, Duchesse de Vallombrosa, Pride of Waltham, Kronprinzessin Victoria, Laurette Messimy, a China or Hybrid Tea of the most vivid and lovely rose colour; Heinrich Schulteis, Lady Helen Stewart, Suzanne-Marie Rodocanachi, Henri Ledechaux, Sophie Fropot, and of summer Roses, Rosa Mundi, the brightest and best worth growing of all the striped Roses, and commonly, though wrongly, called York and Lancaster, and the Scotch Roses in variety.

Varieties of which the plants should stand about 2 feet apart: Mme. Gabriel Luizet, Charles Lefebvre, Anna Alexieff, Prefet Limbourg, a most useful dark crimson Rose of great freedom and effect; Boule de Neige, Mme. Nachury, La France, Ulrich Brunner, Jules Margottin, and his lovely daughter Violette Bouyer, freest and most charming of white Hybrid Perpetuals; John Hopper, Julie Touvais, a very early and most distinct and attractive Rose, far too little cultivated, and Gloire Lyonnaise, a very beautiful Rose, both in plant and flower, and making always a most striking group.

It will probably have been noticed that with half a dozen exceptions all the Roses best adapted for massing to make an effective display in the garden are also among the best Roses for exhibition, and the more they are cultivated as if with a view to producing exhibition blooms, the more decorative they will be. The system of pegging down is not recommended, the only Roses with which its employment has been attended with complete success being some of the very vigorous Mosses, such as Lanei, Captain Ingram, &c. The plants should be fairly hard pruned, liberally cultivated, and vigorously disbudded; then there will be a magnificent and effective display of bloom.

If the beds are large enough to admit of it, they may be very well margined or fronted with groups of the ever-blooming miniature Polyantha Roses, of which the best are Mignonette and Gloire des Polyanthas, pinks; Anne Marie de Montravail and Ma Pâquerette, whites; and Perle d'Or and Golden Fairy, orange-yellow.

The best Tea-scented Roses for massing—that is to say, the varieties that can most certainly be relied on to be effective in any season—are Marie Van Houtte, Mme. Lambard, Hon. Edith Gifford, Comtesse de Panisse, a very handsome and reliable Tea that has been unaccountably overlooked by exhibitors; Anna Olivier, Mme. Charles, Mme. Chedane Guinoisseau, loveliest of yellow buds; Mme. Hoste, most free and constant, a great acquisition, which may also be said of Ethel Brownlow; Narcisse, Souvenir de Gabrielle Drevet, Princesse de Sagan, a rich velvety maroon-crimson Tea, lacking size and fulness for exhibition, but ever-blooming and most effective in the garden; R. indica (Lowe), a lovely single red Tea, of which a

group of dwarf plants presents a charming appearance throughout the entire season; and Jean Ducher, when the weather is not wet and cold.

To obtain large isolated bushes and genuine tree standards, the one thing necessary is the employment of suitable varieties. Of these the best are Anna Alexieff, Mme. Alfred Carrière, Prefet Limbourg, Marie Van Houtte, Mme. Perny, Mme. Gabriel Luizet, Glory of Cheshunt, Mme. Nachury, Jules Margottin; and of summer-flowering Roses, Persian Yellow, Harrisoni, White Provence, Chênédolle, Celestial, a Rose similar to, but of far greater beauty than, Maiden's Blush, and the double marbled Sweet Brier; of these, the first ten varieties named make especially fine large-headed standards.

A pillar Rose, so-called, and a Rose pillar worthy of the name, are not of necessity synonymous. The requirements in a variety to make a good Rose pillar are, that it should be very vigorous, but not too long and rampant a climber, very free-flowering—perpetual if possible—with handsome and abundant foliage, and a hardy constitution. The Roses that make the finest pillars will generally do so from a single plant, but of some varieties it is frequently a good plan to employ two or even three plants at the base of each post for the better formation of a first-rate Rose pillar. The best Roses for pillars are also the best for covering fences of from 4 feet to 8 feet high, and for either purpose, were it only an autumnal, Mme. Plantier would be an ideal variety. As it is, although it flowers but once a year, it makes a more beautiful pillar than almost any other Rose, for its invariable profusion of bloom and the pure whiteness of its flowers, its hardiness and vigorous bushy habit, present all the qualities best adapted to the formation of a perfect Rose pillar with the sole exception of not being perpetual. In addition to Mme. Plantier, the following varieties are also first-rate Roses for the purpose: Ophirie, a delightful coppery orange Noisette, making a pillar of extreme beauty; Mme. Alfred Carrière, whose large creamy white flowers have a most delicious fragrance; Bouquet d'Or, and Rêve d'Or, both with the additional charm of conspicuously beautiful foliage; Climbing Captain Christy, the freest and most valuable of all these "climbing" sports; Max Singer, a useful hybrid multiflora with well-formed cherry-red flowers of good size continuously produced in trusses of from three to seven blooms, in spite of the curious fact that it was described when sent out by the raiser Lacharme as "non-perpetual, and producing solitary flowers;" Bardou Job, an improved Gloire des Rosomanes, with very large semi-double deep crimson flowers with darker shades; the summer Roses, Blairi No. 2, and Souvenir de Pierre Dupuy, and Rosa macrantha, one of the most beautiful of all the single Roses.

On climbing Roses grown against high walls and houses, or over arches of considerable span, there is not much to be said, except to urge once more the employment only of varieties suited to the purpose and to the position they are to fill. It is not wise, for the sole reason that there is a blank wall or the bare side of a house, to plant against it Maréchal Niel or the tender Climbing Devoniensis, without any regard to aspect, soil, or climate. There are situations in abundance where such Roses will flourish in all their beauty, but to consider it necessary to attempt to grow Maréchal Niel in circumstances under which only an ineffective apology for a plant can be produced, merely

because it has the reputation of being, when at its best, the most superb yellow Rose as well as the grandest climber in the world, is absurd, and involves a waste of time and energy which, if only applied to the cultivation of Roses adapted to less favourable surroundings, would at once result in a decorative display capable of affording the keenest pleasure. In fact, it is the case, heretical as it may be to state it, that in spite of the unsurpassed beauty of perfect individual flowers of *Maréchal Niel*, it is less decorative as a climber, even when fairly well grown, than many of the following Roses: William Allen Richardson, *Reine Marie Henriette*, *Reine Olga de Wurtemberg*, a magnificent climber, very perpetual, producing bright

Roses are now so well known that it is not necessary to do more than to insist in passing on the exceeding beauty of the white form; but among those far too rarely seen are the Austrian Briers, *Rosa lutea*, the yellowest Rose in the world, and its wonderful scarlet variety, *Rosa punicea*; *Rosa rubrifolia*, with its red leaves, red stems, red everything, including its immense clusters of hips in autumn; *Rosa lucida*, also beautiful in fruit at the end of the season, as in flower and glossy leafage during the summer; *Rosa bracteata*, the very distinct Macartney Rose; *Rosa damascena*, the crimson damask; *Rosa Beggeriana*, the starry white Rose from Afghanistan, ever-blooming, and producing the most brilliant little hips

- (2) Cultivate as highly, prune, disbud, and keep clear from insects, &c., as if every bloom were to be required for exhibition.

Then a display of bloom will ensue, well deserving of the epithet decorative, and likely to be maintained more or less throughout the season.

STOVE AND GREENHOUSE.

AN OLD FINE-FOLIAGED PLANT.

(*CISSUS DISCOLOR*.)

THIS fine old stove climbing plant is of very easy culture, for cuttings root freely in the spring and early summer months, and when rooted they grow away quickly. It is very beautiful when employed as a roof-climber in a warm, moist part of the stove, but more particularly if the position is such that the long flexible branches can be allowed to grow in their own way. Besides this, it may be grown on a trellis, either in the shape of a large specimen or trained around three or four Hazel sticks in a 5-inch pot. By this latter means pretty little plants, which are extremely useful for decoration, may be quickly obtained. As to compost, good rich open soil, either peat or loam, and some sharp silver sand and decayed stable manure will answer well, provided it is not retentive of moisture. The pots should be well drained, so that the large quantity of water the plants need when in active growth can pass freely off. Thrips and aphides will attack this plant, but the daily use of the syringe will usually be found sufficient to keep them in check, and should bug or scale affect them, sponging must be had recourse to.

Laurustinus under glass.—Among the more hardy plants that can be used for maintaining a display of flowers in the greenhouse or conservatory during the winter months must be included the *Laurustinus*, which flowers naturally at this season of the year; therefore with a little protection its neat blossoms may be had throughout the whole of the winter. When required for this purpose the plants may be either dug up early in the autumn and carefully potted, or grown altogether in pots or tubs. Where the first-mentioned plan is adopted, only plants well furnished with flower-buds should be chosen, and where they are confined altogether in pots care should be taken during the summer that they do not suffer from want of water. Occasional applications of liquid manure at that time are also of great service, as they encourage a stout and sturdy habit of growth, which is very favourable towards the production of blossoms. The common *Laurustinus* may be employed for the purpose, but there is also a variety whose flowers being much whiter than those of the normal type, are consequently usually preferred. A few years ago this form was imported from the Continent in considerable numbers in the shape of little standards and pyramids bristling with flower-buds, but it is at the present time not nearly so often met with.—H. P.

Dædalacanthus macrophyllus.—The genus *Dædalacanthus* is nearly allied to the *Eranthemum*; indeed, the species here noticed was distributed a few years ago under the name of *Eranthemum macrophyllum*. Like many of its allies, it is a very pretty flowering plant, whose value in this respect is still further increased by the fact that it blooms about the end of the year. *D. macrophyllum* is a free-growing subject of a half shrubby character, with rather pale, oblong, lanceolate leaves and a great profusion of light blue blossoms. If stopped once or twice when young it branches very freely, and at this season every shoot is terminated by a broad, open, pyramidal raceme of blossoms, which are borne in such pro-



Cissus discolor.

crimson flowers, and deserving of very extended cultivation; *Mme. Berard*, *Bouquet d'Or*, *Emilie Dupuy*, *Aimée Vibert*, *Celine Forestier*, *Lamarque*, *Princesse de Nassau* (Musk), *Mme. Trifle*, and the summer Roses, *Fortune's Yellow*, *Félicité-Perpétue*, *Laure Davoust*, *Splendens*, *Ruga*, *The Garland*, *Alice Gray*, *Flora*, *Claire Jacquier*, the single *Rosa multiflora* (syn., *polyantha*, figured as a climber in the *Gardeners' Chronicle* for November 26, 1887), *Rosa mult. grandiflora*, and the deliciously fragrant *Rosa Brunonis* (syn., *moschata*, *Crépin*).

Mention has been made of some of the most decorative single Roses in the selections given of the best varieties for certain purposes; but there are a few others which ought to be included in every Rose garden. The *rugosa*

imaginable; and last, but not least, a garden variety classed as a hybrid Sweet Brier under the name of *Hebe's Lip*, beautiful exceedingly, having large substantial creamy white petals with a Picotee edge of purple. Nearly all these single Roses only require to be put into the ground and left to themselves to thrive and produce their myriad flowers and fruits, so that for the amount of time and attention that they claim they are very remunerative decoration.

The subject of decorative Roses then may be briefly summed up as follows:—

Only employ for particular purposes varieties well adapted thereto.

In the case of groups or masses of dwarf Roses in beds—

- (1) Plant many plants of few varieties;

fusion that the upper part of the plant is quite a mass of pale blue. The individual blooms, which are about an inch in diameter, have the lower petal or lip of a much deeper colour than the rest of the flower. A few cuttings should be struck in the spring and grown on freely afterwards, when by winter they will have formed good-sized specimens that for a month or more will be very showy. While on the subject of *Eranthemums* and their allies a word may well be spared the beautiful *E. pulchellum*, or *nervosum*, that blooms just a little later than the first-named. This is an old and generally well-known species, whose flowers are of a beautiful shade of rich bright blue, and though the individual blooms do not last long, a succession is kept up for a considerable time. Like most of its class, it is of easy culture, the principal consideration being not to keep it too hot during the summer, nor on any account to allow it to suffer from want of water, as the foliage is liable to be attacked by red spider, which greatly disfigures the leaves and thereby destroys the beauty of the plant. This is the oldest of all the *Eranthemums*, having been introduced as long ago as the latter part of the last century.—T.

CYRTANTHUS LUTESCENS AND MCKENI.

EXCEPT in the colour of their flowers, these two species of *Cyrtanthus* greatly resemble each other, and both are very desirable bulbous plants, for the flowers are beautiful and freely produced during the winter months. They will thrive in an ordinary greenhouse without any special care and attention, for with the treatment given to a *Pelargonium* these two pretty Cape bulbs will both grow and flower well. *C. lutescens* was introduced about 1836, and *C. McKeni* 32 years after; but at the present day this last is a far commoner plant than the other, though neither of them are grown to the extent that their merits deserve. An amateur with only one glass structure should grow these two species of *Cyrtanthus*, as they are very beautiful and would attract attention from their uncommon appearance when the more generally cultivated plants would be passed over. *C. McKeni* forms a bulb about the size of that of a large *Snowdrop*, and produces long, Grass-like, evergreen leaves, while the flower-spike reaches a height of 9 inches to a foot, and is terminated by a cluster of flowers. These individually are tub-shaped, about 2 inches long, of a curved outline, and of an ivory white tint and agreeably scented. To this species *C. lutescens* forms a very desirable companion, as the flowers of this are of a lovely clear yellow colour. Like many other bulbous plants, *Cyrtanthi* should not be repotted oftener than is absolutely necessary, as they will continue to flower with great freedom when the bulbs are so tightly packed together as to almost lift each other out of the soil. The same peculiarity may be noticed in the case of the *Belladonna Lily*, *Vallota purpurea*, and *Nerines*, all of which will flower more freely if allowed to remain undisturbed at the roots for years. These *Cyrtanthi* make very effective little specimens in pots 5 inches or 6 inches in diameter, or they may be grown on into much larger masses, as the bulbs increase rapidly. In the case of large clumps, deep pans are more convenient than pots for growing them in, as the roots do not descend to any great depth. Thorough drainage is essential, and another important item is to select a potting compost that will remain in good condition for years if needed. It should consist principally of sandy loam, lightened if necessary with clean silver sand and some thoroughly decayed manure. In potting, the bulbs are just covered with the soil, which should be pressed down firmly. Where some closely packed masses exist and it is desired to split them up to increase the stock, a very good time of the year to carry this out is during the spring months, as by then they will nearly have finished flowering. If the roots are matted closely together, the better plan is to wash off the soil by holding the ball beneath a tap or in some similar position, as they are not so much injured as if torn bodily apart. Should they be potted up into a number of pots, the bulbs must

be sorted into different sizes before repotting, as some of the smaller ones will not have attained flowering size, and it is better to keep them together. At all seasons the soil should be kept fairly moist, for no drying off is necessary, the foliage being strictly evergreen. Insect pests do not trouble the *Cyrtanthus*. Both *lutescens* and *McKeni* flower during the winter months—indeed the blooming season of *C. McKeni* is spread over a lengthened period, for where there are clumps or masses of it a succession of blooms is often kept up from November till April or May. A cold frame, just as a protection from very heavy rains, will suit them perfectly in the summer, and at other times a light position in the greenhouse should be given them. There are several other species of *Cyrtanthi* announced in various publications, but the only other kind I have met with in recent years is *C. obliquus*, a totally different plant from the two before mentioned. The bulbs of this are very large, while the leaves are thick in texture and peculiarly twisted, so as to well merit the specific name of *obliquus*. They are of rather a peculiar greyish green tint. The flower-stems, which are straight and sturdy, and from 1 foot to 18 inches in height, bear on their summit a dense umbel of from eight to ten tubular flowers, in shape something like those of *Imantophyllum cyrtanthiflorum*. The blooms are each about 3 inches long, of an orange-red colour, margined with green. This flowers in the early summer months, but it cannot be depended upon to bloom so regularly as the two species previously mentioned. H. P.

Poinsettias seedling.—When the plants during the flowering period are not subjected to a low temperature, but are kept in the house where they developed their showy heads, a considerable number of the flowers will set, and in the course of a few weeks pods of ripe seed will be the result. This seed if sown in heat soon after it naturally leaves the pods will germinate almost as quickly and surely as will seeds of *Ricinus*. The seedlings being duly placed in small pots, and from these shifted into 6-inch pots, the general treatment also being much the same as accorded to cutting-raised plants, they will become sufficiently strong to produce fine floral heads the same season, their only fault, if such it can be termed, being a rather long stem. None of the seedlings I have yet raised are very distinct from the type, but in some instances the floral leaves are somewhat broader and possess rather more substance.—W. I.

Erica colorans.—Among winter-flowering Heaths must be included this species, which is very pretty, free-flowering, and not at all fastidious in its cultural requirements. It is somewhat in the way of the more generally-grown Winter Heath (*Erica hyemalis*), but the flowers are rather longer and more slender, while even in the bud state the unexpanded part of the corolla is much larger than the tube. The flowers are packed somewhat thickly together on the upper part of the long, slender shoots, their colour being when first expanded pure white, which gradually changes to bluish while they finally die off a much deeper colour. Whether on the plant or in a cut state, the flowers of this Heath are very pretty, and in both cases they retain their beauty a considerable time.—H. P.

Ruellia solitaria.—This, like most of its class, is a free-growing plant of rather an erect habit, and clothed with pale green oblong-shaped leaves, their undersides being reddish. On the upper part of the leaf there is a lighter stripe extending for a little distance on either side of the mid-rib. The flowers which are larger than some others of the same genus, have a funnel-shaped tube, which is whitish, the remainder of the blossom being pale lilac-purple, but the tint seems to vary considerably. It will grow and flower throughout the autumn and winter months, provided it is kept in the coolest end of the stove or in some similar spot. It strikes readily enough from cuttings, which should be grown on freely during the summer, when by autumn they will be fine flowering specimens,

which will keep up a succession for some time. It also produces seeds in quantity, which soon germinate.—H. P.

CYCLAMEN PERSICUM.

It is often asserted that the *Cyclamen* cannot be grown satisfactorily among a miscellaneous lot of plants, or without special treatment. However advisable it may be to grow them wholly in a separate house or frame, and I grant that it would be best so, yet the plant which accompanies this proves that with suitable soil and a temperature in which they can be kept growing without a check, good results may be obtained without any special advantages in the way of house room. The plant sent is a fair example of a lot that have been grown from seed sown on February 5 last, not quite eleven months ago, and raised in an early vinery. They were potted off singly into deep 2½-inch pots when each had made a couple of leaves, and were then placed on a bed of leaves and manure which had been formed in a newly-planted Muscat house to help the Vines along. Here they were placed close together at least 10 feet from the glass and shaded from the bright sunshine until they were put into the pots in which they are now flowering. After this potting they were replaced on the bed, but were distributed about wherever room could be found among *Fuchsias*, *Celosias*, *Coleuses*, &c., and stayed here for most of the summer, though the house was kept at high pressure all the time. When the flower-buds began to show, the plants were removed to a frame which is slightly heated with hot water when the weather is frosty. The plant sent being one of the earliest to flower it has been about a fortnight in a drawing-room, but looks little the worse for it.

The soil in which these plants were grown was half loam and a quarter each of leaf mould and well mellowed cow manure, using enough silver sand to keep the whole fairly open. To the richness of the soil used I attribute in a great measure their well-doing, as they must be grown on quickly and strongly to produce good results in so short a time. If the plants are not equal in size and for number of flowers to those one sees at shows, they are far superior to these latter for decorations, for the small pots used give them an advantage over large specimens in large pots, while when good plants can be grown in a year, they can be treated as annuals and only the very best saved for producing seed. Perhaps the old strain would not have stood the treatment given without becoming drawn, but the giant strain is a great improvement on the old kind for dwarfness and sturdiness, and will bear being a long way from the glass in a forcing temperature without becoming spoiled. I wish I could say that the flowers are as sweet as those of the old strain, but I am afraid they are not quite equal in this respect, though the flowers of some few plants are very sweet, so we may be able to retain the scent with careful selection. Not even half the plants of the old kind were sweet scented.

A point that should not be lost sight of is to be sure and start the season with good and new seed. All our best plants were grown from home-saved seed. Seed bought in and treated exactly the same was two months longer in germinating, so that valuable time was lost and the plants are not now half the size of the others. J. C. TALLACK.

Livermere.

*** A well-grown specimen, the flowers large, pure white and freely produced.—ED.

SHORT NOTES.—STOVE AND GREENHOUSE.

The big Camellia at The Dell.—I made a note of this grand plant not long since in THE GARDEN. When I saw it the other day, I found it enclosed in a portable greenhouse with a temporary boiler and piping fixed to assist the plant to bloom early. There must just now be thousands of buds upon the bush. I should think there is not a finer one in the kingdom.—A.

Yellow Linum.—As a winter blooming plant for ordinary greenhouse decoration where just a little warmth is given, the orange-yellow-flowered ever-

green *Linum* (*L. trigynum*) I saw in profuse bloom at The Dell the other day can hardly be excelled. It is one of those things so seldom met with, that to many persons it comes as a new plant. A small group in one of the cool houses where *Cyclamens* and *Pimulas* were growing presented a marked feature. Such a lovely plant propagated by means of tops put into a little warmth in the spring deserves wide cultivation, especially as it blooms when flowers are so scarce. The plants ranged from 12 inches to 15 inches in height.—A. D.

ACACIAS FOR THE CONSERVATORY.

At present these beautiful conservatory shrubs seem to be at a discount. They disappeared for the most part with many other old-fashioned beautiful plants, natives of Australia and the Cape, when foliage plants became the rage. But their day will certainly come again, and those who are engaged in re-arranging their conservatories might with advantage plant a few of the best *Acacias*, or they may be easily cultivated in pots. A good idea may be formed of their decorative value by a visit to the temperate house at Kew any time from this on through the spring. When *Acacias* are planted out in the borders of a roomy conservatory as I have seen them in the past, from December or January, when the broad-winged species (*Acacia platyptera*) comes into blossom, until April, there may be a continuous succession of these beautiful yellow-flowered shrubs in bloom. It is true the flowers are, for the most part, small, but compensation for this is offered by their numbers, for the young shoots are thickly studded with blossoms along their whole length. The growth and foliage of the whole family have a light, elegant appearance, so that the plants are ornamental even when there are no flowers upon them. The cone or pyramid is the most agreeable shape for them, and by a judicious use of the pruning knife when the plants go out of blossom they may be very easily kept in shape. I have had handsome standards of several varieties. *Acacia pubescens*, for instance, makes a very elegant specimen when trained to a single stem with a large drooping head. I have, on the other hand, seen beautiful plants of *verticillata*, *floribunda*, and *armata* planted in a border in a light conservatory, 12 feet high, perfect cones, and such plants when in blossom are wonderfully attractive.

Acacia Drummondii is bushy in habit and dwarf, and the flowers are elongated instead of round, and are freely produced in winter. *A. grandis* is a vigorous grower and has a neat and elegant habit of growth. From its freedom of growth this species makes a good wall plant, and it has a pretty effect trained over an arch in the conservatory. *A. dealbata*, *A. olifolia elegans*, and *A. Riceana* all submit readily to training, and might with advantage be used in many large conservatories to impart grace and beauty where now is ugliness. Among other useful kinds are *pulchella* and *longifolia*, and the green Wattle of Australia (*Acacia lophantha*) is not without its usefulness where rapidity of growth is desired. All the species grow freely in loam and leaf-mould or peat, and may be easily propagated from cuttings of the half-ripened young shoots, or by seeds sown in heat in spring. When grown in pots they should be well drained, and the compost rammed in firmly around the balls in potting. The potted plants do better in the open air from the middle of July to the end of September. E. H.

Asparagus decumbens.—This is a very pretty species of *Asparagus*, and though not likely to ever become so popular as *A. plumosus* or *A. tenuissimus*, it is still worthy of a note, being so totally different from either of the two above mentioned. *A. decumbens* is a deciduous species, that goes to rest in the summer, and starts again into growth in the autumn. It is seen at its best when the plant is raised in such a manner that the long pendulous shoots can hang down for 5 feet or 6 feet, which they will do in the case of a vigorous specimen, and as numerous branches are produced,

each thickly clothed with foliage, the entire plant forms quite a screen of peculiar soft green drapery, and in this stage it is very different from any other *Asparagus* that I am acquainted with. The small white flowers are borne in great profusion, and are often succeeded by comparatively large berries, that add quite another feature. After remaining bright and fresh till the summer this *Asparagus* then dies off, when it should be kept somewhat drier till growth recommences in the autumn. It is usually grown in pots, as by this method of culture its drooping character can be seen to the best advantage. It is easily increased by division or by seeds, which often ripen and germinate freely. Like some of the more generally grown species, this *Asparagus* is a native of South Africa, from whence it was introduced towards the close of the last century.—T.

Poinsettias, late-flowering.—If *Poinsettias* are not transferred when at their best to much cooler houses than they were grown in, they keep fresh nearly or quite as long, added to which some, in fact the greater portion, of the strongest plants will become sufficiently firm to produce smaller heads or bracts down the stems. When the principal heads are either cut or drop naturally, the plants should still be kept in a rather dry heat and moderately well supplied with water, but directly the buds or side heads of bloom show, a little liquid manure may be given with advantage. These late blooms, if such they may be termed, frequently attain a good size and are particularly valuable for table and vase decoration.—I.

TREES AND SHRUBS.

THE AUSTRIAN PINE.

(*Pinus austriaca*.)

ON the chalk cliffs along the sea-coast near Dover this handsome and hardiest of all Pines grows with the greatest freedom, and soon imparts a warm and furnished appearance to the bare and treeless districts in which it is planted. There can be no question that for the purposes of shelter and warmth the Austrian Pine has no equal amongst the many species that are commonly cultivated in this country, as it is by far the hardiest and most accommodating of any, while it grows very rapidly and may be transplanted successfully. It has a habit quite unlike that of any other of its family, this rendering it of great value for planting on bare, wind-swept ground whether near the sea or at great elevations. The Corsican (*P. Laricio*) is nearly as good, but being of a less bushy habit of growth and not nearly so stiff, it is not quite so well adapted for similarly exposed sites. As a timber producer it is, however, far superior to the Austrian, being more inclined to throw its whole vigour into the production of a straight and stout stem than in the formation of many weighty branches, the latter being an evil to which the Austrian is very susceptible, particularly when the trees are grown far apart.

The Austrian Pine seems to be very suitable for seaside planting, for down even to high-water mark and where fully exposed to the salt-laden wind it grows with perfect freedom, and soon outlives in height and bulk of stem and branches all other trees with which it is planted. For giving shelter it is therefore a boon to have such a Pine as the Austrian, and one that starts away with such freedom in almost any soil in which it is planted. Chalk and limestone have special inducements for the Austrian Pine, but it is also quite at home on gravel, loam, or decayed vegetable soil, and in the sheltered valley or on the exposed hillside. All along the southern English coast wherever one sees a bright, healthy-looking tree in the maritime garden, that tree on close inspection usually turns out to be a Black Austrian Pine.

I was casually examining a strip of woodland that had been planted on Lord Grenville's property at St. Margaret's Bay, and could not help noticing how well the Austrian Pine had done in compa-

ration with any of the other trees used, and none but such as are usually recommended for the seaside had been planted. The strip of wood in question is on the elevated chalky cliffs close to the sea, and where the trees must be constantly subjected to the stiff breeze and ozone of the atmosphere. The Austrian Pine must have plenty of room for the perfect development of both root and branch.

A. D. WEBSTER.

Scarlet-berried Ivy.—I am not aware of this Ivy having fruited in England, but perhaps some reader of THE GARDEN has seen it. It is of Continental origin, and was distributed four or five years ago under the name of *Hedera Helix aurantiaca*, the berries being described as much the colour of those of the Mountain Ash. Judging by some specimens here, it seems to be a rather weak grower, the branches being slender, while the leaves, which are by no means large, are of a whitish tinge which follows the course of the principal veins, thus giving to the foliage a greyish hue.—T.

Raphiolepis salicifolia.—This species of Indian Hawthorn flowers during the winter months, and at that time a specimen of it is very pretty in the cool greenhouse. It is an evergreen shrub with rather slender branches, clothed with glossy lanceolate leaves, while the flowers are a good deal like those of the Hawthorn and borne in terminal panicles. The individual blooms are of a five-pointed star shape and pure white with a reddish centre. It is an uncommon plant, the best known of the genus being *R. ovata*, or *japonica*, which forms a short branching bush, and is quite hardy in this country. The leaves are roundish, very dark green, and of a leathery texture, while the flowers are larger and more massive than those above described, but in other particulars they are much the same. Both the above can be readily propagated by means of cuttings, which will stand for some time, but can usually be depended upon to root.—T.

The Washington Thorn (*Crataegus cordata*).—This is an uncommon species of Thorn, yet it was introduced more than 150 years ago and possesses many desirable qualities. It usually forms a rather close compact-headed small tree, clothed with broadly ovate or triangular, somewhat heart-shaped leaves of a deep shining green colour, that die off in the autumn, tinged with deep yellow and red. As a flowering tree it merits special attention, for it is about the latest of all the Thorns to bloom, being, indeed, later than the Tansy-leaved Thorn (*C. tanacetifolia*), which is usually regarded as the most tardy of all. The flowers are rather large, pure white in colour, and borne in good-sized clusters. The flowers are succeeded by berries, which ripen usually in October and are of a very bright red colour, but they are smaller than those of many other species, being, as a matter of fact, no larger than those of the common Hawthorn. As a single specimen on a small lawn the Washington Thorn is seen to great advantage. It is a native of Canada to Virginia, and there reaches a height of 15 feet to 25 feet.—T.

The Crimean Pine (*Pinus Pallasiana*).—The true Pines are classed into groups according to the number of leaves in a sheath, this having for its near allies *P. sylvestris*, *austriaca*, *montana*, *Pinea*, *Pinaster*, and other lesser known kinds, as well as *P. Laricio*, of which the Crimean Pine is by some considered a variety. *P. Pallasiana* is readily distinguished from *P. Laricio* by the longer leaves and cones, as well as by the greater number of branches, thus forming a tree of totally different outline. It is moderately quick-growing, and when standing singly forms a bluntly pyramidal-shaped specimen, branched nearly, if not quite, to the ground, all the branches having an upward tendency, this character, however, being less pronounced towards the lower part of the plant. The leaves are very numerous and dark green, which, taken in conjunction with its free-branching habit, render a thriving specimen of this Fir very noticeable by reason of the dense blackish mass of foliage. Though greatly superior to *P. Laricio* in beauty, *P. Pallasiana* is not nearly so valuable as a timber

tree, the branches being far too large and numerous, as those near the base of the specimen are oftentimes nearly as large as the main trunk. It is a native of the Crimea, and is therefore perfectly hardy in this country, where it has been cultivated since 1790. This Pine will succeed even in poor sandy soil, but, as a matter of course, more liberal treatment gives the best results. I once saw a fine specimen standing out singly, yet at a short distance from a group of the Himalayan *P. excelsa*, against the light-coloured background of which the Crimean species stood out very conspicuously.—T.

Garrya elliptica.—I never saw this evergreen climbing plant so full of its catkin-like flowers as at the present time. We have growing over the porch at the entrance to the mansion here two plants, one on each side, which are quite 15 feet high, and both are completely smothered with flowers. The plants have never been closely pruned or trained; therefore they have quite an informal appearance. The aspect is north-west, and the plants have been planted seven or eight years. They have been treated liberally in the matter of good soil and abundance of water both at the roots and over the branches, hence their vigorous appearance.—E. M.

Quercus Lucombeana.—At the present time by far the most interesting trees in the park are several fine specimens of Lucombe's Oak. They were not conspicuous in summer, when the giant common Oaks and Chestnuts were in full leaf, but these have long since been bare and apparently lifeless, whilst Lucombe's Oak stands out well. The true Evergreen Oak is a formal tree compared with the common Oak, and Lucombe's Oak is typical of the common Oak in form and habit of growth, has the same characteristic shape of leaves, but retains them fresh and green throughout the winter. One tree in the park is about 60 feet high, and has a stem girthing 9 feet. It stands in the foreground of a group of fine old common Oaks, and is especially beautiful when the wind blows, as then the silvery under-surface of the leaves is seen. There are several other specimens in the park, but none are so well placed as this one. It is very desirable that distinct forms of native trees, such as Lucombe's and other Oaks, should be planted in the park, as when they grow up they have not that sombre or foreign aspect produced by Wellingtonias and other poor Conifers.—A. H.

American Mountain Tea (*Gaultheria procumbens*).—At this time, when bright bits of colour in the garden are few and far between, this little plant will attract attention by reason of its showy red berries, which, nestling among the bronzed Box-like leaves, form a very pleasing winter feature. It is in all respects a pretty little undershrub, and succeeds best in a fairly moist shady part of the rockwork where the soil is principally composed of peat, for in dry or sunny spots it is useless to expect it to thrive. The little white bell-shaped flowers are borne during the summer months. A second species is the better-known *G. Shallon*, a vigorous growing, yet procumbent shrub, one of the very best subjects as a carpet plant to the larger Ericaceae, as it will (provided the soil is fairly moist and composed principally of vegetable matter) hold its own under somewhat disadvantageous conditions. The spikes of urn-shaped, pinkish blossoms are borne in great profusion, and the plant is in this stage very attractive. The berries are purple and much appreciated by game, and on that account it is often used as a covert plant. In America it is said to grow in the shade of close Pine forests where hardly anything else will thrive.—H. P.

Two good Willows.—Any tree or shrub that helps to brighten up the dreary aspect of many of our winter landscapes has a special claim to notice, and is of great value in the hands of a good planter. *Salix vitellina*, the Yellow-barked Willow, and *S. cardinalis*, the Cardinal Willow, are especially valuable, because it is now that they show their great charm, and where they have been planted in quantity lighten up the whole scene with a rich

glow of bright, warm colour. Upon the margins of lakes, streams, and woodland plantations, or in any suitable moist position where Willows do well, the two Willows named should be extensively grown. Of the two, the Cardinal Willow is the most effective, the bark upon the shoots being of quite a glowing red colour. It is very pretty in contrast with the common Dogwood. The bark of *S. vitellina* is of a clear yellow colour, and has a pretty effect if backed up by some dark evergreen tree. The greatest effect is produced by annually cutting the Willows down, as they then make a quantity of long vigorous shoots which take on a high colour in winter. Moreover, as these two Willows are about the toughest of any, their shoots are very useful for tying, and young shoots will tie into a tight knot without breaking. But cutting down should only be practised where dense, dwarf, spreading masses of colour are required, as both of these Willows are highly ornamental if allowed to develop into a tree. The Cardinal Willow will make a tree from 30 feet to 40 feet in height, and such a tree in a good position makes a very telling feature, for if the colour is hardly as brilliant as upon the cut-back plants, it is still bright, especially when the sun shines upon it. The Yellow-barked Willow, too, as a tree grows into a fair-sized specimen, 25 feet to 30 feet high and nearly as much through. Generally, the tree branches into several rather stout limbs, but from the smaller branches hang great clusters of pendulous yellow twigs. A dark background of evergreen trees brings out its fullest effect. Considering that these Willows are so cheap and so easily propagated, it is surprising how scantily they have been planted. Even a few cuttings stuck in by the water's edge would soon grow into good trees.—A. H.

Cryptomeria elegans.—I never saw this shrub so finely tinged with colour as this year. The recent sharp frosts coming upon a thoroughly developed growth are probably the cause of the intense colouring of the shrub. It is one of the most handsome of evergreen trees, either for planting on the Grass or in the mixed shrubbery, all that is required in its treatment being three things—shelter from east winds, strong soil, and not overcrowding by other subjects, but giving it space in a sunny spot to develop. Too much manure is bad for it, as it produces sappy growth, which is liable to premature decay.—E. M.

Ribes Lobbi.—Though the blossoms of this *Ribes* are not equal to those of *R. speciosum*, *R. aureum*, or *R. sanguineum*, they are still very pretty, and, what is more, now when the whole of the plants are devoid of foliage, it is the most interesting of the whole genus, owing to the strong shoots being thickly beset with spines. This *Ribes* is a native of the north-western part of America, and is often met with under the name of *R. subvestitum*. It forms a stout free-growing bush, and when established often pushes up a number of very strong shoots near the base of the specimen. It is on these particular shoots that the spiny character is the most pronounced. The flowering season of this *Ribes* is during the month of May, when the rather pretty, but singular blossoms are borne in great profusion. In shape they somewhat resemble small *Fuchsia* blooms, the sepals being chocolate tipped with green, while the petals are white, marked with pink at their base.—T.

Aralia Sieboldi.—There prevails a doubt as to the hardness of this beautiful Japanese shrub, but this, I think, may be set aside if those who would succeed go the right way with the preparation of the plants. But why prepare them? some may say; either a plant is hardy or it is not; if it will not stand in my garden it is of no use to me. Very good; the Oak, the Ash, and hundreds of plants started in the open air on British soil will stand our sharpest winters, but seeds of this *Aralia*, ripened in a warmer climate than our own, or, if in this country, certainly under glass, not only germinate very freely, but make soft, succulent stems the thickness of one's finger in a very short time. Plant these seedlings out without preparation, and although protected from frost the majority of them will succumb the first winter, especially if the situation

is damp. I recollect some years ago making a purchase of fifty seedlings, most likely raised in Belgium, for the winter furnishing of two beds. They were 18 inches in height, clean, healthy, and well rooted, and, notwithstanding a very mild winter, every one of them died from damp. This result did not surprise me, as I had been growing and seeding the *Aralia* from the time it was introduced, and having at Eastnor plants which had stood 34° of frost, I knew the loss was entirely due to my own fault. One plant here, exposed to all weathers from the day it was put out in 1863, is now quite 16 feet in diameter, and although the ivory-like flower-stems get cut by autumn frosts it never loses a leaf. This plant was properly prepared by being kept in a large pot until thoroughly rootbound. It was turned out in the spring in stiff, calcareous loam, and with *Bambusa Metake*, *Quercus glabra*, *Ilex latifolia*, *I. Cunninghami*, and Maples as companions, it braves all weathers. Seedlings raised at Eastnor and kept in pots until the stems were hard and woody having proved equally hardy. I think I may venture to say this beautiful *Aralia* may be trusted anywhere south of the Trent if properly prepared.—W. C.

GARDEN FLORA.

PLATE 735.

RAMONDIAS.

(WITH A COLOURED PLATE OF *R. PYRENAICA* ALBA.)*

THIS charming genus, which a few years ago contained only one species, *R. pyrenaica*, in cultivation, now includes, besides the beautiful variety, a plate of which we have the pleasure of presenting to our readers with the present issue, *R. Heldreichi*, *R. serbica*, and *R. Nataliæ*; the two last, we think found in Serbia, are new additions, and both are said to be far superior to the type. Considering the genus as it is best known to us in *R. pyrenaica*, it has long since thoroughly established itself in our gardens as a general favourite, and wherever found doing well is invariably pointed out with pride by the cultivator as one of his choicest pets. Although it can hardly be said to be as striking as many of the fine *Gentians* and highly coloured alpine *Primroses*, it has a distinct and characteristic habit quite its own, and, moreover, never fails to produce an abundance of bloom rarely equalled by the majority of the alpine now in cultivation. In its native country, the Pyrenean Alps, the type may be found luxuriating in almost every conceivable position on the Moss-grown stones so peculiar to the high Alps, the leaves barely above the water mark of the mountain streams, and liable at every flood to be entirely deluged. We also see it on almost perpendicular cliffs, inaccessible even to the experienced mountaineer, and on the damp flats or broad shelves, taking its chance in the oftentimes severe struggle for existence among the dense closely cropped herbage or turf. The most curious positions, however, and to the inexperienced the least desirable, are those perpendicular rocks fully exposed to the broiling sun, and although not so robust, the specimens are equally as healthy and, if anything, more free blooming. If the tourist could trace these roots he would soon reveal the secret hidden by the rocks; he would find the small fibres of the *Ramondia* in search of moisture in the cool fissures several feet from the surface. Moisture appears to be one of the essentials to success in growing the *Ramondia*, and our very best cultivators always tell us never to allow the plants to become

* From a drawing sent by O. Forster, Lehenhof, Austria. Lithographed and printed by Guillaume Severeys.



RAMONDIA PYRENAICA ALBA.

dry, winter or summer. The conditions briefly described above are not impossible of imitation in gardens, as a large colony on the new rockery at Kew proves. The large boulders or stones are built into the bank slightly inclined downwards from the face, a good layer of turfy peat and well-decayed leaf-soil being placed on the top, when another stone may be built in, and so on. It is a very good plan if the plants are large enough to build them in as the work proceeds. The position where *Ramondias* are said to do best is where they receive no sun between six in the morning and four in the afternoon. This could be easily managed on ordinary rockeries. *R. pyrenaica* is *Verbascum Myconi* of the old botanists, and Blew Beare's-ears, with Borage leaves of Parkinson—a curious name, but not inapplicable to this interesting plant. The *Ramondias* have been found, like many of the *Gesneriads*, to be easily increased by leaves, and when properly notched and layered not only do they form abundance of roots, but also young plants wherever the notch has healed over. We have, however, hitherto preferred raising them from seed. The seedlings undoubtedly grow slowly, but in three or four years at the outside they will be found ready for planting out if liberally treated. The seed should be sown as soon as gathered, the tiny seedlings being pricked off as soon as they are ready to handle.

R. PYRENAICA VAR. *ALBA*, as may be seen in the accompanying coloured illustration, is one of the most beautiful of our hardy alpinists. This variety, we believe, first originated with Mr. Otto Forster, Lehenhof, Austria. He says the flowers are nearly pure white when opening, and it is only on their fading that they assume a rose or pink tinge. We believe the coloured drawing to be a fair representation of the living plant, and if so, we have here one of the finest acquisitions to our list of alpinists of recent years. It blooms more freely, is more robust in habit than the type, and is altogether a more desirable subject for rockworks. We have been several times taken in with the white *Ramondia*, many of the plants offered being pale washy forms, inferior in every way to the old *R. pyrenaica*, and all this has helped to throw some doubt on the very existence of a real white variety. The plate sets our mind, at any rate, at rest.

R. NATALIE, represented as a new species, is said to be by far the most abundant bloomer of the genus. We have never seen it in flower, and, judging from the tiny plants imported, we should say, if anything, it is a mere geographical form of *R. pyrenaica*.

R. SERBICA, though included in Nyman's "*Conspectus Floræ Europæ*," the author in a foot-note confesses his failure to distinguish it from *R. pyrenaica*. Panč, the author of the name, says flowers five, rarely four, the corolla concave and widely subcampanulate, but most stress is laid on the fact that the anthers, instead of being yellow, as in *pyrenaica*, are blue. This is not apparent in dried specimens, and we must take the author's statement for granted until our specimens flower. The Continental growers say it is a luxuriant grower and an abundant bloomer. *R. Heldreichi* has at last been successfully introduced by the indefatigable Herr Max Leichtlin, of Baden-Baden, and we hope we will not have to remain long in doubt as to its merits. D. K.

Cordon Apple trees.—I intend planting about 300 vertical cordon Apples, 1 foot apart, against an open trellis facing north. Please advise in your next issue the best sorts for that aspect for successional crops of

dessert and cooking varieties. Trellis is 9 feet high and on the south side I have planted cordon Pears.—CORDON.

FRUIT GARDEN.

HOUSING AND ARRANGING POT FRUIT TREES.

WHERE fruits of various kinds are grown in pots and forced separately or together, January will be busily devoted to putting the trees and houses in order, as nothing can be gained by allowing a single tree to remain in the open air after the middle of the month. Very early-flowering varieties, indeed, of Plums and Cherries sometimes get quite forward enough to tempt bud-eating birds when sharp frost sets in after mild weather; and this being our position at the present moment, whilst birds are more numerous than ever, those who have not placed the whole of their stock under glass will do well to protect with nets, as a pair of bullfinches will spoil a good tree in a few minutes. Autumn pruning, no longer confined to wall trees, having been extended to trees in pots, knife work will be extremely light, but, little or much, each tree should be dressed over with the knife and carefully washed with a solution of Gishurst compound before it is taken into the house. The pots also, espe-



Ramondia pyrenaica in Derbyshire.

cially the apertures, should be examined, and if worms have been at work, not only must the crocks be cleansed, but steps must be taken for driving them out of their moist fattening stronghold, for as well may a man try to gather Figs from Thorns as to obtain fruit from trees which are waterlogged. The usual draught for worms in pots is a copious supply of clear limewater, and as this cannot be made too strong for the roots of stone fruit trees, the attendant need not be afraid of doing mischief, always provided a saturated condition is not continued.

ARRANGEMENT.—When trees are housed, immediate arrangement is not absolutely necessary, as a retarding process may have to be followed up for a long time, and those who are obliged to continue their work may wish to put their houses in order when bad weather drives them in from the open walls. The work, nevertheless, must be got through, and, considering that top-dressing may be delayed, the greatest gain will fall to those who finish off as they proceed. Late Pears, Plums, Cherries, and Apricots, whose only help may be solar heat in light, well-ventilated houses, will be

kept back as carefully as though they were growing against open walls, but this fact will not interfere with the proper elevation of each pot and the introduction of a neat sod of turf grass-side downwards, for the twofold purpose of securing feeding fibres from the crock roots, and filtering liquid on its way down to the borders.

TOP-DRESSING, as a matter of course, will have been made up some weeks ago, and, considering that it improves with age, it should be kept dry and well covered with fresh stable manure in an open shed. The materials used as stimulants in a solid form are numerous, and some not over agreeable to a certain sense when shut up in a close house, but the whole of these I think may be avoided, as sound calcareous loam, bone-dust, old dry cow manure or spit manure, and a dash of soot make a top dressing rich enough for any fruit which is not over-cropped. The trees, I may say, should be thoroughly moist, but not pasty-wet, when the top-dressing is applied, and the latter being dry, it may be well rammed. A small quantity only should be given at one time, and, provided the pots are already full, provision may be made for future supplies, also for copious watering by the introduction of artificial rims made of zinc or lead, and from 2 inches to 4 inches in depth. If these are made to fit quite tight inside the rims of the pots, a thin coating of the top-dressing may be given once a week when the trees are in growth, and having plenty of room for water, the full complement can be given without loss or delay—no unimportant matter where hundreds of pot trees sometimes require water twice a day.

PERFORATED POTS.—Where pyramidal Pears, one of our most useful cold house fruits, become tall and require plunging, the better to secure head-room, as well as to economise labour in watering, they should be grown in pots with several holes an inch across perforated in their sides. These pots are a little more expensive, costing price and a half, but they soon pay, as trees do so well in them, especially when plunged in moist, well-drained loam and the feeders have broken their prison bonds. All liquid food, as a matter of course, passes through the pots, for no matter how numerous the outside roots, failure is certain when the balls become dry. When the fruit is swelling freely, the borders may be well mulched and soaked, and although each hole sends forth its whorl of feeders, the whole of them may be cut off when the wood is ripe. Perforated pots have been used by Orchid growers for a great number of years, and the time is coming when all cultivators of fruit will adopt them, particularly where they can be plunged. FRUIT GROWER.

Rooting Strawberry runners on turf.—At page 586 of *THE GARDEN*, Dec. 21, 1889, an article on the above subject appeared and stated that the practice was "absurd as well as misleading." I have often rooted Strawberry runners on old sods with the greatest success and with a minimum of labour. Where it is difficult to procure pots and where little assistance can be had to fill them and water the plants, I can, from experience, recommend sods; but instead of cutting them into squares of 3 inches take sods 12 or more inches square. Lay the grass side downwards, and if there is a little old Mushroom manure at hand it may be spread over the sods with advantage. On this may be pegged the runners from the lines of plants on each side of the sods, and from 12 to 15 runners can be easily rooted on a square foot of sod. When well rooted the sods can be taken to the plot of ground where it is intended to make the new plantation, and instead of cutting them up it is better to pull the sod carefully to pieces between every

plant. Plant carefully with trowel and press firmly, and water. Success will certainly result.—*W. O., Fota, Cork.*

FRUIT TREES FOR COOL SITES.

It is doubtful if high walls with a northern aspect are generally utilised to their full extent. This applies not merely to garden walls, but also to various blank spaces on outbuildings, stables, coach-houses, and dwelling-houses of various descriptions. Judging from what is to be met with in different places, the owners or those responsible for what is done in the way of planting fruit trees would appear to think the Morello Cherry the only fruit that can be profitably grown in cool positions, but, valuable as this Cherry is and admirably adapted as it proves for the purpose, there are yet other fruits that might well be tried in similar positions. Foremost among the latter must be placed a few varieties of Pears, and which merit a cool position if only for the sake of prolonging their season. What is also worthy of consideration is the fact that in some seasons, and with which must be included that of 1889, Pear trees growing against cool walls actually produce heavier and better crops of fruit than do those located in what are presumably more favourable positions. I ought, however, to point out that I am practising gardening in one of the south-western counties of England, and it may be that Pear trees planted against cool walls in the more northern counties might prove comparatively useless. My first experience with Pear growing against walls with a northern aspect was gained in a Sussex garden. From these trees we rarely failed to gather some of our finest fruit of Marie Louise, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré Diel, Passe Colmar, and Seckle, none of these failing to ripen properly, sometimes with and oftener without the assistance of a little artificial heat after they were gathered. In other gardens I have seen excellent crops taken from trees growing against the coldest walls, the varieties, in addition to some of the foregoing, including Pitmaston Duchess, Beurré d'Amanlis, Duchesse d'Angoulême, Maréchal de la Cour, and Winter Nelis. Here we have two long walls facing north-east almost wholly covered with Pear trees, and they seldom fail to do good service. For two years in succession one large tree of Beurré Diel has borne not less than fifteen dozen extra fine selected fruit, these ripening perfectly and keeping good till late in December. The quality is really good for the variety, and though certainly not equal to Marie Louise, they were worth more to us for shooting parties and also fetched better prices in the market. Vicar of Winkfield also succeeds exceptionally well on our cool walls. It is a favourite for stewing, not requiring any artificial colouring matter, and the quality during December or up to the present time is by no means despicable. This, again, being late, sells readily for the dessert. Neither Easter Beurré nor Napoleon are profitable with us, Gansel's Bergamot and Jargonelle being also failures. The last named grows vigorously, but is much too shy-bearing, though it does well on a nearly east aspect. Williams' Bon Chrétien, Beurré Clairgeau, Beurré Superfin, Mme. Millet, and Winter Nelis are among those that do succeed, and even Glou Morceau cannot be classed as a failure. Châumont bears well, but the fruit is only fit for stewing, while the fruit abundantly produced by Ne Plus [Meuris] has by far too much core to be of any value.

Several varieties of Plums also succeed against the coldest walls, and of these none surpass Coe's Golden Drop. Morocco also does well, the fruit ripening almost as early as that of Rivers' Prolific, and greatly surpasses the latter in point of size and quality. Victoria crops heavily, but the fruit is only fit for cooking. Pond's Seedling produces a moderately heavy crop of extra fine fruit, and to Prince Engelbert much the same remarks apply. Last season Jefferson's was a failure, but in 1888 and some previous years the trees have produced good crops of very handsome fruits, these, as a matter of course, being much later than those grown on trees in sunnier spots. White Magnum

Bonum rarely fails, and the fruits are both large and good in quality. Orleans is another hardy and serviceable variety, and both Green and Purple Gage are fairly reliable, but the quality of the fruit does not nearly equal that obtained from more favoured trees. Oullib's Golden, a favourite variety here, and Kirke's, another valuable Plum, are on trial, and it is premature to offer an opinion as to their suitability for planting against cool walls. Plums are among the best and most profitable fruits for planting against the walls of cottages and dwelling-houses generally, plenty of head room and a free system of training soon bringing them into good bearing.

Cherries, other than the invaluable Morello variety, I do not recommend for a northern aspect. I have tried several varieties, and they have succeeded fairly well as far as cropping is concerned, and the fruit, too, attains a large size, but it is always too sour, or more so than in the case of Morellos. Red and White Currants invariably do well in cool positions, and blank spaces between other trees on cool walls may well be clothed for a few years at any rate with trained Currants. They produce extra fine clusters of fruit, this being only slightly more acid than any grown in the open garden. Gooseberries rarely fail when planted against a cool wall, the spur system of pruning being adopted. The coldest wall we have is completely furnished with Plum, Currant, and Gooseberry trees and bushes, the whole being enclosed by a permanent wire-netting covered structure, and during the three seasons the trees and bushes have thus been protected from birds, the crops have been extra heavy, or more than were needed. It is true that several varieties of Gooseberries are somewhat flat in flavour, but no fault can be found with the Red Warrington and Rough Red, and the first named keeps admirably. Extra late crops of Strawberries can frequently be had from cool borders, but in our case the lowness of the site does not long suit them, only quite young plants succeeding well, and even these are liable to be much injured by frosts.

W. IGGULDEN.

FRUIT FORCING.

THE PINE.—The old year having passed away, the new may be ushered in by preparations for starting the first batch of Queens, from which the earliest English fruit is to be cut in May and June next. The whole of the intended fruiterers having been at rest now for some two to three months, the whole of them should be fit for starting, but this step being undesirable, a few only, possibly one-third, of the most promising should now be selected and placed in or rather upon bottom-heat. The compartment selected for this small batch, light, perfectly clean, and efficiently heated, as a matter of course, will have been made quite ready by the introduction of the well-worked tan or leaves for giving the necessary bottom-heat, which should range as nearly as possible at 85° to commence with. If higher, it must be made extra firm by treading evenly, and when the trial sticks indicate safety with no prospect of a sudden rise, the plants may be picked out and undergo the usual preparation for plunging. In their selection, the experienced eye will decide upon plants with the thickest stems and the greatest number of small, sharply-pointed leaves, clustering pretty close together in the centres, as being most likely to start without making a growth, a very important matter where good Queens for the London season are imperative. When drawn, each plant should be divested of a few of the lowest leaves, also of all loose and inert soil, when the stem must be made quite firm by top-dressing with good lumps of turfy loam, highest at the collar and sloping away outwards. So far, the work is mechanical, but the next operation, viz., that of plunging, will put the grower on his mettle, and for this reason, the balls of the plants being interlaced with semi-active roots and the crocks literally full of them, the greatest attention must be devoted to the bottom-heat, for if it rises suddenly and exceeds 90° they will be damaged, when the plants will be of little

value. Beds formed entirely of tan or leaves are very subject to these fluctuations, especially after the surface has been disturbed, be it ever so slightly; hence the wisdom of setting each pot in a shallow basin at first and packing up with the plunging material when the heat is declining. Beds formed over tanks or hot-water pipes laid in rubble, being not more than 18 inches in depth, rarely fluctuate; therefore the plants may be plunged two-thirds of the depth of the pots at once with the greatest safety. Here then is an advantage, but the metal is not free from an alloy, for such shallow beds resting on hot-water pipes are liable to become too dry by the time the fruit requires all the support which fermenting leaves give in the form of genial moisture. If the plants are good, broad, and stocky, they should be placed 2 feet apart each way with their heads well up to the glass, which must be kept clean, and, if practicable, covered at night to keep in moisture and save firing. When all the plants are plunged, the next operation will be watering with guano water or weak clarified liquid at a temperature of 80°, and the balls being decidedly dry, thorough moistening, an important matter, may necessitate two or three applications, the modified quantities being favourable to the gradual moistening of the whole of the balls and crocks without flooding the still lively fermenting material. The sudden change from a low dry temperature to a moist growing bed will soon set the healthy roots in motion, and fruit being the object, the plants must not be forced beyond their strength by a high top-heat and excessive atmospheric moisture. This, dependent, of course, upon outside conditions, may range 60° to 65° through the night, and 65° to 70° by day without the aid of sun, and 10° higher when this luminary gives warmth as well as light and firing is not excessive. In like manner, atmospheric moisture must be increased by degrees; first by damping the paths and walls, then the surface of the bed with tepid water, care being taken that it does not get into the hearts of the plants or create scalding steam by contact with the pipes when highly heated.

SUCCESSIONAL FRUITERS.—The first batch having been drawn and started, the remaining two-thirds, including Queens, Rothschilds, and Smooth Cayennes, will require attention, but the bed being favourable to rest, which may be continued until towards the end of February, it may be better to put up with a gappy appearance than upset the plants and heat of the bed by replunging. Having at least six weeks of comparative quiet before them, these plants may be kept 58° to 60° at night, and about 65° to 68° by day as a rule, but the sun now gaining power will necessitate more careful attention to ventilation, and possibly towards the end of this month occasional damping down, as it is quite easy to go to extremes when the season is favourable to a revival of growth which nine-tenths of the plants will make before they commence fruiting.

STRONG SUCCESSIONS.—Where good suckers are potted in small batches at short intervals throughout the growing season, the succession house will now contain a goodly number of strong plants, almost too large for their pots, and which have been kept moving throughout the winter. It is as yet too early to think of potting, but assuming that the majority of them are intended to grow into a fruiting condition by the end of July or the beginning of August, the paths and surface of the bed may be moderately moistened, and if getting dry enough to endanger starting, those near the bottom-heat pipes must receive a little water, not only through the pots, but also through the plunging material. By adopting this plan the bottom of the bed will become moister and a shade warmer, and without raising the top-heat certainly by night the roots will be gently exerted into that lively condition which will fit them for potting by January 1. Meantime, 10-inch, 11-inch, and 12-inch pots may be washed and well crocked ready for the reception of the different sizes, and compost being improved by keeping for some weeks after it is made up, this may be got ready and piled up on the bench in a dry, warm potting shed. As this will be used for the final shift, it should

be rough, fibry, and dry enough to stand sharp ramming without becoming pasty or adhesive. Then as

SUCKERS and weaklings of the same batch will soon require the same attention, the residue of this compost, naturally the finest, will come in well for this purpose. January in the succession department is a quiet month, but having passed the worst, we may expect a little sun, especially if the weather be frosty. Although weak, this genial warmth will help the plants, and a gradual merging from rest into fresh life being very important, the air, temperature, and moisture must be regulated in accordance with the state of the weather. Fire-heat, as a matter of course, will be almost, if not quite incessant, but its drying influence may be greatly modified by the use of oiled canvas, frigidomo, or other non-conducting materials for night covering.

STRAWBERRIES IN POTS.—Those who have suitable accommodation for forcing the Strawberry will now have the Strawberry house full of plants, and possibly an extra early batch in 5-in. pots on a good shelf in the early vinery. If started at a minimum of 45° in November, the moderate moisture from the fermenting bed of manure or leaves will have helped them forward without the aid of the syringe, and many of them by this time will be throwing up their flower-stems. The plants as a matter of course will have to submit to the usual routine of early vinery treatment, which as a rule suits them admirably, and placed so close to the light, other conditions being right, the flowers will open strong early in January. When this stage is approached, the first enemy, green-fly, must be circumvented by moderate fumigation on a mild, calm day, followed by good syringing with tepid water. When it is reached, and the point flowers begin to open, a chink of air must be kept on the roof lights to prevent condensation of moisture on the petals. The rise of about 2° a week, so necessary to the advancing Vines, will also suit the Strawberries when in flower, but, considering their earliness, they must be regularly fertilised when pollen becomes plentiful. The best time to do this is about midday, when, with a very light hand, the camel's-hair brush may be passed over them. The leaves at the same time must be gently pressed down to keep the scapes quite clear, as fresh young foliage not only holds moisture, but impedes the circulation of air at a critical period. When six or eight of the best flowers have set, the object being very early fruit, all the others may be picked off, and the plants hitherto moderately watered may receive weak diluted liquid in greater quantity. This gentle stimulus, aided by good syringing with tepid water, will very soon settle the point as to perfect fertilisation, and so soon as this is assured the plants may be transferred to the best shelf in the Pine stove, where they will stand any amount of feeding and forcing. If other plants have been started in a less favourable part of the vinery or in pits, they may be elevated to the top shelf after it has been well cleansed with soap and water, but spider being such a scourge amongst Vines, the "setting" of a second batch if possible should be avoided, especially where the main crops have been started under favourable conditions in the

STRAWBERRY HOUSE. About the second week in December is a good time to cleanse the plants by dipping in soapsuds or sulphur water and the pots by scrubbing, and to introduce them at once to the shelves where they may be started at 45°, rising 2°, more or less according to the weather, weekly. No rule, however, can be laid down for December treatment, as the sky may be shut out by clouds and the earth by fog; therefore, speed must be regulated by the elements. But once the turn of the season is passed, well-prepared plants will make a move, and an occasional glimpse of sun will make forcing comparatively easy. At such times, aided by a body of fermenting leaves beneath the stage and gentle warmth in the pipes, the air temperature may rise 10° with air, of course, when the plants will derive benefit from a gentle dewing over with tepid water. By adopt-

ing this give-and-take system and keeping the night temperature down, the young foliage will expand bright and clean, the flower-spikes will rise well above the leaves, and pollen will be abundant. Watering throughout the early stages, especially when the plants are in flower, must receive the most careful attention, for much as the Strawberry revels in a moist soil, much mischief may be, and often is, done by over-watering. Drought, on the other hand, is equally injurious, but neither of these conditions need be apprehended where the apertures in the pots are kept clear, the use of saucers is avoided, and the plants are looked over daily by an intelligent man who understands his business. The flowers here, as in the early vinery, should be fertilised when the pollen is plentiful and buoyant, a condition which may be secured with the greatest advantage by the maintenance of a temperature somewhat higher and drier than usual, fresh air, as a matter of course, being freely admitted through the front ventilators. When set, such varieties as Noble, Paxton, and President should be well thinned, a matter of eight or ten fruit of good size being preferable to an unlimited number of small ones, and, mindful of the fact that the long stalks must have support, they should be tied to small sticks or forked pieces of Birch before the weight of the fruit bends them over the sides of the pots, a position which prevents the sap from flowing freely. Where the Strawberry house is used for setting purposes only, at least through the early part of the season, the different batches should be removed to the stove as the earliest are cleared out, and in this way glutts or periods of scarcity will be avoided. Strawberries, it must be borne in mind, do not reach their best in the hot moist Pine stove. They colour well, it is true, but in order to have them sweet and good, the pots containing apparently ripe fruit should be moved to a shelf in a dry, warm, well-ventilated house where the temperature ranges from 50° to 70°. In a structure of this kind they can be kept not only fresh and bright, but they gain in quality for many days, the only attention being careful ventilation, protection from vermin, and just enough tepid water to prevent the foliage from flagging. As early forced plants are cleared they should be dipped to free them from spider and placed in cold pits to harden off ready for planting out in the spring, not for runners, but for giving crops of fruit in the autumn. Some save plants which miss fruiting, but I prefer throwing them away, as we always have enough and to spare of early sorts which are most suitable for autumn cropping.

W. COLEMAN.

APRICOTS.—These precocious trees should be pruned early in the autumn, as the wounds then have time to heal before they are overtaken by severe frost. This part of the work, I presume, has been performed and possibly the cleansing also, but in the event of this part having been left in arrears, advantage should be taken of dry mild days for washing and nailing, in order that there may be no delay when the buds commence swelling, and preparations must be made for protecting. Two or three weeks' dry steady frost, terminating about the end of this month, would be a godsend in fruit gardens, and, provided it did not come too severe, no tree would derive greater benefit than the early-flowering Apricot. If the trees have been lifted or root-pruned and a wet winter has been depended upon for soaking the borders, the latter should be examined, and if found dry or partially so well watered. Bud-dropping, in my experience, may be traced to two causes, viz., intense frost upon imperfectly ripened wood and want of water. The first is beyond our control, but the second may be prevented by liberal mulching and copious flooding throughout the growing season. If anyone has dressed and trained his Apricots without making an attack upon insect pests, although late, he may yet do good service to himself and the trees by weekly washings with soapsuds through the garden engine until the fast swelling buds warn him that the use of this excellent insecticide and stimulant must be discontinued.—W.

VINE LEAVES UNHEALTHY.

I ENCLOSE a few leaves taken from Vines I have just taken charge of. I have had much practice in the management of Vines. Will you kindly examine the leaves and tell me how many diseases they have? There is a small insect which I cannot make out, but which seems to be very destructive. Nine fine young Muscats of Alexandria are quite dead, and all the others in a very bad state. They are all young Vines and the borders are in good condition. —G. P.

** In reply to "G. P." who has had much practice in the management of Vines, I have pleasure in saying they are quite free from diseases of all kinds; indeed, they are of good size, have ripened off limp, and so far as the roots are concerned would be quite satisfactory were they not literally devoured by thrips and mealy bug. It is easy to understand that two such terrible pests engaged in battle royal in one vinery do beat many Grape growers, who know these enemies when they see them, and "G. P." must put his shoulder to the wheel, otherwise they will beat him. He need not, however, despair, as there are ways and means of getting rid of them, and unless the foliage of the nine young Muscats is much worse than the samples, which I have lost no time in consigning to the fire, I apprehend no obstacle to his restoring them to a clean condition in the course of next season. His application for assistance fortunately comes just right, as this dormant season is most favourable to cleansing, painting, and putting his house in better order.

From the way in which thrips have overrun the upper, and bug the lower sides of the leaves, it is quite evident that foul plants have been leading a lingering existence beneath the Vines, and as these can hardly be worth cleaning, the first step should be consignment bodily to the fire; everything in fact having a green leaf down to a bit of Scolopendrium growing beneath the trellis path should be rooted up and destroyed. This movement will clear the ground for full action, and by way of increasing "G. P.'s" practical knowledge, I may say the drastic measures fatal to one insect will destroy the other. In the first place, although the pests have got down into the surface of the borders, a large sheet should be spread over the whole area of the house to catch the prunings and loose bark as they fall from the knife. The Vines must then be let down, pruned, and divested of every bit of loose bark, care being taken that the buds are not injured by the process. The rods may then be slung, and when the walls have been well scraped, the sheet containing the happy family must be taken to the fire in the rubbish yard to be cleared of its contents, care being taken it is passed through boiling water when done with. The next operation will be the removal of all loose soil and mulching, quite down to the solid staple, about the stems of the Vines especially, and then prepared with very strong soft soap water every particle of the woodwork, the glass and the walls must be thoroughly scrubbed with hard brushes, and last of all the Vines must undergo the same preliminary process. When dry, every small hole in the old rods must be stopped with pure Gishurst compound, and they will be ready for painting with the following mixture of stiff, dry, sifted loam one peck, gas tar half-a-pint, well worked into it in an iron pot or pipkin, and reduced to the thickness of good cream by the addition of boiling water. When nearly cold the rods from base to point must be thoroughly coated, a little leniency being shown where young buds are prominent. Once more the canes must be slung where they may remain until they break, and the painter, with good oil and turps paint, must commence his part of the business, two coats most carefully worked into every hole and crevice in the woodwork and trellis being, in this case, necessary. The walls, in like manner, must be well painted, and stopped, and thoroughly coated with lime-wash, to which a little soft soap and a pint of turps may be added. If portable trellis paths exist, they may be taken out, turned upside down, scrubbed and scalded, and finally the borders must be swept bare and top-dressed with fresh horse droppings

containing ammonia. If this work is properly carried out, bug and thrips will be scarce, but ten to one a remnant will remain, biding their time for recolonising if left unmolested. Early in the spring, then, when the buds begin to swell, armed with a bottle of methylated spirits and a camel's-hair brush, the attendant must search, not only the Vines, but the house throughout at least twice a week for solitary insects as they emerge from their hiding-places. If thrips appear on the young leaves they must be prevented from breeding by sponging with tobacco water, and on no account must filthy plants be introduced in the future.

Cleansing and painting destroy the rank and file, but complete annihilation depends upon incessant attention throughout the following summer. "G. P.," I think, should not destroy any of his Vines until he sees how they break, naturally if possible, aided by fermenting material composed of good leaves and fresh stable litter, then if they fall he may cut them down, or clear them away and replant with growing canes in April or May.

Having several letters by me in which the writers ask for private information as to the ways and means for destroying bug and thrips, I have treated this question in detail for publication, as I really have not time to answer each applicant to my own satisfaction.—W. COLEMAN.

CHERRIES.

WHY the unfortunate Morello is planted against the coldest north wall in the garden and the pruning and training are reserved for the bitterest month in the year it is difficult to imagine, but such, nevertheless, is the fact, and the sooner a change is made the better. Morellos, as a matter of course, must still be grown facing north, but their condition might be greatly ameliorated by additional drainage and planting in narrow borders almost if not quite above the adjoining level. Then, as to pruning and nailing, I see no reason why the campaign might not be opened on the north side with the Cherries, as for years past it has been closed on the south side with Peaches. The Morello, like the Peach, produces nearly all its best fruit on young wood of the preceding year. It is subject to the same tribes of insects, succeeds best under the fan system of training, and although it gets very little sun, the quality of the fruit is finest when hot summers drive solar or sun-heat through 14 inches of brickwork. This being so, a good aspect, say west, should always be given to one or two trees at least, as the fruit comes early, fine, and sweet, three very important points where Morellos are used for exhibition and dessert. Another point much neglected in the management of north wall Morellos is summer pinching and disbudding. A regular relay of young shoots, as a matter of course, must be reserved, but all others should be pinched or removed precisely upon the principle now followed in the management of Peach trees. Then so soon as the crop is off, all superfluous past fruiting shoots should be cut out, when the trees may be washed and trained, allowing 5 inches from point to point, and they will be ready for another season.

Sweet Cherries, like the Apricot, are precocious, coming very early into flower, and although they do not cast their fruit buds, they rejoice in a moist, thoroughly drained border. Some varieties, notably the May Duke, form spurs naturally, and others may be coaxed into making spurs by summer pinching, but the best plan with these, especially upon cold heavy soils, is thin extension training. Being so subject to black fly, the trees and walls cannot be too carefully washed and cleansed in winter, and then the moment the first fly puts in an appearance the attendant must resort to dipping. If any of the sweet varieties have grown too strong and show a tendency to gumming, no time should be lost in getting them lifted and relaid in poor sandy loam with their roots on a level with the adjoining surface, more room at the same time being allowed for extension training. By adopting this plan, mulching with long litter and watering copiously in summer, the trees will remain healthy and fruitful for a great number of years. The knife, moreover, may be kept away from them at least to a great extent,

as cold fat borders and incessant winter pruning are fruitful causes of gumming. E.

SHORTENING SPURS ON FRUIT TREES.

How very often it is that one sees the spurs on fruit trees so long that the wall affords little or no protection to the blossoms when they are open, as they stand so far out that they feel hardly any warmth, and when spring frosts come the flowers are cut off at one fell blow and disappointment follows, as the crop is lost for the season. The way to prevent this is to shorten the spurs, which may be done safely now during the time of pruning, and if carried out by anyone understanding his work, sufficient fruit-buds may be left for the trees to carry, as they are easily distinguished, and nothing is gained by having a lot, for the few open more strongly than the many, and generally set better from being more bold and fully developed. In the case of Pears it is surprising what may be done with them, as they will endure almost anything in the way of cutting back, and anyone having trees with long spurs need not hesitate to thin out and reduce them, for if the trees are healthy they will break out and soon form knots of buds. This I have often proved, and on one occasion I took in hand some that were fifty years old and that had spurs standing out a long way, and so thick that when fruit set it could neither get full light nor sun, and to remedy such an unsatisfactory state of things I set to work and cut many of the spurs clean out and shortened the others which the following season broke, and after that the Pears came very fine, as the sap could flow and feed them, and was not lost in the multiplicity of small leaves and shoots such as they had on before the operation was carried out on them. Espalier Apples are frequently to be met with just as bad or even worse than these Pears, and the remedy with these is just the same, for it is no use thinking to obtain crops when their heads are like a thicket and the trees form a sort of hedge instead of being thinly knotted with spurs. Plums, Apricots, and Cherries are all greatly improved by close spurring and keeping them moderately thin, but much of this work should be done in the summer, as then is the time to break out the far-off shoots and reduce the number, leaving only such as are well back, and stopping these at the third or fourth joint. If this is done annually very little winter pruning will be required, but where trees have been allowed to go, radical measures must be employed and the knife freely used to re-start them again. In extreme cases it may be as well to behead the trees, so as to have entirely new branches and thus get rid of the old with their contracted bark, and if the roots are right, trees under such treatment may be rejuvenated and have another long lease of life. S. D.

Phylloxera and tank borders.—I am exceedingly sorry that "A. W. N." is unable to furnish you with the requisite materials for testing the value of tank borders for the destruction of Phylloxera by sending you specimens of affected roots after submersion for ninety-six hours, especially as I think it is exceedingly doubtful if such specimens can be obtained at all from well-made and properly managed tank borders. Yet, notwithstanding this failure, I fear there are only too many persons who can, if they will, supply you with the means of ascertaining the correctness or otherwise of the statements I have ventured to make on this subject. As I have not the least doubt there are at the present time numerous Vines in ordinary borders throughout the kingdom affected by Phylloxera, I will, with your permission, ask the owners of such Vines if they will kindly forward to you samples of the worst affected roots to be submerged in water for ninety-six hours and afterwards tested under a powerful microscope by a competent person. Although this method of testing the efficacy of submersion may be open to slight objection, yet I imagine if found effectual it would afford sufficient proof of that for which I contend. I would here give a warning note to those who contemplate growing their Vines in tank borders, viz., not to submerge them at any period, except

when the Vines are in a comparative state of rest otherwise they may find that the remedy is quite as bad or even worse than the disease, for reasons which need no explanation. The method I adopted at first was to submerge the borders as soon as the wood was ripe and the Grapes cleared off in the autumn, and again just before the buds began to swell in the following season, but for the last two or three years I have submerged them at the latter period only, and have hitherto found it perfectly safe and effectual.—T. CHALLIS.

A GOOD APPLE.

TO THE EDITOR OF THE GARDEN.

SIR,—I have read with interest and perfectly concur with your short letter in to-day's *Times*. I am no expert in the growing of Apples, but for thirty years have considered myself an expert as an "Apple taster."

I have always set the Ribston first by far of all English Apples, and have planted many scores of them, and the Blenheim second, but far below the Ribston. Meantime I entered on this living some eighteen months ago, and among 100 trees in orchard and glebe (mostly, alas! cider fruit), I find to my astonishment one Apple that has put me out of conceit with even the Ribston. It is long, oval, of good size, dark red two-thirds round, and a splendid yellow the other third. It is very juicy and of beautiful flavour, but not so delicate as Ribston. There is not another in the parish, nor can I see one in all the market, nor learn by inquiry what it is. I write to ask you whether I may send you two or three in a little box for your opinion and acceptance.

PHILIP C. BARKER.

Ruishton Vicarage, Taunton.

. Your Apple is Besspool.—Ed.

FERNS.

NEPHROLEPIS.

THIS is a very characteristic genus, all the species having long drooping pinnate fronds, and all send out long slender wiry rhizomes. All the varieties of *Nephrolepis* are easily cultivated, but, like many other Ferns, they deteriorate with age. Old plants when they get dense and tufted do not throw out long and well developed fronds, but take young plants and grow them on freely, and they make handsome specimens in a few months. The long, gracefully arching fronds also show off to greater advantage when they are not crowded, with the exception of *N. pluma*, of which *N. Bausei* is a variety. All the species are evergreen, or at least all that I am acquainted with. Most of the sorts are well adapted either for growing on the more elevated positions on rockwork or in suspended baskets, the long drooping fronds being very effective.

If an increase of stock is wanted, a few plants should be placed where the rhizomes spread over some suitable soil for the young plants to take root in. As soon as they have made three or four fronds, the young plants may be taken off and potted. The *Nephrolepis* like a rough porous soil composed of good fibrous loam, leaf-mould, and peat in equal parts, with some sand added. When the young plants are first potted, care should be taken that they do not suffer from being exposed to sun or a dry atmosphere. After the plants are once established, they will grow away freely. Although they are chiefly natives of tropical regions, they do not require a very high temperature, a medium stove temperature with a rather humid atmosphere ensuring good results. It is, perhaps, owing to the extremities of the fronds being rather tender, and conse-

quently easily damaged, that the plants are not more grown for ordinary decorations.

N. DAVALLOIDES.—This is a noble species; it has long, gracefully arching fronds, the pinnæ being long and narrow, the fertile ones more contracted and rather deeply lobed. The spore cases are placed close to the margin, a very distinctive character of this species.

N. DAVALLOIDES FURCANS, here figured, is a beautiful variety, with the pinnæ curiously forked and crested. When well developed this is one of the handsomest Ferns we have. I may here remark that this variety appears to be more closely allied to *N. ensifolia* (acuta) than the above both in respect to the position of the spore cases and the general appearance of the plant.

N. ENSIFOLIA.—This is a very robust growing species, with long fronds of a bright fresh green; the pinnæ are broader and not so long as in *N. davallioides*, and the spore cases are placed further from the margin. It is the same as *N. acuta*.

N. EXALTATA is of intermediate growth and a most desirable species either for pots or baskets.

N. PECTINATA, a slender-growing form with pale green fronds, should be in every collection.

ADIANTUM FARLEYENSE FROM SPORES.

W. H. GOWER, in a recent issue of THE GARDEN, states that this fine Maiden-hair Fern does not produce spores. Being in close proximity to a residence where some very fine specimens of *Adiantum farleyense* were grown, I induced the gardener to overhaul his plants to see if any signs of sori were visible. After repeated attempts, at last a frond was found containing the much-coveted spores. Examination under the microscope proved them to be true spores, and I attempted to get these spores to germinate to find out whether the seedlings would be true *A. farleyense* or *A. scutum*, as some growers had asserted.

I took every precaution with these spores. I was extremely careful about the manner in which I sowed them, and to make everything doubly sure, I did not sow all at the same time, but at two different intervals. The first sowing was made on January 6, 1887, and the second on February 3, 1887, and these two pots I carefully watched, and was rewarded in a short time by seeing some seedlings make their appearance. It was only from the second sowing that I obtained any true *Adiantum farleyense*, and these numbered twenty-one plants. I had to grow them until the spring of 1888 before I could definitely say that my plants were fairly

near Burnley, where this *Adiantum* is grown extensively.

WILLIAM GOLDBY.
Edgend Nursery, Brierfield, Lancs.

ORCHIDS.

DENDROBIUM NOBILE COOKSONIANUM.

THIS is one of the most beautiful sports which this fine old plant has produced, its colours being extremely rich and the flowers large and of good shape. A handsome plant of this form is now flowering in Sir Trevor Lawrence's garden at Burford Lodge, Dorking, producing a fine display which is particularly welcome at this dull season. The plant did not originate with the gentleman whose name it bears, he having acquired the stock in the neighbourhood. The same sport has also cropped up in various parts of the country since, and in Sir Trevor's own garden the old species appears to be again sporting, one plant having a broad bar of deep maroon-purple on the inner half of the lateral sepals, which appears to be the commencement of a digression which may come to be equally as beautiful as the form now under consideration. *D. Cooksonianum* is a bold and strong-growing plant, differing in no perceptible manner from the typical form. Its flowers, however, are very different, the lower half of the sepals being heavily blotched with deep maroon-purple the same as the base of the lip, forming, as it were, three lips, and if the true lip was open and spread out, as is the case with *D. Wardianum* and some others, instead of being rolled round, as in the type, a wonderful display of colour would result therefrom. It still remains a rare plant in the Orchid world, but I would advise all Orchid growers to add it to their collections if an opportunity occurs. It requires the common treatment of the species, although whilst it remains a scarce and dear plant, everyone possessing it will hold it somewhat more choice.

W. H. GOWER.

Masdevallias at Forest Hill.—The pure white *M. tovarensis* is just now very fine in Mr. Laing's establishment, whilst forms of *M. ignea* and *M. Veitchi* were conspicuous and pleasing amongst a host of paler coloured blooms of different species. *M. polysticta* is another species now flowering, but although extremely beautiful, it is not by any means remarkable for its colour, which is white thickly spotted with dull purple. It also differs from the previously named kinds in having its flowers borne in a raceme. It is now about fifteen years since it first flowered in this country, but neither it nor its near relative, *M. Melanopus*, have become so popular as they deserve.

Cattleya Percivaliana.—Some beautiful flowers of this are now open in Sir Trevor Lawrence's garden, and a coloured figure of this species was given in THE GARDEN, June 8, Vol. XXXV., p. 532. The flowers now open at Burford Lodge are far superior to those illustrated, so that we may look forward to this plant becoming one of the very best of the labiata section to which it belongs. I am still under the impression that this species has never been grown sufficiently strong to be seen at its best. The plant has only been in the country eight years, and therefore cannot have been seen to perfection.—W.

Odontoglossum blandum (G. W.).—This is the name of the flower sent, but I have seen varieties more richly spotted. It is one of the species which has been ruthlessly destroyed in its native country, through being taken in numbers and sent home time after time, only to arrive in this country in a dead and rotten condition. It was expected to remain very rare for a long time, but either a fresh locality has been found, or it has sprung up in the original spot very rapidly, for the plant has



Nephrolepis davallioides furcans.

N. PHILIPPINENSIS is another pretty species with rather short fronds; the pinnæ are close and slightly recurved, deep green, and of compact habit.

N. RUFESCENS TRIPINNATIFIDA.—This is of more recent introduction and a valuable addition to the genus. Well developed fronds measure from 2 feet to 3 feet long and 4 inches to 6 inches broad. The pinnæ are deeply cut into narrow segments, and some of these are again sub-divided, giving the fronds a fine feathery appearance.

N. BAUSEI is a slender-growing form, with pale green, feather-like fronds. It requires a little care to preserve the crowns through the winter, and should be kept in an intermediate temperature with just sufficient moisture to keep the roots from perishing.

N. DUFFI.—A very distinct species, with narrow, erect-growing fronds, which branch out towards the apex; the ultimate extremities are crested and droop over. I have never found fertile specimens of this distinct and pretty little Fern.

N. TUBEROSA.—This well-known Fern should be added, and the list will then include all the most desirable forms of *Nephrolepis*. F. H.

established. I pushed them on with the utmost speed during the spring and summer of 1888, the whole of the twenty-one plants making nice half specimens in that time. To prove the matter, six of them were sent to the Royal Horticultural Society's meeting at the Drill Hall, Westminster, on October 9, 1888.

There need be no doubt but that where spores of this *Adiantum* can be obtained they will produce the true parent, but it is only on well-grown plants that spores will ever be found, and these at very rare intervals. The frond from which my spores were taken had a very stout leathery appearance, and was the only one to be found upon a plant having fully 100 fronds upon it.

I should have no hesitation in undertaking the task again if spores were procurable, but I have never since made any further examination for them. The soil in which I grow this *Adiantum* is pure loam, with all the fine particles sifted out, adding broken sandstone and charcoal. The pots are drained well and kept in a brisk heat, but not too much shade. I should add that the plant from which the spores were obtained is still in the collection of Mr. Edward Ecroyd, Edgend House,

been sent to Europe in fair condition, and now it can be found in most of the principal Orchid collections in this country. It grows at a considerable elevation in the forests of New Grenada, amongst Moss in a very moist climate, and therefore under cultivation it requires thorough drainage.—G.

Cattleya Trianae.—The first flower of this species which we have observed this season was open at Christmas in Mr. Measures' garden, The Woodlands, Streatham, so that in this collection it comes in with *C. Percivaliana*, and thus aids in making a display at this time of the year.

Vanda Amesiana.—This charming Vanda has been flowering for a long time in Mr. Measures' collection at Cambridge Lodge, Camberwell. It was also flowering freely in Sir Trevor Lawrence's garden, but in these as well as others I observe it is just the same. The plant, although stronger in growth, and rooting more freely than the original plant, is much paler in its flowers; indeed so much so that the varietal name of *candida* would fit it well. It is a very pretty and delicate flower, but of course does not satisfy those who purchased it, as they expected to get the bright-coloured form figured in the "Orchid Album," and which went at once to America to enrich the collection of Mr. Ames.

Calanthes.—I have heard it frequently remarked that these plants do not come of a good colour in London, and I have very often observed how poor in colour the flowers of *C. Veitchi* are, but, judging by the number of spikes and the brilliancy in colour of the flowers now to be seen in Mr. Larkins' garden, Highbury New Park, there can be no London fog in that district, the *C. Veitchi* and *C. vestita oculata rubra* being exceptionally good. These plants are kept in a warm house, and I think that a little brisk heat assists in brightening flowers at this season. I have had proof this season that many plants are ruined entirely, never opening their blooms, through being kept too cool.—G.

Dendrobium Wardianum.—Mr. J. Broome, Llandudno, sends flowers of this fine species. Two flowers are of the brightest and most beautiful form of this plant which I have seen; the sepals and petals are clear white saving about an inch at the tips, which are heavily marked with intense deep purple; the lip also is large, rich deep orange surrounded with a zone of white tipped with purple, and bearing a pair of eye-like, deep maroon blotches at the base, the latter smaller than usual. These flowers are said to be the result of a cross between *D. Wardianum* and *D. crassinode*, but I cannot see the slightest trace, and must pronounce them to be those of a very fine form of *D. Wardianum*. Mr. Broome says I shall find the colours good, through the plants being grown in the pure air. This is of the greatest consequence, and no one knows the value of it better than Mr. Broome, for when he first began Orchid growing his plants were in a vile atmosphere in the neighbourhood of Manchester, but still air does not affect colours so much as the health of the plants, for I have seen some of the most highly coloured varieties produced in the neighbourhood of Manchester and Sheffield. A flower of another form of *Wardianum* comes with these. This is very pale, and therefore the air has not put colour into this, but a good variety undoubtedly does come finer in colour through being grown in good fresh and pure air.—W. H. G.

Odontoglossum Alexandræ.—This beautiful species, I have noted during the past year, has appeared to depart from its usual time of flowering more than I have ever seen it, and I now observe that it comes into bloom in great profusion at Christmas. I have seen excellent spikes of flowers at Mr. Sander's at St. Albans, at the nurseries of Messrs. Williams and Son at Holloway, and many other places, but I was more struck with the profusion of spikes showing, and with open flowers, just two days before Christmas at Cheam Park, the residence of Mr. Jacob, than with any collection I have seen. This *Odontoglossum* is grown here in a very light house; indeed in a lighter and brighter situation than I have heretofore seen it grown. Mr. May, who has charge of this collection, tells

me that in this place the plants caused him great trouble at first, even with heavy shading. At last he found that in this position he could not give air during the middle of the day, but had to maintain a great deal of moisture with the shading and exclude air. This has been attended with much success, as the plants are in robust health and the foliage rich deep green, and they are sending up dozens of spikes. I trust this hint may be taken by those similarly situated.—W. H. G.

CALANTHES.

THESE useful winter-blooming Orchids should be more grown. They are easily managed, and with care could be grown in many small houses that are devoted to less interesting subjects. I have grown them also on shelves temporarily suspended from the back walls of frames in which Cucumbers are grown through the summer. They have done well by being careful when damping down not to syringe the *Calanthes*. Many who possess a warm house could grow them to perfection if once taken in hand and treated liberally while the plants are making their growth. Around the metropolis fogs are very injurious to the flowers, but by gradually getting the pseudo-bulbs started a little earlier and having a lot of strong spikes 3 feet to 4 feet in length, a few blooms are not so missed as when the spikes are small. During foggy sunless days the loss of colour is a serious drawback that I cannot give a remedy for, and can only advise to have the house as dry as possible during fogs and a little extra warmth. During mild weather air should be admitted daily at the top ventilators and the temperature during the day may range from 65° to 75° with air; 60° to 65° will be sufficient for the night. I prefer to have as little heat as possible, so as to preserve the flowers. *Calanthes* are most valuable for decorations during the dull season, and if kept quite dry, they may be used for halls and corridors, and which would kill other Orchids. I do not know of any plant that is more beautiful for large vases intermixed with Ferns or *Grevillea robusta*, using *Calanthe vestita* for the outside, or the variety *rubro-oculata*. I have used these plants for this purpose for three or four weeks, and they have not taken much harm; indeed, they have made large bulbs the following season. When used for this purpose, the blooms should be well advanced, or the flowers will not be so fine as if they open in the rooms, and only a little water will be required to keep the plants in good condition.

To get large blooms and spikes several feet long, it is best to use good yellow loam in rough pieces each as large as an egg, and to have it stacked a few months before using if possible. If the loam is good, even if it is fresh, the plants soon take to it. Also mix with it a small portion of decayed cow manure and some quarter-inch bones and charcoal. Very little peat is required; in fact the plants want a stronger material to make their next season's bulbs with. Very few crocks are used for drainage, just a few large ones, over which are placed half-inch bones. Large pieces of the compost are put over these, and the bulbs placed well down in the pots, leaving plenty of room for water. As *Calanthes* are gross feeders, they should never be raised up above the rim of the pot and no room left for watering. I place the plants on shelves when potted, giving them a good watering. This lasts for some time, as it is necessary to water carefully till the new roots get to the sides of the pots. I place two or three large bulbs in an 8-inch pot and five smaller ones in the same size, taking care to preserve the young tender roots when doing so. The plants when full of roots are liberally fed with liquid manure till the new growths are made, then less is given them till the spikes are advancing into bloom, when only clear water is used. A little clear soot water once a month in the growing season is very beneficial. The plants should get a good rest in a temperature of 60°, and to economise space, shake them out of the old soil and place the bulbs singly in pans in silver sand or Cocoa fibre, only giving water to keep

the pseudo-bulbs plump. I find that it is best not to delay potting when once new growth has commenced, also to grow them in a moist, warm house in a temperature of 70° to 80° while in active growth, and never to syringe overhead, but to always keep the foliage dry to prevent spotting.

Syon House.

G. WYTHES.

Odontoglossum Alexandræ (crispum) (*H. Chesterton*).—The flowers you send are certainly very distinct; they may, however, be named. No. 1 is a pure white flower, with broad sepals and petals, all more or less fringed, especially the petals; the lip is also white, saving a few spots of chocolate. This in colour and markings is certainly the true form of *O. Alexandræ*, as first figured by Bateman in his monograph of the *Odontoglossums*, but it is a much finer form of the plant than that figured. No. 2 may be considered as *O. fastuosum*, the sepals being rosy lilac, the petals white, and the whole destitute of spots. In the true form there are usually a few spots on each of the segments; lip white, yellow at the base, and with a few irregular spots of chestnut-brown. No. 3 is doubtless *O. Coradinæ*, which by some is not considered a variety of *crispum* at all, but of *Lindleyanum*, and by others it is considered a distinct plant; the flower is yellow, having on each segment a few spots of chestnut. This is by far the poorest bloom in the batch sent, whilst No. 4 is by far the finest and best flower, being a fine form of *O. Wilckeanum*, which is by some supposed to be a natural hybrid between *O. crispum* and *luteo-purpureum*; it has, however, the *O. crispum* character about it, the segments all pure white, heavily blotched and spotted with dark chestnut-brown, and the petals much fringed and serrated.

THE WEEK'S WORK.

KITCHEN GARDEN.

FORCING ASPARAGUS.—The moist heat generated by leaves or leaves and manure is most favourable to the production of succulent shoots, and in this case not much water will be needed, especially if fairly rich, moist material surrounds the roots. Where, however, the forcing is accomplished solely or principally with the aid of fire-heat, then water must be given much more freely. On no account should the soil be allowed to become dry nor a high temperature be maintained. We prefer that the bottom-heat should exceed the top-heat, the former standing say at about 70° and the top-heat at least 10° lower. Hard forced, the growth is spindly and the crop is soon over. Fresh beds should be formed every two or three weeks according to the demand and the available supply of either old or specially-prepared roots. All are worthless after having been forced.

SEAKALE.—Many make the attempt, but few succeed in cutting Seakale for Christmas from roots forced where they are established. These early-formed open-air hot-beds are at times liable to become too hot and fairly burn the crowns, but more often than not they fail to continue hot enough to affect the roots, and in this case the progress is very slow indeed. The beds being comparatively narrow ought to be well enclosed by dry straw litter, this being arranged so as to throw off rain and snow-water. If they are found at the present time in a saturated state, the simplest plan is to form a new bed, and this should soon bring up the growth. Strong young roots are the best for lifting and forcing in either pots in well heated houses, or in a Mushroom house. In order to have plenty of these next season, save all the clean young roots about the size of a man's little finger that may be broken off at lifting time, cut these into 3-inch lengths, and pack thickly into boxes of soil, the thickest end uppermost and just showing above the soil. These stored in a cool shed will eventually callus or form roots and buds, and be fit for planting out in April or May.

BROCCOLI.—Just now these are rather scarce, especially where none have been stored under cover. Any of Veitch's Autumn Protecting left in the open

and the forwardest of Snow's Winter ought to be lifted at once, as only a moderately severe frost will spoil them. Deep heated pits are of good service in forwarding or protecting Broccoli. The plants ought to be lifted with a ball of soil about the roots, replanted rather closely in good rich soil and at once well watered. Forcing must not be resorted to, but if given a moderate amount of air only, and not allowed to become dry at the roots, medium-sized, close and perfectly blanched hearts will soon form.

PARSLEY.—Where this was not protected in any way the frost has destroyed nearly the whole of it. The least that ought to have been done was to have covered a few strong plants either with frames or handlights, but where no protective measures have been taken, it is now imperative that some steps be taken towards preventing a great and very undesirable gap in the supply. A number of strong roots with the hearts uninjured may well be lifted and packed rather closely in either pots or boxes filled with rich compost. Being then placed in a newly started vinery or Peach house, or in any light warm house or pit, active growth will soon commence, and useful gatherings of fresh leaves be obtained in due course. In some cases it is even advisable to form a hot-bed specially for forcing old Parsley roots. A two-light frame would hold many dozen strong roots, as they do not require much room.

MINT AND TARRAGON.—Of the various herbs grown, none are in greater demand than these. Seeing that young green shoots are much preferred to dried leaves, and how readily both can be forced, it is advisable to lift a few flakes or shallow clumps, placing these in boxes, covering with light soil, and gently forwarding in heat. Both are liable to die off somewhat mysteriously during the winter, especially if no protection is afforded the roots. Already the Tarragon shoots are showing above ground, and if not already done, a light surfacing of leaf-soil or, better still, old Mushroom bed manure ought to be given. Much mischief is also done by the small black slugs. Place a few Broccoli leaves or little heaps of bran on the bed to attract the slugs and destroy the latter when thus caught.

SEED POTATOES.—These ought certainly to be protected from severe frosts, especially when stored in cold open sheds, but too often the covering of sacks, mats, carpet or litter is left on the heaps long after all danger from frosts is past, the consequence being premature and ruinous sprouting. If the planting tubers cannot be stored thinly, the least that can be done is to keep them in shallow heaps clear of the "ware" Potatoes, and to let them have all the light and air possible consistent with safety. In some places where shed room is very limited, it is not an unfrequent practice to place the seed Potatoes in deep boxes, tubs or hampers where, if they are overlooked for a time and kept rather warm, they eventually become a mass of roots and shoots.

W. I.

PLANT HOUSES.

HARDY SHRUBS FOR FORCING.—In selecting the hardy shrubs that are to be forced it is necessary to begin with those kinds that naturally bloom early. Where there happens to be a large conservatory to supply there is nothing more effective than Rhododendrons. Not only do the flowers last a long time, but where plants have been chosen that are well set with buds, they produce a mass of colour that is always attractive. There are a number of fine varieties, such as the caucasicum hybrids, that are of little use out-of-doors on account of their disposition to bloom early. These are the sorts that should be forced first. *Deutzia gracilis* and the double-flowered Chinese Plum (*Prunus sinensis*) are two of the best hardy shrubs for pot work, as they yield a large quantity of flowers in proportion to the room they occupy. Amongst Andromedas the best for forcing is the comparatively little-known *A. japonica*, which is a beautiful and distinct kind. Its only fault for outdoor cultivation is that it blooms before hard weather is

over. *Viburnum plicatum* is one of the best hardy plants, as it flowers profusely. The flowers are unrivalled for their whiteness, and they are as useful for cutting where large vases or stands are to be filled as the plants are for general decorations. *Azalea mollis* is indispensable for winter-flowering in pots. Plants that were forced last winter, and were afterwards kept under glass and encouraged to make growth and set their buds similarly to the Chinese hybrids, previous to their being stood outside, are in many cases quite equal to the best examples that have been grown out-of-doors. In some cases these second season plants will have a greater quantity of buds proportionate to their size than the outdoor prepared stock. On no account must an attempt be made to hurry them into bloom, as if this is done the first flowers which open on the bunches will drop before the later ones are matured. Amongst things of a less hardy nature, the common *Hydrangea* and the smaller-flowered *H. Thomas Hogg* are indispensable. The flowers of the last-mentioned kind are quite white when forced, and smaller than those of the old sort. The length of time both the kinds remain fresh is worth taking into account, as when kept in a greenhouse temperature, or in that of an entrance hall, they maintain a good appearance for several weeks. Plants should be used that have been specially prepared during the past summer, or that have been struck in the autumn from shoots which had their buds previously set. As has before been urged, much depends on the way the plants are treated during the time the forcing is going on as to the length of time the flowers last when required for cutting. On no account will it do to hurry them with too much heat. An intermediate temperature is quite sufficient to give them, and they must also be kept as near the roof of the house or pit where the forcing is carried out as circumstances will permit. Neither must there be too much moisture in the atmosphere of the house. Once a day is often enough to syringe overhead.

MIGNONETTE.—The earliest set of plants raised from seed sown at the end of summer, and that are now in small pots and have been once stopped, will soon require moving into the 6-inch pots in which they are to bloom. These will be quite large enough. Loam of medium texture, with some rotten manure, leaf-mould and sand, is the best compost for Mignonette. Drain well and pot moderately firmly. The shoots should be tied well out, using a small stick to each. This is all the training that is necessary. Keep the plants, as hitherto advised, close to the roof of the house or pit they occupy. The second batch that are intended to bloom after the early set are over, and which should consist of about three plants in each pot, and have been grown on without stopping, should also be moved. Give them the same sized pots as the earliest portion, and treat in other matters similarly. See also that the stock is quite free from aphides. A little seed may soon be put in, the plants raised from which should be grown three or four together, and, like those of the second set, not have their tops pinched out. They will bloom before any flowers are to be had out of doors, and be alike useful for cutting or for ordinary decoration.

PANICUM VARIEGATUM.—With plants of this character that are increased by division of the crowns, it is best to begin early in the year. The variegated form of this *Panicum* is generally preferred to the normal green sort, so that when the stock is to be increased, the selection for the purpose should be confined to plants that have a fair proportion of variegated leaves. The best way to proceed is to shake all the soil away, so that the roots can be disentangled in a manner that will admit of the divided portions having their share of roots uninjured. On this to a considerable extent depends the plants making headway. It is hardly necessary to say that the stronger the pieces used, the better plants they will make within a given time. Five-inch pots are large enough to grow them in, and into these they may be put at once. Drain sufficiently and pot in soil consisting of half peat and half loam, with some sand added.

Water freely and stand the plants where they will get plenty of light in a house or pit where they can have an intermediate temperature. No shade will be required until later on when the sun gets powerful.

T. B.

FRUIT HOUSES.

MELONS.—The gardener who has every convenience for growing very early Melons will now resume operations in the Melon house proper, first by a general clearance and cleansing, and second by the preparation of the bed, as there must be no hitch or delay when the young seedlings are ready for turning out. The seeds meantime must be sown, singly or in pairs, in very small pots and plunged in a bottom-heat of 80°, where they will be safe from the ravages of woodlice, crickets, and cockroaches, and within a few inches of the glass. Heat, light, and moisture are elements which must be secured in the nursing pit, and this being the commencement of a long season both of Melons and Cucumbers, much time and annoyance will be saved by fitting up a suitable place at the outset. If a small propagating pit is in work, a temporary bed of tan or leaves a few feet square at the warmest end will turn out a constant supply of plants; but, lacking this convenience, a small bed may be made up at one end of the house in which winter Cucumbers are now in full bearing. The best soil for the seed-pots is pure calcareous loam and not too light, as this forms the nucleus of the ball which must support the plants until the fruit is ripe. Farther, it must be thoroughly warm and fairly moist when the seeds are inserted, but not dry enough to necessitate giving one drop of water until the seedlings have developed the first pair of leaves. If the bed is formed of moist tan or fermenting Oak leaves the conditions will be quite satisfactory, and considering that the tiny pots will fill quickly with roots, the weakest of the two plants must be pulled up the moment the other is taking the lead. Then, cramping the roots being quite as prejudicial as sowing in too light a soil, provision must be made for giving a small shift, provided the fruiting pit is not quite ready for them. Small shifts at this early season, however, being objectionable, a strong effort should be made to have the fruiting pots quite ready by the time they are wanted. I have said fruiting pots advisedly, as this mode of early culture offers many advantages at a time when the grower is heavily handicapped by outside conditions. The opposing elements are too well known; the advantages are the maintenance of a sharp and steady bottom-heat quite up to the rims of the pots, which should stand on pedestals, the convenience for turning and renovating the beds when the heat is declining, the knowledge of the position of the roots, which can be fed to any extent without waste when the fruit is swelling, and the brief period which will suffice for producing a dry condition when the fruit is setting and again when ripening; then last, but not least, comes the certainty of producing in the shortest possible time fruit of the highest quality, as the bottom-heat of 80° can be maintained until the Melons are ready for cutting. If the merits of pot culture ended here we might say enough, but they do not, for, independently of escaping the evils of a cold, wet root-run when we are vainly trying for high flavour, the grower who has a set of small compartments at work may always have successful batches of plants 2 feet to 3 feet in height ready for going in on the very day the last fruit is cut from their predecessors. By adopting this plan the grower may fruit three distinct sets of plants in one season, and three efficiently heated pits may be used for stove plants or winter Cucumbers. The best

COMPOST for the fruiting pots should consist of heavy calcareous loam quite innocent of animal manure, unless very poor, when a little dry cow manure may be rubbed through a sieve and added, bone-dust, a dash of soot, and about one to ten of old lime rubbish or hair plaster. These materials should be put together when quite dry some weeks in advance and occupy a warm place until wanted for use. The pots, 12 inches to 14 inches in dia-

meter, previously placed on solid pedestals for safety from strangling and convenience for turning the bed, should then be filled two-thirds full and thoroughly rammed with a potting stick, not only to secure a firm, sustaining medium for the roots, but also to form a solid base for small cones of compost, which must be raised quite level with the rims for the reception of the plants, as Melons, unlike Cucumbers, will not thrive under a system of earthing round the collars. When the young plants are turned out, the balls having been previously moistened, the coiling roots should be set at liberty with the finger, especially if at all pot-bound, and placed on the summits of the cones, where a little of the warmest compost must be carefully placed around them. If very dry a little warm water may be given, but otherwise the roots will find sufficient moisture in the soil, and danger from damping will be avoided. A light training stick will conduct each plant to the trellis, and the atmosphere kept properly moist will soon draw out the roots, when more compost must be added little and often as they show on the surface. When in free growth the pots may be filled up and carefully rammed, the space of an inch being left inside the rims for the reception of water.

POT VINES started over bottom-heat in November will now be tied down and stopped, and the earliest varieties will be coming into flower. When this stage is reached raise the temperature from 60° to 65° at night, 70° to 75° by day, and 80° for a short time when the sun breaks through the haze, as so frequently happens in frosty weather. Syringing, as a matter of course, will be discontinued, but the walls and surface of the bed must be regularly moistened with tepid water, otherwise the incessant fire-heat will soon shrivel the delicate organs of the flowers, when the set will not be nearly so good as one could wish, no matter how carefully they are fertilised. Some growers fertilise, or think they fertilise, by light syringing on fine bright days, and no doubt they lend powerful aid by producing moisture at a time when the male organs require support under the trying influence of fire and sun-heat combined. But whether fertilisation is due to the water or its invigorating influence is extremely doubtful. Be this as it may, a higher temperature and a moderately moist buoyant atmosphere are essentials, and those who do not believe in water may fertilise with the camel's-hair brush or rabbit's tail, using pollen from the Hamburgh if obtainable. When the Grapes are well set reduce the bunches to six if good, thin when the size of swan shot, top-dress with good material, and commence, mildly at first, the process of feeding. If space admits tie in the leading laterals for more foliage, as leaves make roots, and active roots must be plentiful if pot Grapes are to do credit to the grower. Also look well to the bottom-heat, and add fresh warm leaves the moment it shows signs of declining. When the bunches are properly thinned the night temperature may be allowed to fall back to 60° in bad weather in preference to hard dry firing, but no fixed figure must be insisted upon, as time apparently lost in severe weather can always be redeemed by early closing with sun-heat later in the season.

THE EARLY VINERY containing Vines from which the first new Grapes are to be cut, if started in November will now be fit for disbudding. If young and strong and breaking double, the weakest shoots must be taken away from the strongest, and the canes being short-jointed, these strong shoots in due course must be thinned to a foot apart for pruning the future spur-wood. As strong canes are generally bent down to secure an even break, they must be tied up to the wires when this end is attained, otherwise the young growths will draw up to the light and give extra trouble when the time arrives for tying down to the trellis. If, on the other hand, the rods are old and the spurs a good distance apart, two young shoots may be left on each spur, the one farthest from home to carry the bunch, the other to form next year's pruning bud, and meantime to assist in covering the trellis with foliage. All bunch-carrying shoots may be stopped at the second bud beyond the show, when the leading

lateral can be laid in, and in due course stopped for an extra leaf or two, but having a second shoot from many of the spurs care must be taken that the wood and leaves do not become crowded. As growth proceeds and the most compact show on each shoot becomes prominent all others may be removed, when a little more heat, say 58° by night, 68° by day, and 70° to 75° when the sun is shining, will be of the greatest advantage in drawing out the clusters. Fertilisation in due course, as a matter of precaution, will be followed up as Grapes of all kinds, including the Hamburgh, are improved by the application of foreign pollen. Another very important point in setting Grapes is free root action. Therefore, assuming that these have the run of inside and outside borders, the first should be well mulched with short stable litter and freely supplied with water at a temperature of 90° a week or two before the first flower opens. Young Vines may not require the ammonia, but a fillip will do the roots no harm, and old ones will derive the greatest benefit from a supply which will keep them going until the latest cluster is fertilised and swelling. The outside borders do not derive much benefit from the application of fermenting material at the outset, as this treatment excites the roots and weakens the Vines by drawing the stored sap out of them, but once the young growths are in leaf, valuable aid may be afforded by a covering of dry warm Oak leaves at a temperature ranging from 70° to 80°. If placed on the borders to the thickness of a foot, made solid and covered with corrugated sheets, the surface will be kept uniformly warm and checks from cold rain and snow will be prevented.

MIDSEASON HOUSES.—Assuming that the Vines in these have been pruned, cleansed, and well rested by abundant ventilation, steps must be taken for getting the borders into thorough growing condition by the day they are closed for forcing. Vines started in January, having the season with them, generally break freely enough without the aid of much fire-heat, but seeing that we have all our winter to come, this dry element may be greatly softened and economised by the introduction of a good ridge of Oak leaves in a state of fermentation. As days are increasing in length and more sun may be expected, the syringe may be pretty freely used when the temperature begins to rise and again at midday, but not later, as the buds should be dry before nightfall. Damping the walls and floors of course may be continued, but having fermenting material in the house, these at no time should be allowed to become wet, cold and sloppy. The temperature here may range 50° to 55° through the night with a chink of air, and 55° to 60° by day until the buds become prominent, but no hard and fast line must be drawn, especially by night, during the prevalence of ungenial outside conditions.

MUSCATS.—Where more than one house is devoted to this fine Grape the first will now be closed for forcing, and, like the early Hamburghs, the principal part of the roots will be confined to inside borders. Here, as in all other houses, the great secret of success hinges on keeping the roots well drained, but moist, warm and active, and the better to secure these points, wide and deep borders should be avoided. Muscat Vines, indeed, never show, set and finish their bunches better than when the inside areas are not quite filled up with compost, and the retaining wall of turf can be well warmed by a lining of leaves in a state of fermentation. If Gros Colman is required at its very best, this early Muscat house is the most suitable home that can be found for it, and if not already introduced the quality of the fruit may be still further improved by grafting or inarching on young rods of the Muscat. Adepts at bottle-grafting can fill a house with fruiting canes in one year; but those who have not been successful may secure good rods by cutting back strong planting Vines and inarching green shoots when stocks are ready for them.

HARDY FRUITS.

Once more we are commencing a new year, and, borne up by hope, all growers of hardy fruits are looking forward to better results than those which mark 1889 as the year of the caterpillar plague. Growers

in all parts of the kingdom have been greasing and tarring the stems of their Apple trees, and where they have not injured the latter, let us hope they have checked the progress of the winter moth, for never in my recollection have orchard trees generally looked more promising than they do at the present time. What the outcome may be no one can venture a surmise, but one thing is quite certain: we must plod patiently along, we must pay the most careful attention to every detail, anticipating where we can, and trust to the elements for the crop. Planting for the present having been suspended, root-pruning, renovating, top-dressing, and draining may be continued, and last, but not least important, trees of all kinds may be cleansed and dressed to free them from Lichen and Moss. Soapsuds and brine are excellent destroyers of parasites and the larvæ of insects which may survive the sharpest winters without having to cross the greasy hands on their way to or from the ground; but, lacking these or the convenience for applying them, myriads of insects as well as their shelter may be destroyed by the use of quicklime. This should be obtained fresh from the kiln and slaked by exposure to the atmosphere in a dry, open shed; then in the form of a light floating powder free from more moisture than it has taken from the atmosphere, it will permeate the heads of the largest trees. A calm day is the best for the application of lime, and in order to make it as efficacious as possible the workman should locate himself above the largest limbs. The worst of all insects met with amongst Apple trees is the American bug, and much as it is discomfited by cleanliness, a clean sweep cannot be made without the aid of very strong insecticides in the form of Gishurst compound, soft soap, or paraffin oil. The latter is sometimes used neat, but the safest and best plan is to make an emulsion by putting together half a pint of oil and a pound of soap and reducing by the addition of a quart of boiling water for application with a painter's brush when cold. If the stems of the trees have been ex-coriated by the bug, a healing paint may be made by the addition of a little fine stiff loam and a small quantity of quicklime.

CHOICE FRUIT TREES.

PEACHES.—If these have not been liberated from the walls, no time must be lost in getting them detached and made secure to stakes stuck firmly into the ground. Pruning having been performed early in the autumn, the only operation now necessary is scrubbing the old stems and branches with strong soap water and the careful washing of the young shoots. If detached on a mild, dry day the two operations may be performed under one head, when the trees will require no further attention until the time arrives for nailing or tying them in. The walls meantime must be thoroughly washed with soapsuds or coloured with a mixture of lime, soot, and Venetian red reduced to the consistency of thick paint by the addition of boiling water and linseed oil, one pint to a gallon of the wash.

PEARS always come in for the winter pruning and training, but complete detachment, a regular system of spur-thinning and cleansing too often go by default. Pears, as a rule, produce ten flower-buds where one would suffice, and the latter, strong, bold, and perfect, would swell a much finer fruit than can be secured when all are allowed to expand. These, then, should be well thinned and shortened back with a fine-bladed knife, and the trees being so subject to scale so closely resembling the bark, steps should be taken for removing or fixing them for ever by the use of the Apple tree paint. The benefit does not end here, for, independently of the destruction of an insect which exhausts a tree, the application of a cleansing paint favours the expansion of the sap-wood and bark. Where cordon trees on the Quince stock are grown against walls, all old mulching and top-dressing may now be removed with a steel fork, and, considering that this stock cannot be overfed, the operator should be prepared with an abundant supply of new. Trees on south and west walls will

not resent the application of 4 inches of rotten manure, but a most excellent top-dressing may be manufactured out of old Melon soil, burnt refuse, lime rubble, and rotten manure in equal parts, thoroughly mixed, applied in winter and washed in with sewage liquid during the summer.

W. C.

KITCHEN GARDEN.

NOVELTIES.

To all appearances the time has arrived when seedsmen of good repute have begun to discover the error of their ways, and, what is more to the purpose, have decided to eschew some of the practices that have so long found favour with them. I allude more especially to the fashion of introducing novelties with a flourish of trumpets, and which eventually prove to be of no real worth, or at any rate to be very doubtful improvements on old forms. The first seed catalogue received this season came from one of the leading London firms, and for the first time for many years, I believe, my copy contains no mention of any novelty not previously offered to the gardening world. Not one new variety of Potato at so much per pound, no novelty in the way of Peas, no addition to the number of giant runner Beans, and not even a perfectly fresh and invaluable Tomato offered for the first time. I could hardly believe my eyes, and referred a second time to see if there was no mistake, or whether I had not, by an oversight or otherwise, received an old catalogue. I am doubtless many others are tired of giving high prices for small packets of seed of forms that are very doubtful advances on old favourites, and though the temptation, in the shape of an exaggerated woodcut and a glowing description, is hard to resist, it will have to be something very much out of the common that will induce me to buy it. Not that all the novelties offered of late years are spurious; far from it. Several decided improvements on old forms have been introduced during the past decade, but for one that maintains its pre-eminence there are fully a dozen that have died a natural death, being either considered synonymous with previously existing varieties, or else found to be really inferior to them. This being so, I cannot help thinking that the principal motive of forcing the sale of so-called novelties is the fact that much higher prices can be charged for the seed. There are notable exceptions to this rule, as there are vendors of seeds who thoroughly test or have tested by competent authorities all the novelties they introduce, and who firmly believe them to be all that is said of them. Being somewhat behind the scenes, I happen to know there are also seedsmen who hold a small stock of, say, six presumably improved forms of vegetables, and of these, small packets of seeds are sent for trial among a limited number of gardeners. In due course, an opinion on their merits is invited, but they do not thank you for the trouble you have taken if your verdict is not in accordance with their own wishes. What is wanted is a glowing account of each, and if the variety is said to be a grand advance upon all known forms, then you are gratefully thanked; but if you speak the truth, no letter of thanks nor any more trial seeds find their way into your hands. At any rate, such is my experience, though it may be I am somewhat unfortunate in my trials and also in my habit of calling a spade by its right name.

It must not be thought that we have yet reached the millennium, or even that the days of big vegetables are over. One writer recently asserted in the pages of *THE GARDEN* that great

size in all vegetables, Onions excepted, is a disqualification in the eyes of good judges at flower shows, but according to my experience he is very much mistaken in his conclusions, or they must have been arrived at from what has taken place over a somewhat limited area. Were "A. D." or anyone else to exhibit medium-sized vegetables only, or such as find favour with most cooks, at the principal provincial shows, or even at many minor exhibitions, the experience gained would be very different to what he states. The premier prizes are invariably awarded to the largest examples, always provided they are perfect in other respects, good table stuff which might look quite large enough before it leaves the place where it is grown presenting quite an insignificant appearance on the exhibition boards, the growers, who are seldom impartial judges, being obliged to admit they are "simply nowhere." Overgrown Vegetable Marrows are certainly tabooed, but who other than an inexperienced person would maintain that great size alone militates against Asparagus, Cauliflowers, Tomatoes, Peas, Beans, Parsnips, Celery and Leeks? Why even comparatively large Carrots, Beet, Turnips, and Potatoes, if otherwise perfect, are preferred to the neater and most probably more serviceable examples staged next to them. Instead of decreasing, I am afraid the rage among exhibitors for the largest forms of vegetables is on the increase, and not till a change for the better takes place, if it ever does, will seedsmen wholly cease to cater for their especial wants. It would appear, however, that the maximum length of pod in the case of Peas, Broad, Kidney, and Runner Beans has been reached, and novelty will have to be sought in another direction, such, for instance, as a variety that would need no stakes. Extra long Cucumbers were long since discarded by most growers, and it may be this has turned the attention of raisers to the production of perfectly formed, medium-sized varieties, as these are now forthcoming. Monstrous Tomatoes are out of date, the exhibitors preferring perfect and not particularly large fruit of the Perfection type. The best novelty among Tomatoes when it is generally distributed will be found in the Chiswick Hybrid, or Conference Tomato, as I believe it is now termed, this being on an average slightly below medium size and perfect in every way. The Wroxtton I believe to be a good serviceable Onion; in fact, it was proved to be such long before it was sent out under its present name, but none of the other large forms are of any value to the non-exhibitor. With these, as in the case of Leeks, Celery, and Parsnips, very much depends upon the skill of the cultivator, some of the older favourites frequently equalling the much-vaunted newer forms on the exhibition table. The new Purple Beet I believe to be both distinct and good, and therefore a desirable novelty; and the Crimson Ball must inevitably replace the ordinary Turnip-rooted. Broccoli, Borecoles, Brussels Sprouts, Cabbage and Savoy Cabbage, and Turnips all remain much as they were, none of the novelties I have tried being of marked superiority to older varieties. Apparently there is nothing new in the way of Lettuces, but I am glad to see Endive Louviers included in English catalogues, and the compilers would have done well to also offer seeds of the newer Continental forms of Celeriac.

M. H.

Forcing Lettuces.—There are no Lettuces so sweet and crisp in the months of March and April as those which have been helped on with a little artificial heat, such as is generated by a bed of fermenting materials, composed principally of leaves, just enough stable manure being added to the bulk

to hold them together when made into a square heap. In country places the leaves cost but little to gather up, and after they have been used for forcing and are decayed into mould, the product is valuable for many purposes. The best forcing Lettuce, in my opinion, is the Early Paris Market Cabbage. It turns in very quickly and forms close firm hearts without tying up. The best Cos for this work is the Paris White Cos, but it is a long way behind the Paris Cabbage in point of earliness. I generally sow a few seeds in a box in the orchard house in September, then thin out a little if too thick, leaving them about an inch apart. These are now nice little plants for setting out on a genial hotbed, covered with a frame. Lettuces will follow Asparagus in the same frame without any renewal of the bed or soil. Simply take out the old spent Asparagus roots, level down the soil and dibble in the Lettuces 6 inches apart; keep close for a few days till the Lettuces get established, and then on fine bright days give a little air at the back to let out any surplus moisture with which the atmosphere may be charged. Simply a chink of air along the back will be sufficient till the days lengthen and the plants begin to form hearts. On such a bed very little water will be required at first, but when the plants begin to heart, liquid manure will be beneficial.—E. H.

CELERICAC.

CELERICAC or Turnip-rooted Celery is a most useful vegetable in most gardens where there is a large and varied demand for vegetables. I have observed that it is not much grown, and when cultivated it is often placed in odd corners, being only used for flavouring and not as a vegetable. This is one of the most favoured vegetables on the Continent and the roots are grown to a large size. I observed that there was only one English collection at the Royal Horticultural Society's conference at Chiswick in September, and that was much inferior to that exhibited by Messrs. H. Vilmorin, of Paris. No doubt it was rather early for Celeriac, but equally as good roots as those shown from Paris could have been grown in England if a little care and attention had been given to them. Many cultivators do not trouble to sow this early enough to get large fleshy roots. Celeriac is a gross feeder, and the best I ever grew was planted in a moderately light soil, when the ground was frequently saturated with liquid manure just as it came from the stables. Seed should be sown early in February or March in pans or boxes in the same way as Celery and placed in heat, taking care not to overwater to cause damping off, and to place the pan of seed close to the light as soon as the seedlings appear and gradually to harden them in a cooler house or frame. It is necessary to pay rather more attention to these details in order to prevent the plants becoming drawn in their early stages. We prick off our plants into boxes as early as possible, placing on a warm bed in a frame close to the glass, only shading for a few days from the sun during the hottest part of the day, and giving plenty of air as soon as the seedlings get a few roots. The seedlings, when pricked off into the boxes, should be allowed plenty of room to develop their foliage. A temperature of 55° to 60° is sufficient at this stage, and when room can be afforded them the seedlings may be pricked out in the frames on an old hotbed, and care taken to keep them moist. The plants, having been well hardened off, should be planted out 2 feet apart on ground that has been deeply dug and well manured the previous autumn. Celeriac does not require trenches, but it is best to draw a rather deep drill before planting; this will allow the moisture to get to the roots of the plants when watered, as Celeriac should never suffer from drought. As the plants increase in size the ground between the rows should get a thick covering of decayed cow manure which will greatly assist the plants in hot seasons, and where it can be carried out a good soaking of liquid manure once or twice a month will be very beneficial. During the growth of the plants they should have all side and lateral shoots removed as they appear, restricting the plant to one crown or shoot. A later sowing may be

made if desired, but the roots will be much smaller; these are useful for soups and other purposes. I usually store the roots in a cool place during the winter, lifting them late in the autumn, but this is not necessary where protection can be afforded them, as when I lifted them our ground was wet and rather heavy. In light soils with ample protection they will remain good for months. The later sown plants will do well if lifted and placed thickly together in rows under a south wall, and covered during sharp frosts with litter or bracken. By thus lifting them the second growth is checked and the season prolonged, while the tops are often serviceable for flavouring after the Celery is over. G. WYTHES.

Syon House.

THE SEED ORDER.

WITH the arrival of the seed lists the work of the season of 1890 may be said to have commenced, nearly the first proceeding, and that an important one and which ought not to be long delayed, being the filling in and despatch of the seed order. To the inexperienced, selecting the varieties and deciding upon the quantities required is by no means a simple undertaking, and it often happens that the simplest way out of the difficulty—viz., leaving the selection to the seedsman favoured with the order—is chosen. It does not follow, however, that the simplest plan is always the best, and I hold it to be a great mistake to shirk the responsibility of selecting for oneself. Nor do I admit that the collections of seeds as made up and supplied by most seedsmen are the most economical in the end. They certainly comprise a larger quantity of seed, of fairly good quality, too, than can be bought for the same money independently; but, excellent and presumably cheap as they are, there is much to be urged against them. Not unfrequently fully one-third, sometimes even more, of the seeds sent in comparatively small collections—or, say, those suitable for about one acre of ground—are not made use of; they are not wanted, in fact; while perhaps several varieties that are sown are not well adapted to the place. The aim of each and every gardener, whether amateur or professional, should be to discover which are the best kinds and varieties for their respective places, ordering and sticking to these till something better can be found to supersede them. If rather more is paid for them, what is wanted, or what will prove the most profitable in the end, will be obtained.

Extravagance in ordering seeds ought always to be avoided, this inevitably reacting on those who err in that direction, and not unfrequently ending in the owners of gardens taking the matter into their own hands, the other extreme being almost the sure consequence. Here let me point out to the owners of gardens, whether large or small, how unwise it is to be too niggardly in the matter of ordering seeds, especially seeing how many and various are the difficulties and contingencies the gardener has to face. From causes, unavoidable or otherwise, some sowings may be partial and others complete failures, and unless there is more seed in reserve the chances are the crops will be of no value. If sowing seeds too thickly is a mistake, sowing too few is equally reprehensible.

Former generations of practical gardeners thought it advisable to sow "enough for the hoe and some for the crow," or, in other words, enough to provide against possible losses, and so ought we. Nor ought much value to be attached to old seeds. All may be a year or two older than those who possess them may be aware of, as quite new seeds are not always supplied, especially in collections, the consequence being a very poor growth. Much depends upon the way old seeds have been stored, dryness being most essential, but no matter how well the old seeds have been kept, they rarely germinate so strongly and quickly as do new seeds. In any case, old seeds require more heat to start them, and if comparatively puny plants are obtained, a very bad beginning has been made. There are a few exceptions to the foregoing rule which perhaps I shall do well to enumerate. Those

which germinate the most weakly after the first year are Peas, runner, broad, and kidney Beans, Carrots, Parsnip, and Rhubarb, these failing badly if the soil is cold and wet. Onion, Leek, Salsafy, Scorzonera, Tomato, Radish, Cress, and such herbs as Balm, Basil, Pennyroyal, Savory and Thyme will germinate fairly well after being kept over one clear season, while those which keep one year or more longer are Lettuce, Endive, Broccoli, Borecole, Brussels Sprouts, Cauliflower, Cabbage, Beet, Celery, Spinach, Chervil, Parsley, Turnip, Asparagus, Marjoram, Mint, and Cucumber.

Reference has frequently been made to the best varieties of vegetables, many of which are well adapted for most gardens, and those who are yet undecided as to what to order ought to hunt up the back numbers and take the advice there offered. The descriptions given in seed catalogues may to a certain extent be truthful enough, but the adjectives are so freely applied in so many cases, that it is hardly possible to select a limited number of varieties without the aid of previous experience or later advice. The enthusiast especially is apt to cultivate a great number of varieties, growing small quantities of each; but interesting and fairly instructive as these trials may prove, they are not as a rule very satisfactory from a cook's point of view. It is found that by far the best succession of superior vegetables is maintained with the aid of a comparatively limited number of varieties, and there is not nearly so much trouble necessary in cultivating these. It may, perhaps, surprise many gardeners to learn that only three varieties of Potatoes were grown, up to within a short time ago, in one of the largest and best managed kitchen gardens in the country, and not more than five varieties of Peas. Seeing that not less than forty quarts of the latter were annually sown, it is only a thoroughly experienced and rather strong-minded gardener that could resist ordering more varieties, but throughout only the best and most approved varieties of vegetables were grown, these being limited in number and grown in extra large quantities to meet the demands of a princely establishment. If this rule proves correct in the case of an extra large garden, it is even more to be commended to those with more limited means.

In some instances the selection of varieties is not the difficulty, the quantities required being the most difficult to determine. Even this ought to disappear after the first year. The memory is not to be trusted, and the proper thing to do is to keep either a copy or the invoice of last order given, this serving as a guide, and being perhaps improved upon when the next order sheet is filled. It may be of service to those who are ordering their seeds for the first time if I state about what quantities of each kind of vegetable are required for a garden of about one acre in size. This to a certain extent may be of assistance also to those who have charge of larger gardens, the quantities being increased according to the size of the garden and demands of the establishment to be supplied with vegetables all the year round, half-ounce or one-ounce packets being substituted in many cases for small packets. Of Peas six or seven quarts are ample for affording a long succession; Broad Beans, three or four pints; runner Beans, one pint; kidney Beans, two pints in two varieties; Beet, one packet of Turnip-rooted and one ounce of a good late variety; Borecole, two packets; Broccoli, four packets, in as many varieties; Cabbage, two half-ounce packets in two varieties; and one packet each of Colewort and Chou de Burghley; Savoy Cabbage, one packet each of three varieties; Carrot, one ounce each of forcing French Horn, Nantes Horn, and Intermediate; Cauliflower, one packet each of dwarf early successional variety, and Autumn Giant, half an ounce of the latter not being too much; Celery, one small packet each of a good white and red variety; Mustard and Cress, one quart of each; Endive, one small packet each of Green Curled and Batavian; Leek, one half-ounce packet; Lettuce, one half-ounce packet each of two good Cabbage varieties and Paris White and Brown Cos; Onion, one ounce of mixed Tripoli, and not less than three ounces in two or three varieties of the White

Spanish and keeping type; Parsley, one packet; Parsnip, one ounce; Radish, four ounces each of two or three varieties; Spinach, one pint; Turnip, one ounce each of the three best varieties; Tomato, one or two small packets; Vegetable Marrow, one packet; herbs, small packets of any kinds needed. W. I.

CHRYSANTHEMUMS.

SPOILING THE CHRYSANTHEMUM.

If you will allow me to say so, I think this discussion might be reduced to less compass with advantage. First of all, it is not a question of "everyone pleasing himself according to his ideas," a plea advanced by the big-flower worshippers as an excuse for setting an example of bad taste. There is such a thing as good and bad taste in gardening in almost every phase of it, and the object of criticism in such matters has been, I take it, "to improve our ways" and guide our path, and Chrysanthemum culture is no exception to the rule. Chrysanthemum growers may please themselves, but when they adopt a certain standard of excellence and set it up in public exhibitions and elsewhere as an example to be copied, commended, and rewarded by the chief prizes, they are going a good deal further than "pleasing themselves," and it is on that ground the critic meets them. It is a fact that at exhibitions the big flowers invariably carry the day, other points being equal, and it is frivolous attempting to dispute the fact. How large a big-flower grower would like to have his flowers nobody knows, but if his flowers were as broad as a Tam o' Shanter bonnet and were disqualified on that account, he would make the show tent ring with his lamentations, and the whole fraternity would cry aloud.

The big-flower craze had no dignified origin to recommend it. It is simply an empirical standard derived by gardeners from big Potatoes, big Leeks, big fruits, and big specimens without any regard to the subjects themselves. There is some sense and reason in big fruits and vegetables, and a big Chrysanthemum plant well grown and well and profusely bloomed to show the possibilities of the plant—like a good Geranium, a good Heath, or a good Orchid—would also be an object worth striving for; but your big cut bloom can be and is produced by good, bad, and indifferent gardeners with equal success provided they adhere to a few simple rules, grow plenty of plants to ensure a choice, and spare neither time nor expense in culture. There is no doubt on the point whatever that a naturally grown Chrysanthemum will produce a weight or quantity of blooms of fair size and pretty and useful quality that the prize grower of single blooms cannot approach. The latter is a man who makes one blade of Grass grow where half-a-dozen grew before, and *vice versa*. I could name gardeners who every year produce more flowers and more weight of flower from less than a quarter of the number of plants than some of the prize growers produce from theirs, and who, in addition to supplying home wants on a liberal scale, have enabled their employers to distribute large quantities among their friends and charitable institutions besides disposing of as many spare blooms as nearly paid all expenses of culture. As to ladies preferring big blooms in preference to small sprays, as stated last week, I never knew either a lady or a gentleman prefer the monster bloom for personal decoration unless for the fun of the thing, in the same spirit that two gentlemen wore two broad Sunflowers in their button-holes at a well-known watering-place where the writer once

was, to the great amusement of the spectators. It is no use quibbling about the definition of a "natural grown" plant. We all know that that means a properly supported plant grown in a moderately asymmetrical shape, in a moderate-sized pot, with a good crop of blooms of various sizes for cutting, or as a plant for a vase. That is the kind of subject that should be encouraged at exhibitions, instead of the packman's box with its cut blooms all trimmed and dressed by the horticultural milliner.—S. W.

— Mr. Molyneux no doubt feels himself compelled to uphold the sophistical doctrines inculcated by the champions of a system of Chrysanthemum culture, which has, in every respect, a tendency inimical to the beauty and usefulness of this flower, and at page 608 claims for this system "the method most generally adopted." Allow me to inform him that I fear such a statement is not in keeping with facts, as few people attempt to produce such useless specimens, except in the hope of obtaining remuneration for these expensive curiosities in the shape of prize-money.

Mr. Molyneux tells us that the owners of gardens say "we must have large blooms of Chrysanthemums," and the gardeners say "we must grow them." Now my experience of the owners of gardens and gardeners in the northern counties of England is the very reverse of this; for instance, I am only acquainted with one gardener in Yorkshire who adopts this method of culture, and he is a conspicuous exhibitor and prize-taker. I am inclined to think that, were it necessary to ascertain the actual number of "big bloom" growers, a list of the exhibitors at the various Chrysanthemum shows would pretty nearly represent the whole, and would prove but a fraction of the thousands who hold fast to the orthodox style of natural cultivation. If the system of culture so strongly upheld by Mr. Molyneux entirely changes the distinguishing features of Chrysanthemums, are there not good grounds for condemning it? And what description are we to accept as representing the "true" colour, form, and habit of the different varieties of this flower?

I am asked, "Is Avalanche at its best an abnormal and an unnatural production?" If I understand Mr. Molyneux rightly, he wants us to believe that that variety is "at its best" when grown on the lamp-post system; but surely he ought to have substituted "at its biggest," then no one familiar with the unnatural treatment it must have been subjected to would hesitate to pronounce it "an abnormal and unnatural production."

In answer to his second question, I am pleased to be able to state that every lady I have spoken to regarding "big blooms" has expressed her opinion of them in the most disparaging terms, and those initiated in gardening pointed out their uselessness and the expense attached to their production.

Mr. Molyneux finds fault with the term "naturally grown." I think when a plant is placed in a pot it is then under "artificial" treatment, and, strictly speaking, is only "natural" when found in its wild state; but horticultural language has granted a wider scope to the term, and with this license we may apply it to all plants not actually "trained to a particular shape" or denuded of their buds.

As my object in growing Chrysanthemums is to obtain large bushes and as much bloom as possible of the colours most appreciated by my employers, I insert my cuttings three in a pot and grow them on, pinching all strong shoots to ensure a sufficient number of "breaks" to make

good plants, and yet have no hesitation in calling them "naturally grown." I do not think Mr. Molyneux is justified in speaking of your correspondents as he does in his closing paragraph in the words "when writers talk about how the Japanese varieties have been 'dressed,' it exposes their ignorance," as I have been an eye-witness to the "dressing" of Japanese varieties on more than one occasion, and others have only spoken of these things as they found them.

In my opinion, all varieties of Chrysanthemums with weak peduncles are worthless for decoration, and are only useful for exhibition where they have the benefit of a board to support their heads.—J. RIDDELL.

— In his note respecting the big-blooming Etoile de Lyon Mr. Molyneux has made it clear that he is favourable to large flowers. It is not at all difficult to understand his taking that view, and if the production of flowers for show was the sole aim of growers, there would be little to be said against Mr. Molyneux's opinion. But still there is something to be urged in that direction, first as to the question whether mere size, as found in Etoile de Lyon and similar big flowers, is not subversive of the most refined quality which so many of the smaller flowers give us; and secondly, whether blooms are not now too big to enable them to be exhibited on ordinary stands. Any lot of what are held to be fine exhibition Japanese varieties must be indeed all densely crowded on the stand, so that the full proportions of any one bloom cannot be fully seen. If it is purposed to not only grow for exhibition the new giants, but also to encourage the production of yet other new ones of the same dimensions, and perhaps larger, the condition of our exhibitions must become a pitiable one indeed. Those who hold that the main object of growing Chrysanthemums is to provide a wealth of flowers for home use neither prefer big blooms nor find them to be so serviceable as smaller flowers, whether individual ones or borne in clusters. So far as the merit of the special blooms Mr. Molyneux exhibited at Kingston is concerned, without doubt they were of the finest form and colour the variety will produce. All that is admitted, but it does not touch the question as to the wisdom, or otherwise, of growing these gigantic flowers.—A. D.

Chrysanthemum Lady Selborne.—This early-flowering Japanese variety also produces good late blooms. I saw on December 23 a nice lot of blooms of this variety, which were of course highly appreciated for church and other decoration. The plants had been stopped once or twice to induce a bushy growth, and each shoot produced one bloom, later than usual for this variety. The branches were not well ripened in consequence of stopping and late growth. The plants were placed in gentle heat, and from every nearly node up the stem buds started into growth, which developed into neat, pure white blooms.—E. M.

Chrysanthemum Golden Gem.—This is one of the very best varieties for late flowering. It is of dwarf wiry habit and remarkably free. Much the finest sprays of flowers were produced by naturally grown standards, that is to say, plants not pinched back in any way, the single stems being staked uprightly and allowed to branch naturally. Some of the shoots are now clothed with medium sized, newly-opened flowers to a length of 12 inches, and the colour being a rich bronzy yellow, it finds plenty of admirers. The flowers at first are reflexed, but as they age, the florets lose colour and fold inwards, much after the style of Margot. Golden Gem ought to become a general favourite with both private and market growers.—W. I.

Chrysanthemum growing in America.—A friend of mine living in Worcester, Mass., wrote me the other day that he saw a grand sight in the greenhouses of one of the leading florists in that town while the Chrysanthemums were in bloom. The method the cultivator had adopted of growing the plants differs somewhat from the

system practised in England. The plants were growing in beds in the houses where they had been all the summer, the growth being restricted to one stem, allowing only one bloom to develop on each plant. It is not to be wondered at that the results were most satisfactory as far as the quality of the flowers was concerned; but what will our English growers say about the cost of production, considering that a house was required the whole year round to produce one bloom on a plant only? Surely there would be a possibility of saving seed from plants cultivated in this form, and under such existing conveniences they could be kept dry enough, certainly until the seed matured and ripened, which appears to be the stumbling-block in England to the production of home-saved seed. Of course, varieties that are known to be seed-producers should be chosen, but according to recent arguments, the bulk of the incurred varieties are not of this class.—E. MOLYNEUX.

STANDARD CHRYSANTHEMUMS.

THOSE who make a point of attending Chrysanthemum exhibitions are familiar with the old stereotyped standard plants that are exhibited, plants on 2½-feet or 3-feet stems, with a flat or spherical head, with the flowers tied down flat upon it. Many of these plants show high cultivation, being frequently admirably grown and bloomed, but so long as standard plants find a place in schedules of prizes, so long will they be produced. At the Reading Chrysanthemum show standard plants are invited, but not of the ordinary Mushroom shape, but with the head brought down in shield fashion, so that the surface may be exposed to the view of the spectator. These are both formal and unnatural in the extreme, but the reason why they are invited grown in this way is because they can be stood against the wall under the galleries of the Town Hall with, as stated above, their heads exposed to a side view. It is of no use to blame the growers for these monstrosities; rather we should blame those who give them a place in schedules of prizes, and offer good money prizes for them. One cannot blame the growers for being allured by such a bait, and they are certain to be found growing plants in this way. When calling upon Mr. R. Owen, Castle Hill Nursery, Maidenhead, some time ago, in the month of October, I saw some standard Chrysanthemums grown in a style that appeared to me to be worthy of general adoption. They were plants, as a matter of course, on single stems, but they had been stopped when about 18 inches or so in height, and then allowed to break into four or five shoots. These shoots bloomed when about 2 feet or less in length. There was no attempt at training, and not a great deal of thinning out of the flowers. Treated in this way they proved useful for the greenhouse or conservatory. The leading varieties so grown in this way were William Holmes, very fine indeed, though, as Mr. Owen said, "it wants doing," meaning thereby grown generously. This variety is a general favourite, and it forms a most useful and attractive October flowering variety. Sarah Owen, Avalanche, and Edwin Molyneux were also very good and of great decorative value. All these are Japanese varieties. I think I may say of Edwin Molyneux that it promises not only to make an excellent variety for decoration, but from what I have seen this season, it will make a very acceptable exhibition specimen also. It is very free blooming and a good grower, but if there is one failing about it, it is that the flowers come semi-double and show the yellow disc in the centre. I have no doubt but that this can be remedied by good culture. There was one good example at the Crystal Palace Chrysanthemum show, but I saw a better one still at a Chrysanthemum show at Hitchin. This was an admirably grown and flowered plant, and it was awarded the silver medal of the National Chrysanthemum Society as the best specimen plant in the exhibition. I think Edwin Molyneux will make a capital market variety also. R. D.

Chrysanthemums for specimens.—Will you kindly give me the names of six large-flowering

Chrysanthemums for trained specimens, and three pompons for trained specimens?—G. W.

* * If "G. W." by large-flowering varieties means incurred sorts the following are good: Mrs. G. Rundle, Mrs. Dixon, George Glenny, John Salter, Lord Wolseley, and Prince of Wales. If Japanese sorts are meant, Bouquet Fait, Hiver Fleuri, Mons. Astorg, W. Robinson, Peter the Great, and Fair Maid of Guernsey are the best. Six good reflexed varieties are Dr. Sharpe, Mrs. Forsyth, Peach Christine, Cullingfordi, Pink Christine, and Chevalier Domage. Three good pompons are Maroon Model, White Cedo Nulli, and Golden Cedo Nulli.—E. MOLYNEUX.

TRUE AND FALSE DRAWING.

BELOW is what the Editor of the *Gardener's Magazine* thinks of our drawings—the first horticultural ones in which the artist was allowed to draw flowers as they are and told to draw only what he saw. Anybody who wants to see the other way can see it in the old floral periodicals, killed by THE GARDEN, which are full of coloured lies—things as to which the grower told the artist not only what he was to draw, but how he was to draw it:—

The *Floral Magazine* and the *Florist* have gone the way of monthlies, leaving nothing to take their place. THE GARDEN, we may say, should supply the defect, but the plates in that paper, though admirably worked up as examples of printing in colour, are apt to run into the region of serious burlesque when the choice of the editor falls upon a florist's flower. Nothing appears to delight him so much as the representation of a fine subject in a state of imperfection. A twisted petal, a wind-mill form, and a false arrangement or general blurring of colours, are characters introduced in connection with florists' flowers that would not be recognised by florists with such defects. This is matter for lamentation, but it is consistent with the policy of our contemporary, which has ever been to favour weediness as one of the essentials of beauty. It is a grave mistake and betrays narrowness of view, for those who best understand and most earnestly admire technical perfection in florists' flowers are as ready in appreciating the beauties of those that remain uninfluenced by human agency.

A florist's flower is a real flower conventionalised. Once perceive the truth and you must subscribe to it both as to the whole and to all the parts. A conventional decoration must be orderly, systematic, severe in line, and present a distinct harmony of colours, whether lively, rich, sombre, or neutral. A field for fancy and for bold originality will often be opened to the daring hand, but the primary laws that govern conventions in art must be obeyed, or the result will be a solecism or a monstrosity. Not unseldom do we see in the paper referred to admirably executed plates in which florists' flowers are so flagrantly abused, that we could wish the editor would avoid them altogether, and thus be consistent with his avowed dislike of the entire throng.

The best way to test the public view of the matter would be to start a magazine to figure the flowers in the old way. In old days the public had no choice but to take the flowers as the florist and his artist made them appear. Would they be drawn before or after the tweezers had given them its "finish?" No doubt the artist must come after the tweezers! The gaps the old way left open to fraud were large. Consider the painted Beauty of Glazenwood. A man brings a flower of Fortune's Yellow to the publishers of a garden periodical, who pass it on to the artist, who, taking the old rule—not to draw the flower as it actually was, but as the man wished it to be—painted a Rose as big as a Cauliflower, and with stripes like a Carnation. All the time it was only

Fortune's Yellow, though that did not prevent its being sent out and largely bought as a new Rose. The same man brought to it me, and, putting a flabby bloom on the table with a few faint stripes on it, said it was in good seasons two inches broader and the stripes far more brilliant. I told him I would like to see it in that state, and would wait. He did not come back. But even where the aim was quite honest, the Roses, as flat as beefsteaks (even the leaves like tin painted green), were no credit to the grower or the artist. Our way is to grow the flower fairly well and to leave the rest to the artist, who takes his own choice as to the blooms he thinks typical of the beauty and character of the plant.

But even with this true way of working we know too well the fate of drawings that pass, it may be, a dozen times under a printing machine to be satisfied with the result. So far from any change being attempted to justify the word "burlesque," absolute truth to Nature is sought, and I think Mr. Moon would be as quick to see a flower in a state of "imperfection" as anyone who draws or grows flowers. W. R.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM.

CHRYSANTHEMUMS in January are no longer novelties, and the show in the first month of the year has become an established custom as justified by the first exhibition held four years ago. The show that filled the Royal Aquarium with flowers on Wednesday and Thursday last was not entirely of Chrysanthemums, though more so than in previous seasons. Chinese Primulas, Cyclamens, and miscellaneous collections contributed their share to a show which was worth seeing, if only to obtain some idea of the lateness of the Chrysanthemum by encouraging varieties that bloom at Christmas and preserving the flowers. No one expects exhibition blooms, as judged by the November standard, in January, but there were several large flowers of the Japanese varieties. The exhibition was made up exclusively of this section, with the exception of a few flowers of the incurved varieties Lord Eversley and the proverbially late Princess Teck. It was scarcely expected that such a gathering of late flowers would have been got together, as the season of 1889 was unusually short, and the characteristic English weather during the past few weeks has added greatly to the difficulty of preserving flowers fit to exhibit.

The first class was for a collection of flowers in bunches, and the stand of Mr. Owen, of Maidenhead, was possibly the freshest and finest in the exhibition. It is no ordinary task to get together on the 8th of January a series of flowers in the perfection shown by him on Wednesday. The best were Lily Owen, rose and white; Mrs. H. J. Jones, pure yellow, an exact counterpart of Ethel, and more often and appropriately called Yellow Ethel; Golden Gem, a charming variety, yellow and reddish bronze; Cythere, beautiful rich lake, a lovely colour; Kioto, yellow; Jessica, white; Mrs. Frank Thompson, white. Mr. J. Kipling, The Gardens, Knebworth, was second. In the other collections there were good blooms, the names of which it may be useful to mention. M. Astorg was unusually fine, and a charming white flower it is even in January, invaluable for cutting; Comtesse de Beauregard has a delightful pale pink shading, and throughout the brightness and freshness of the flowers was as marked as their great variety; Mrs. Cannell, yellow; Ralph Brocklebank, a beautiful late variety; Gloriosum, Fair Maid of Guernsey, Meg Merrilies, Ceres, Thunberg, Roseum superbum, a lovely flower, variously shaded when unstopped; Mlle. Lacroix and Moonlight. The competition was as good for twenty-four blooms. Mr. James Brown, gardener to Mrs. Waterlow, Great Doods, Reigate, was first for an excellent collection of flowers of Charles Sharman, fine colour; Golden Dragon,

Yellow Ethel, and Mont Blanc, white. The other stands were poor. Mr. R. Phillip, The Deodars Gardens, Meopham, had the finest twelve Chrysanthemum blooms. There were three classes for nothing but Japanese varieties, and Mr. J. Kipling had a charming variety of kinds, the flowers fairly characteristic and delightful, bright and fresh in colour, especially such favourites as Ralph Brocklebank, Cry Kang, Mr. H. Cannell, Moonlight, Ceres, Comtesse de Beauregard, Gloriosum, and Meg Merrilies. Stanstead White was shown well for the season in Mr. Sullivan's stand. Mr. James Brown had an excellent stand of twelve blooms, showing the now well-established yellow-flowered Sunflower, Roseum superbum, and Meg Merrilies.

The arrangements of flowers in vases and epergnes are not often happy, neither were they on this occasion. The first prize vase was worth the award. The Chrysanthemum flowers, mostly of white, pink, and crimson colours, were prettily arranged with graceful Grasses. Other attempts at grouping flowers were wretched failures, as lumpy as the specimen plants that disfigure the November show. One bouquet was a mass of pinkish white flowers and Mahonia foliage huddled together with the object, one would think, of showing how utterly graceless a Chrysanthemum flower can be made, even when it has the rich leaves of the Mahonia grouped with it. The rich bronzy colour of the Mahonia foliage is delightful for backing Chrysanthemum bouquets, as the contrast with the delicately coloured flowers is not too strong. There were very few bouquets or cut-flower arrangements even at the great November exhibition that could be praised for artistic merit. It seemed as if those who arranged them thought more of Fern fronds and a garish mass of colour than the grace, elegance, and freedom of the individual flowers.

The division called miscellaneous contained principally Cyclamens and Chinese Primroses. The Cyclamens made bright blocks of colour, and Mr. Clarke, of Hounslow, won the first prize for a collection, with Mr. May, of Twickenham, in the second place. Mr. D. Phillips, Langley Broom, Slough, showed twelve excellent specimens. Mr. A. Carter, gardener to Alderman Evans, and Mr. T. Mursell, gardener to Mrs. Burton, Tower House, Streatham, were the principal prize-winners for Chinese Primulas.

A large group of Chinese Primulas came from Messrs. H. Cannell and Sons, Swanley, comprising a rich selection of the best types of this winter flower. One named Progress was certificated. It is a single variety, the flower large, excellent in shape, and rich crimson; Cannell's Pink is another single flower of a fresh and charming shade of pink. Messrs. J. Laing and Sons, Forest Hill, J. G. Drain, Southgate Nursery, Kingsland, N., and Mr. Holmes, Frampton Park Nurseries, Hackney, showed groups of miscellaneous plants, principally forced bulbs.

Floral committee.—The work was soon disposed of. There were only two exhibits, both promising late varieties. Mr. Owen showed Kioto, a Japanese variety, the flowers not too large, in true character and rich self gold yellow, the florets irregularly arranged, as is proper to this section. Mr. Beckett, Aldenham House Gardens, Elstree, had flowers of Mrs. A. Waterer, quite a different style of bloom to the last mentioned. The florets are creamy white, the centre of the flower a pale greenish kind of colour, scarcely beautiful. It is a good late type and will be much grown.

A meeting of Chrysanthemum growers was held on Wednesday evening, when a paper on "Are Chrysanthemums wanted at midwinter?" was read by Mr. J. Kipling, of Knebworth.

A full prize list is given in our advertising columns.

A meeting of the general committee of this society was held on Monday evening last at Anderton's Hotel, Fleet Street, Mr. R. Ballantine presiding. The minutes of the former meeting having been read, Mr. Holmes announced the sad intelligence of the decease of an old member of the committee, Mr. Wm. Blake, who had left behind him a widow and some nine or ten children. It was unanimously resolved that a vote of condolence be transmitted

to the family. The dates suggested for the holding of the great Centenary Festival, viz., November 11, 12, 13, and 14 next, had met with the approval of the Aquarium authorities, and it was then considered advisable to fix the exhibition of early flowering Chrysanthemums and Dahlias for September 10 and 11, and the one for late flowering sorts for January 7 and 8, 1891. The judges at both these shows as far as Chrysanthemums are concerned will be Mr. Geo. Gordon and Mr. R. Dean. The judges in the Dahlia classes at the September show are being settled by the National Dahlia Society, who kindly did what was necessary in that respect last year. The sum of £20 was voted from the funds towards prizes for Chrysanthemums at the October show to be held as one of the series which during the present year are being organised by Mr. Holmes at the Aquarium. Mr. Holmes intimated that all members of the National Chrysanthemum Society will be admitted to all such shows at half price upon production of their membership cards. The classes to which the £20 will be devoted are as follows: 24 Japanese in not less than 12 varieties; 12 Japanese, distinct; 6 Japanese, white, 1 variety; 6 Japanese, yellow, 1 variety; 6 Japanese, any colour except white or yellow; 12 bunches of pompons, not less than 8 varieties. Two classes for amateurs are to be instituted, consisting of 6 Japanese, distinct, and 6 bunches of pompons, distinct. A vote of thanks for the loan of the foliage plants lent for the purpose of decorating the tables and staircase at the annual dinner was accorded to Messrs. Laing and Sons, of Forest Hill, and also one to Mr. Beavan for the fruit and flowers furnished by him and his colleagues on the same occasion. New members and Fellows were elected, bringing up the roll to 691. The following societies applied for and received the benefit of affiliation: The Guildford, the Stamford and District, the Isle of Thanet, and the Auckland (N. Z.) Chrysanthemum Societies. It was resolved that the catalogue committee be empowered to proceed with the preparation of a new issue in due course.

Clashing of Chrysanthemum exhibitions.

—I think the National Chrysanthemum Society or some of the other societies ought to re-consider their dates. I find, upon looking over the list of exhibitions, that the National Chrysanthemum Society's exhibition clashes with those of Kingston, Birmingham, and many other important places. Surely this must injure the National Chrysanthemum Society's exhibitions to a very large extent, as many would be glad to contribute towards making the Centennial Exhibition a success by exhibiting, but cannot possibly be at two places at one time. I am of opinion that the National Chrysanthemum Society will be the gainers by altering their dates a week earlier. It is much easier to forward plants and blooms than to retard them. What have other growers to say upon this? —NERO.

Arranging cut flowers.—The note by "A. H."

(p. 579) on the arrangement of cut flowers is a natural outcome of the healthy fashion (which is making rapid headway) of the better and bolder treatment of plants in the flower garden. The day of inharmonious mixtures either in the garden or in the house is past. The old "posy" of flowers, into which the wealth of a whole garden was crammed, is a model to be shunned by all who have anything to do with the arrangement of flowers in vases. Vases in improved forms for cut flowers are now so plentiful and cheap, that there is little excuse for having to cram into one a lot of different kinds of flowers which cannot by any possibility be made to harmonise well together, or to have to put up an epergneful with a head 1 foot or more in diameter in a teacupful of water, and with a base so shallow as not to admit stems more than 2 ins. in length, and even with these and barely moist must be used to keep the flowers in position. No form of vase is less suited to the welfare of cut flowers than these epergnes, and yet no form is more common. The fewer the kinds of flowers used in each vase, the better the effect in most cases, and

such flowers as Sweet Peas, Chrysanthemums, Lily of the Valley, and, in fact, more than half the things one can think of, never look so well as when put up in a vase entirely by themselves and with their own foliage. Sweet Peas cut from a good strain give a variety of harmonious colours that cannot be improved with any addition; they should be cut with long stems, and all the buds and growth above the cut should be left entire. Of Chrysanthemums the same may be said, while nothing but its own leaves can enhance the simple beauty of the Lily of the Valley. In other cases, two, three, or perhaps more kinds of flowers may be used together, but they must have some special affinity for each other and the colours must blend well together. The one thing to avoid is a mixture in which colour and form have to give way to variety, and simplicity to chaos.—J. C. TALLACK, *Livermere Park.*

THE HAMPSTEAD FIELDS AND THE COUNTY COUNCIL.

TO THE EDITOR OF THE STANDARD.

SIR,—I am exceedingly pleased to see in *The Standard* of to-day a protest against the ruthless destruction of all that is beautiful and natural looking now proceeding on the newly-acquired land at Hampstead.

This has long been a favourite spot of mine, and many delightful hours have I spent there, either sketching or collecting objects of natural history, and I had hoped that when the London County Council assumed the control of it, it would have been allowed to retain its wild beauty and natural grace; but, alas, like many others, I have only to bear the disappointment of seeing it shorn of its charms and mutilated by roadways and carriage drives.

A place such as this has hitherto been, with its profusion of lovely flowers and interesting insects, its melodious songsters and sweet perfumes, is a great educational means to the public, as well as a health-giving resort, and should not have been interfered with beyond the clearing away of the debris of the brickfield and rounding off of the sides of the precipitous hollows made by the old excavations. We have far too much of paths, palings, and policemen in our open spaces, and not nearly enough of Nature in its pure state, and there is absolutely no reason why the ratepayers should be robbed of this last little bit of natural scenery in the district by a body of people who seem to have no eye for the artistic, and no ear for the music of the birds, especially as they will have to pay for it, and would, in the large majority of cases, rather see the land as it was.

Trusting that the "improvements" will be stopped before the place is ruined.—THEOBALD CARRERAS, 32, *Osney Crescent, Kentish Town, Jan. 2, 1890.*

—The threatened conversion of the most beautiful meadow-path near London into a dull straight road, with kerbs and lamp-posts, raises two distinct questions: Have the County Council the right to take a piece of the land obtained for the people of London, at considerable cost of labour and money, to meet the alleged requirements of the adjacent districts for a better means of inter-communication? If such a means of communication is proved to be necessary, is the proposed road, connecting Well Walk with Merton Lane, the best for the purpose? Dealing with the latter question first, a glance at the map will show that the road contemplated would attack Highgate Hill at one of its steepest gradients, and be only useful to reach the district near the hill top. It would rob the choicest part of the new land of its rural beauty, while in return it would not create a link between the most populous portions of either Hampstead or Highgate. This could be far better accomplished by continuing the present Nassington Road, just below Parliament Hill, to a point nearly opposite St. Albans Road, Highgate; and a road through the fields here would have the additional advantage of being far more level for the poor horses, whose sufferings on these hills are already severe enough. With regard to the first question, petitions against the new road are being signed in

Hampstead and Highgate; but this is a matter affecting the whole of London. The County Council do not get possession of the fields until Lady Day next; consequently there is yet time for the public to let their voice be heard, and their opinion of the innovation made known.—H. J. FOLEY, *January 3, 1890.*

Choice flowering shrubs.—I should be very much obliged if any of your readers would furnish me with a list of choice flowering shrubs—firstly, that grow and flourish best on chalk and flint soils, such as in the high parts of Hants and Wilts; secondly, of shrubs that will grow on such soils, though not perhaps in their greatest perfection; and, thirdly, a list of shrubs it would be useless to attempt growing. Also, I should like to hear the opinion of rosarians as to the best stocks for Hybrid Perpetuals, Teas, Bourbons, &c., and if it is likely that any of the single Roses would flourish under such conditions of soil, provided care be taken to make the soil deep where required with as good loam as could be got in the neighbourhood. Would it be labour uselessly expended to import peat for a small bog garden to be made near a clear chalk stream? Any hints on the above subjects and for gardens in such situations I should be most grateful for.—D. H. G.

Wreaths of Ivy.—Common Ivy in long wreaths is extensively and effectively used in both church and house decoration, and would be even more so if available in greater quantities. As it happens, Ivy may be very plentiful in various places, but yet very few long trailing or clinging young growths be found. In our case much of the ground among trees, shrubs, and game cover in pleasure grounds is more or less covered with Ivy, this finding its way up tree stems in all directions. Now, beautiful as Ivy-clad trees undoubtedly are, this being most marked when the trees are bare of foliage, there is a strong reason why Ivy should be checked in its earlier stages of growth, as it is liable to eventually strangle or ruin the host that entertains it. In our case, a certain number of stems are given up to the Ivy, but by far the greater portion are occasionally quite cleared of it. Whenever strong or moderately strong Ivy stems are cut through near the ground, a number of fresh young shoots soon find their way up the tree stems, and it is these when several feet long and from one year to three years old we cut for decoration. In this manner extra large bundles can be got together in a short time, and the practice of cutting down old Ivy might well therefore be more generally adopted, even if only to ensure a good supply of long sprays.—I.

Lycaste Skinneri.—"J. J. J." sends a very good form of this Orchid, of which there are now many excellent varieties. It is not distinct enough for a name.

Heating a greenhouse.—I have a lean-to greenhouse about 50 feet long, half used for Peaches, the other for Vines. Will you have the goodness to suggest an inexpensive way of heating solely for the requirements of the two? Both the Grapes and Peaches are for early use.—A. L. A.

Fruit culture.—The Drapers' Company of the City of London have sent to the Fruiterers' Company a donation of £105 towards the fund initiated by Sir James Whitehead, Bart., the late Lord Mayor, who is the Master of the Guild, for the promotion of fruit culture in our homesteads and cottage gardens.

The florists' laced Pink.—We have received a circular from which we learn that a committee has been formed to establish a National Pink Society, in order "to promote the cultivation of the florists' laced and border Pinks." It is proposed to hold shows at the Royal Aquarium in June and July of the present year.

BOOKS RECEIVED.

"The Rosarian's Year Book for 1890."

"Glenny's Illustrated Garden Almanack for 1890." Ward, Lock & Co., Salisbury Square, E.C.

Names of plants.—*Orchidist.*—*Lælia anceps Dawsoni.*—*W. J. Mitchinson.*—*Lælia crispa.*—*F. P.*—*Azalea amœna.*

WOODS AND FORESTS.

TESTING THE SOUNDNESS OF TIMBER BY TAPPING.

I SEE it stated in last week's GARDEN that tapping the end of a tree with a hammer and listening to the vibrations at the other end will indicate even the degree of soundness of the timber. That sound and unsound trees will sound differently, tested in this way is probable, but it is not a test which I would like to rely on in purchasing timber, nor is it a test I ever saw either a forester or a timber merchant apply, even when a large number of large trees, in which soundness was the all-important consideration, were being disposed of amongst a large number of purchasers, every one of whom was probably an expert in the business. I have seen the plan only in print. Unsoundness in home-grown timber proceeds, to a large extent, from "shakes"—"ring-shakes" being the worst—when bad, rendering a tree almost worthless. But ring-shakes are only too conspicuous to the eye when the tree is down, and no test is necessary, nor would the tapping answer, as the shake will not hinder "the continuance of the vibrations." Shaken timber may be sound in its fibres, but it cannot be cut into sound planks. "Star"-shaken trees—that is when the rents radiate out from the centre—are equally easy to tell, even when standing, by the seams in the bark, especially in Oak, no matter how long the bark has grown up. Badly star-shaken trees are said to be "shaken like a besom," and are almost worthless. "Shakes" are still a mystery, for they occur under almost all conditions of soil and situation. A tree is said to be unsound when it is unfit, from the above causes, from decay, or from being too brittle or tender for general purposes, and the mallet would not help anyone to determine the degree of unsoundness with any certainty. A hollow in a tree trunk may be detected by tapping if you tap the hollow spot, not otherwise. In felled Oaks or Ash of considerable age the bottom of the trunk is often hollow or rotten, and as it would depreciate their value to sell them in that condition, the rotten portion is usually sawn off, and the workmen, by tapping the trunk on its side, beginning at the bottom, rarely fail to insert the saw at the right spot. Shakes and decay from old branches that have come off and rotted into the trunk are really the main evils sellers have to contend with, and always indicate serious damage. Beware of trees where starlings' nests abound, as when the holes are big enough for the starling's purpose decay extends both upwards and downwards as a rule, and the cubic contents of the damaged parts must be reckoned off before any purchaser will look at the tree. In short, according to my experience, unsoundness in timber is only too easily detected to need the tapping process. This I am sure of at least, that I could sell any tree at its market value in which no unsoundness was visible at the ends or sides, although very old Oaks apparently sound in that way sometimes turn out when sawn up too tender and rotten for any purpose, yet these may tap solid to the axe. The fibre, it appears, is not disturbed till the saw passes through it, and then it falls away almost like saw dust in some places and dry. A man who bought timber of this kind had had sixty years' experience, and said he never was more deceived by appearances in his life.

YORKSHIREMAN.

Elongation of tree trunks.—Recent experiments tend to show that the popular notion that the trunks of trees elongate is entirely erroneous.

Tacks were driven into the trunks of various trees, and the distance between them accurately measured. At the end of the season they were found to have neither increased nor decreased their distances. In the experiment, tree trunks were selected of all ages, from one year up to five or six, and in no case was there any change whatever noticeable.

BURNING CHARCOAL.

No doubt charcoal is a valuable addition to any soil, whether the plants be growing in pots or in the open. Charcoal renders the soil sweet and clean, and acts as a storehouse for the ammonia with which the plants are fed. Chrysanthemums especially are the better for an abundance of charcoal mixed with the soil, as no plant with which I am acquainted, except an aquatic, requires more water at the roots than the Chrysanthemum. In many places an annual or a biennial thinning of trees or branches is necessary, and from these thinnings a supply of charcoal can be secured if a knowledge of how to make it is obtained. As we annually collect wood enough here, we always endeavour to maintain our supply of charcoal by timely burnings during the winter months when other duties do not press so heavily. It matters little what kind of wood is used, but I find Beech is the best. For convenience in burning, the wood should be cut into lengths 4 feet long, and averaging 4 inches to 6 inches in thickness. If larger pieces than these are used, there is often considerable waste through the burning of the outsides too much at the expense of getting the central parts burnt sufficiently. Where the wood is of a mixed character it is more important that the pieces should be smaller rather than otherwise, as some sorts require more burning than others. Spruce Fir is perhaps the least desirable kind to use, it being rather more liable to burn into ashes than charcoal. It is not necessary to dig a hole in the ground just before burning, as is sometimes practised by charcoal-burners. I make ours in the reserve ground in which are stored the manure heaps, vegetable refuse, old potting soils, &c., which reduces the labour considerably, as we make use of the materials named to assist in the burning of the charcoal. On the ground proceed to lay the base of the heap, which should be, say, 6 feet in diameter. This will enable a good body of fire to be procured, although larger heaps can just as well be made. I mention this size to convey to those inexperienced in the matter some idea of what wood is required. In the centre we lay a small bundle of straw, covering it over with small branches; old Peastakes or similar material will answer just as well. This is to ignite the larger pieces of wood which are stacked up on their end in pyramid form, building from the centre outwards, and placing the wood so that the flames can pass evenly through the whole heap. The wood may be stacked 6 feet high, and that measurement to 8 feet wide at the base will ensure a quantity of charcoal being made. When the stack is formed, commence to bank it in with partly decomposed wet manure, leaving two holes at the bottom opposite to each other on two sides of the heap. These should be large enough to admit of igniting the inside of the heap from both sides, thereby causing a current of air which assists the centre to burn more freely. Holes 1 foot square will be large enough for the purpose. In the case of a heap 6 feet high, the manure may be placed around the heap quite 4 feet high from the base, and should be quite 1 foot thick. The reason for laying it on before the fire is lighted is, that owing to the heat of the fire when once well alight, the burner cannot get near enough to place the smothering material around the heap quickly enough; therefore as much preparation as possible before lighting the wood should be made. The straw is ignited at both sides at the same time, and in from three to four hours the whole body of wood will be sufficiently aglow as to require the whole gradually being covered up with the manure. Where much green wood is used a longer time is required for burning before covering up; neither should all the green wood be placed together if some to be burnt is dry. If there is any suspicion that the manure

used to cover the heap is not wholly air-tight, some soil should be laid on the top to finally seal up the air passages, as air passing through or into the heap encourages the wood to blaze and burn into ashes. The holes at the bottom, too, should be blocked up last, leaving all secure for the night. Early in the morning the fire may in places have burst through. These places should be at once covered up again. If much green wood is used more time will be needed for this to burn; therefore the day after lighting two or three holes should be pushed through the bank of manure with a long stick to encourage the burning of the green wood by the admission of air to these parts, allowing it to burn freely for a time until it is thought the whole is well alight again. Afterwards bank up the holes once more. The time it remains in the heap depends upon the kind of wood used; where it is of a mixed nature and in a green state four or five days will be necessary to keep it smothered; where less green, three or four days will be long enough. At the end of the time stated proceed to uncover the heap, commencing at the top to prevent the soil and manure becoming mixed with the charcoal by falling inwards. If any signs of breaking afresh into flames occur, have water at hand to extinguish them, and gradually put out the fire as uncovering takes place, when the charcoal can be separated into two sizes by passing the fine parts through a half-inch sieve. The charcoal should be stored under cover in a dry place, as it retains its properties so much longer than when exposed to air and wet. I generally burn enough one year to last two seasons. The reason why we use manure for covering the fire instead of soil is that it is less likely to mix with the charcoal by falling through the wood into the fire.

S.

Value of crooked timber.—There are many uses for "natural crooks" on the farm. A bent timber as a brace, &c., is often convenient in a barn or other out-building. By the use of crooked timber a frame may be made much lighter and more durable than where only straight logs are used. There are many implements in which crooked timber is best, and the farmer should study to use a natural bend of a tree whenever an opportunity offers.

Black Birch.—The Black Birch, which is rapidly coming into favour, is a close-grained and very handsome wood, and can be easily stained to exactly resemble Walnut. It is just as easy to work, and is suitable for nearly, if not all the purposes to which Black Walnut is at present applied. Birch is of much the same colour as Cherry, but the latter wood is now very scarce, and consequently dear. When properly stained, it is almost impossible to distinguish the difference between Cherry and Walnut. In the forests throughout Ontario, Birch grows in abundance, especially if the land is not too boggy. There is a great difference in the wood of different sections. Where the land is high and dry the wood is firm and clear; but if the land is low and wet the wood has a tendency to be soft and of a bluish colour. In all the northern regions it can be found in great abundance, and as the tree grows to such a great size, little trouble is experienced in procuring it in large quantities.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWER GARDEN.

LILIES.

I CANNOT perhaps add much that will be useful to the letters which have already appeared on Lily growing, but as one much interested in the subject and as having tried my hand with them, though only in a small way, for some years, I hazard a few notes.

Of failures I have had my share, though I regret to say they have brought me no nearer to the royal road than I was at starting, and the only positive conclusion I have been able to arrive at is that Lilies are "very good where they take." In some respects I am worse off now than I was a few years ago, for my stock of *Lilium speciosum*, which at one time flourished exceedingly both in the open ground and in pots, has lately much diminished.

A *Peronospora* is, we are told, and rightly, I think, our worst enemy. As it works under the epidermis it is difficult to combat, but I hope to try next season whether the "Bordeaux broth" which is used for mildew in vineyards will check the disease. The question is when to apply this or other remedies. A plant may look the picture of health one day, and next morning its leaves may have changed from bright green to a dull purplish brown. This happens after a few days of hot, close weather, or perhaps on the return of sunshine after two or three days of drizzling rain, and when the change of colour has taken place the mischief is done and remedial applications will be too late. Possibly cutting off the stem and burning it might save the bulb. The more delicate Lilies are by no means the only sufferers. A bed of *L. bulbiferum* has been badly hit this season, and on taking up the bulbs many were found discoloured and some quite rotten.

Too much wet at the root may also be a cause of damage, and this brings me to my chief reason for writing, namely, to reply to "Delta's" inquiry about *L. Humboldti*. After twice purchasing bulbs which never condescended to appear above ground, I invested in the variety *oscillatum*, it being said to have a better constitution. This, planted in a pot, wintered in a cold frame, and afterwards placed in the open, flowered well; but one day, when it was at its best and the chief ornament of the drawing-room, it suddenly collapsed. Water had accidentally been allowed to stand in the saucer under the pot, and this had no doubt caused the mischief. I did what I could for the bulb, but though it has kept alive for two years since, it has never been itself again, and I hardly expect it to come up next spring. I have also raised same half-dozen *L. Humboldti* from seed. These, so far, have done well. They have

flowered now for two seasons, last year strongly; but the ominous brown appeared on the leaves about August, and I shall look anxiously, and not without some misgiving, for the shoots in spring. They are planted in the open garden in sandy loam, with a considerable addition of leaf soil and some peat. From what I have said, I think it is clear that this Lily requires good drainage. It is one of the handsomest—if not the handsomest—of the Americans I know, though I am very fond of the little *L. philadelphicum*, and also of *L. Parryi*, which last does well with me.

Can anyone say what treatment will ensure *L. Wallacei* flowering freely? It will increase to any extent, but except in 1887, when every bulb sent up from three to five flowering stems, it has been very shy. Last year there was not a single flower, which I attribute to the wretched summer of 1888. By some it is set down as a variety of *L. elegans* or *Thunbergi*, but to me it seems to be nearer akin to the Tiger Lilies.

Deep planting is sometimes recommended for Lilies, but I am inclined to doubt whether more than 6 inches is advisable, even for those which make roots above the bulb, unless where the summers are both warmer and longer than we can boast in North Notts.

I have seen old clumps of *L. candidum* doing well when the bulbs were pushing each other out of the ground. For the majority the open ground is better than pots, and with, perhaps, a few exceptions, a soil holding a fair amount of moisture, but at the same time thoroughly drained, is what is wanted. Given this he will succeed best whose happy lot is cast where the zoospore abstains from troubling, and the oospore remains at rest.

Workshop.

JAMES SNOW WHALL.

The "Compact" Musk (*Mimulus moschatus compactus*).—I planted a long line of this new introduction in May last; the plants were raised from seed sown early in the spring, and when first planted were very small. They quickly established themselves, but although seedlings, the compact growth was excellent throughout, with no reversion to the old type. I think this Musk has a good future in store for it as an edging plant, especially where the means for keeping and propagating more tender things is not of the best. To the amateur and for all small gardens it will prove to be an acquisition in this respect, as it will also do by reason of its colour, which is the same as in the common kind. It will make a pleasing change to that too oft recurring plant in nearly every garden—the Golden Feather. I have not yet tested its hardiness, but have no doubt it will keep through the winter equally as well as its parent. I planted it in association with *Nemophila insignis*, and the effect of the two colours was all that could be desired.—J. H.

Lilium candidum.—On reading the interesting articles in THE GARDEN on the culture of Lilies, I thought of a cottage garden where the above grows remarkably well. It is near the seacoast, and the soil of the garden is composed chiefly of sand. Underneath there are 20 feet or 30 feet of sand, washed or blown there perhaps many centuries ago. But the cottager is often ahead of the gardener, so-called, with this beautiful Lily; it belongs to him in a sense. Why does it do so well with him? In the first place, if a plant does not do well with the cottager and take care of itself for a good part of the year, then it

may die. As a rule, the beds in cottage gardens are well raised above the level of the ground, thus ensuring good drainage. If there is one thing that a cottager believes in more than another, it is that the ground must not be allowed to get hard. The beds being small, there is but little treading, while ashes being almost the only thing used for protection, when forked in they also help to keep the ground open. Then the manure used is placed on the surface around the plants, and gets sweetened before it enters the soil. The above will not explain all the failures in connection with this Lily, but may be worth a little consideration. The best time to plant *Lilium candidum* I believe to be just after the new leaves are formed. I planted two dozen bulbs this summer in that state. It was not long before they made a good start, and they promise to do well; the centres now are about 1½ inches long. Only once in twenty years do I remember them having lost their leaves just before flowering, and then the flowers did not entirely fail.—M. E., Cornwall.

SPRING CROCUSES.

EVER since I have been interested in spring Croci I do not remember having seen so many in flower in January as there are at the present time. The fine, open, and beautifully mild sunny weather we are having just suits the Crocuses, the beds and borders of which are as gay as they usually are a month or six weeks hence. During the last week the ground with the yellows and purples especially was literally covered with their wide open flowers. One of the very best is the old various-coloured *C. Imperati*, which, in addition to being one of the most free-flowering, is one of the easiest to manage, and flourishes where many of the others would fail. It is a good species for exposed situations, doing well under trees or amongst Grass. The best and surest for the latter situation, however rank the Grass may be, is the old *C. nudiflorus*. This species has escaped from gardens and naturalised itself in a few of the midland counties, where it is said to flourish and increase even under not very favourable conditions. Its weak tube requires something to hold it up when in flower, and long Grass serves this purpose very well. The flowers are large, of a rich purple, and last a long time.

C. BILLOTTI is a comparatively rare species, a native of Kroom, near Stauros, and stands our winters well. It is nearly allied to the handsome *C. ærius*, the flowers being of a rich purple with a darker blotch near the throat. *C. vernus* var. *obovatus* has the most flowers open. The blooms are very large, but of a pale washy purple, not a very striking form. *C. Sieberi*, a Grecian species, with its uniform bright lilac flowers, is a very desirable Crocus for spring beds. *C. ancyrensis* is a pretty little species with bright orange flowers, but it does not bloom freely. *C. alata*, with its large white flowers coated with pale buff on the outer face, is a very striking kind and a most useful one for spring flowering. It is a native of the Ala Tau Mountains, in Central Asia, is perfectly hardy, and though it does not increase with such rapidity as *C. Imperati*, it appears perfectly at home. The white variety is rarer, but perhaps a less desirable Crocus.

C. VITELLINUS, found by Mrs. Danford in the Taurus, is a very bright little species, the flowers orange with no stripes. There appear to be forms with bronze markings on the outside. *C. Korolkowi* has a great future before it as a perfectly hardy Crocus. We have some large corms with as many as six to eight flowers, orange-yellow suffused with brown on the outside. It is a native of Western Turkestan, and grows well almost in any situation. *C. chrysanthus* with the varieties *fuscotinctus* and *fuscolineatus* will soon be at their best. K.

Pansies from seed.—In these days of the Pansy disease, the most satisfactory method of getting up Pansies, where large numbers are required, is from seed. This, of course, must be a good strain, and should be sown in February as early as possible in a frame with a gentle bottom-heat. They will be ready for pricking off in April

and planting out in May. They will commence to bloom almost immediately they are planted out, and will continue for two or three months, no matter what the weather may be. Plants from cuttings will not do this. To those then who admire Pansies in their many varied forms and wish to grow them largely, this method should commend itself, and I can assure them the results will surprise them if they have not tried it before, provided, as I said at the beginning, a really good strain is grown. These remarks apply with equal force to tufted Pansies.—JUAREZ.

RELIABLE LILIES.

I HAVE no desire to decry the merits of such a fine Lily as *auratum*, but I have often thought that if much of the labour and expense incurred in the endeavour to coax it into longevity and vigour were given to the really hardy reliable kinds, the results would be more satisfactory to the grower and gardens would gain in attractiveness. It is only under exceptionally favourable conditions that *L. auratum* will last for any time in health in the open ground, and, judging from "A. D.'s" experience with bulbs raised from seed in this country, it does not seem that home-grown bulbs are likely to exhibit greater powers of endurance than imported ones. There are few more reliable and effective hardy flowers than the Tiger and Orange Lilies, but I venture to assert that very few have an idea of their stately beauty when at the highest point of development. Too often they are dotted about among shrubs where they get parched and sunburnt, and where the beauty of the flowers is very fleeting. Being such old inmates of our gardens, they are too often considered unworthy of the careful preparation of the soil that is accorded to many things that are not half so beautiful. In thoroughly preparing a suitable position for these Lilies one has the satisfaction of knowing what the results will be; whereas, with all the care that may be taken with *L. auratum*, the results are very uncertain, and even if they are good for a season, the following one generally brings disappointment. Only let the roots have a free run into 18 inches of good loam with a position chosen with a view to shelter from high winds and the fiercest heat of the sun, and these Lilies will throw up stems as thick as a fishing-rod and to the height of a tall man. The size of the flowers, too, and their colour will be in proportion to the vigour of the stems. I have seen *tigrinum splendens* with stems 7 feet high and with flowers in proportion. By grouping these Lilies their effectiveness is much increased, and it is naturally more practicable to meet their wants than in dotting them about half-a-dozen bulbs together in the mixed border where they are liable to be disturbed; whereas neither spade nor fork should disturb their repose when once happily placed. There is one way in which these hardy Lilies may be used, and that is in combination with hardy Azaleas. These, unlike *Rhododendrons*, do not grow very tall, and the Lilies have no difficulty in pushing up among them. I have seen them employed in this way and thought the arrangement admirable, as the Azaleas bloom early, and later on the Lilies supplement them with their bright tints. With the large number of varieties of *Thunbergianum* and *davuricum* the majority of hardy flower growers are probably unacquainted, and although they are not quite so vigorous as the Orange and the Tiger Lilies, they are sufficiently reliable to encourage their cultivation. Many of the kinds may be rather too much alike, but variety is nevertheless there, and to those who may have hitherto busied themselves with the not-easily-to-be-pleased species of this family and with the scant success that appears

to attend so much of the work done in this way, I would say turn your attention a little to such as will surely richly reward good cultural care. Not that I am wishful to discourage manifold attempts to solve the mysteries that attend the successful growth of any Lily. We have probably much to learn about them, and some things that trouble the present generation of Lily growers may even yet be revealed to them. Many, like myself, have seen what good work has been done by Mr. Wilson in his garden at Wisley, and the only fault that one can find with him is that he does not give quite enough occupation to the printer. This famous Oakwood garden is open to all, but so many are too far from it to avail themselves of ocular demonstration. In a recent issue of *THE GARDEN* "Delta" records his failures in Lily culture. What a book that would be, and how invaluable to lovers of these noble hardy flowers that would contain the record of Mr. Wilson's successes and failures through the long period in which he has been growing them all the more invaluable because, as he once said, "I know now what they want."

I think, however, that there will always remain something inexplicable in the likes and dislikes of some Lilies. I know, for instance, a garden where *speciosum* will not live. Imported and home-grown bulbs have been tried, all with the same result, and yet *auratum* thrives there with little or no care. Some old bulbs broken up and the scales thrown down at the foot of a hedge made nice bulbs. In another garden, not far distant, *speciosum* grows like a weed, soil apparently identical. How can such discrepancies be explained? Is there, I wonder, a future for Lily growers that those of the present time can but dream of? Will there one day exist a race of Lilies varied in tint with the size and fragrance of *auratum* and the hardness of *tigrinum*? Lilies, except in rare instances, seem to have baffled the hybridiser's art in the creation of quite distinct types, and there appears to be an opinion that the mingling of certain species is out of the bounds of practicability. But Orchids were long grown before the first hybrid appeared, and that was a wonder to the horticultural world. Surely what has been done with Orchids should encourage work in the same way with Lilies. J. C. B.

Arum Lilies in the open air all the year.

—This Lily possesses many claims to the lover of a garden, as few plants will bear such varied treatment. I have seen the roots shaken out of the pots, and left out in full sun without the least bit of soil or covering for weeks in summer. When taken up and potted in autumn they grow as well as ever. This Lily is often met with in hothouses, being forced in a very high temperature. Last winter when visiting a friend in the neighbourhood of Bath, I observed he had some pots of this Lily standing in hot-water troughs in a temperature of 75° to 85°, in order to obtain the blooms by a given date. The plants seemed to enjoy their hot-water treatment very well, and the blooms were obtained in time. It is as a plant for open ponds and tanks that I wish to draw attention to it here. In these gardens several clumps have been standing unharmed in running water in two different positions during the whole of last winter. One position is a north one, the other is in a small pond in the centre of the kitchen garden; here the water is continually running through a pipe. In both situations the Lilies are planted from 12 inches to 18 inches deep. Although cut to the water-line by frost they came up again in spring. They commenced blooming this spring early in May and we could obtain blooms from them during the whole summer till destroyed by frost this autumn. The blooms are not so large as those produced from highly-fed plants in pots, but still they are very useful. There are many places where Callas would make quite a distinct

and beautiful feature if planted in water. These and the Water Hawthorn (*Aponogeton*) associate well together. I observed this Lily blooming freely in the open in December, 1888, at Torquay. Some remarks have been made of late in *THE GARDEN* on planting out and pot culture for this Calla. My experience is, that if specimens with large leaves and large flowers are required, then planting out is the best, but if a quantity of blooms in a small space is desired then single crowns should be grown in pots.—DORSET.

HARDY FLORISTS' FLOWERS.

THE GLADIOLUS.—An extensive trade grower remarked to me that he believed the reason of the degeneration of this fine autumn-flowering plant in England was owing to the corms being kept too long out of the ground. I cannot say whether this is so or not. Some of the corms are out of the ground quite five months, but this cannot matter much, as they are usually plump enough at the time for planting them out. Those who are thinking principally of a good array of vigorous spikes for exhibition about the end of August or early in September will plant out from the middle of March to the second week in April in well manured and deeply trenched soil. The manure should be well decayed and at least 6 inches under the surface, and, what is also of much importance, the trenching should be done in the autumn when the ground is dry, and planting out ought also to be seen to in dry weather. During the present month I pot a few dozens of the varieties of *G. gandavensis* that usually flower early, one bulb in the centre of a 5-inch pot, plunging the pots in a cold frame (cocoa fibre refuse is the best plunging material). These will have grown considerably by the middle of April and may be planted out at that time on a warm sheltered border. We plant out seedlings that have not flowered at any time when the weather is fine and the ground dry from the middle of February until the middle of April. The Gladiolus is so valuable for room decoration, that every gardener is careful to have a succession of it for as long a period as possible. I may add that seedling corms not larger than an ordinary Hazel nut will produce fully developed spikes. I have had them grow 5 feet in height from such.

THE PANSY.—One cannot do much to these charming spring-flowering plants at present where they are planted in beds or borders, yet it will not do to leave them altogether to themselves. In frosty weather they seem to be safest, as slugs and other depredators cannot get out of the ground to feed upon the tender leaves. When a thaw comes after frost the slugs are ravenous for food, and may be found at night greedily devouring the leaves and clearing off the early flower buds. If the plants were not set out early the previous autumn, their hold of the ground will not be sufficient to prevent some of them being thrown out root and stem; these must be pressed in again, and it may be desirable to surface-dress the ground over the roots with short decayed manure. A few of the choicest varieties of Pansies may be grown in pots, but these should have been potted into their flowering pots not later than the first week in October. Such plants if placed in a cold frame in a sunny sheltered position would be in flower in February. The plants should be quite near the glass, and a mat thrown over the frame on cold frosty nights will prevent the open and opening flowers being injured. In frames, as out of doors, a watchful eye must be kept for slugs.

THE PINK.—As far as the culture of the plants is concerned out of doors, there is no difference between them and the Pansies; the treatment is the same in all respects. The forcing Pinks are very beautiful when well cultivated. This is, of course, a matter of the previous summer. If the plants were not grown into a goodly size last year and are now well established in pots, it is not possible to have a good head of bloom from late propagated or late potted plants. The plants should not be placed in a very high temperature at first, say 45° to 50° as a minimum to begin with, and they should be as

near as possible to the glass. The severe frost has afforded us an opportunity to get ready sticks, pegs, &c., for use in the summer. The sticks should be cut out of good deal timber. Those for Carnations should be about 2½ feet in length, and for Pinks 15 inches to 18 inches long. We either purchase them ready made or cut them out of double laths; but I have found that the laths cost about as much as we can obtain the ready-made article for. They ought to be painted green.

THE TULIP.—These are just pushing through the ground, and to keep them safe we have put a good layer of dry short manure over the surface. Our uncertain climate is about as unfavourable to Tulips as it is to most of the old garden favourites. They would take no harm, however intense the frost might be, if we could have a continued frost, but it may last for a week or less, to be followed by a period of mild growing weather which suddenly alters again to frost, and this we can only fight against by means of artificial shelter.

J. DOUGLAS.

DELPHINIUMS AND HERBACEOUS PHLOXES FROM SEED.

I AM writing for the purpose of recommending the practice of raising the foregoing flowers from seed. I know that it will be objected that the practice is scarcely required, because there are now so many fine varieties of each in cultivation that it would be very difficult to improve them, and therefore it is a work of supererogation to attempt to raise seedlings. My reply is that, notwithstanding what has just been stated, the practice is a very pleasing and interesting one, full of surprises, with an amount of uncertainty about the results that makes the work positively fascinating. One never knows what floral gem may come from a batch of seeds, but every raiser of seedlings should save seed only from the very best varieties, so as to make it probable that high-class flowers would result.

Seed of herbaceous Phloxes and Delphiniums should be carefully gathered, dried, and kept in closely-corked bottles, because both soon lose their germinating force if exposed to the atmosphere or allowed to become damp. Both will germinate best in the open ground, and the best method of sowing is to make a ridge about 4 inches in height, draw a drill along it, and sow the seeds in spring, covering to the depth of 3 inches or so. In about two months the seeds will germinate, and as soon as the plants are large enough they should be planted out in the nursery beds, where they will flower the second year. The foregoing directions apply to both Phloxes and Delphiniums.

The beauty and duration of the herbaceous Phlox as a border plant are universally acknowledged. A selection of bold and showy, as well as strong-growing varieties will be found in A. F. Barron, Duke of Sutherland, Earl of Rosslyn, Flora McNab, Gloire de Neuilly, George Grieve, John Forbes, J. K. Lord, Mme. Marie Saisson, Mme. Bonneau, Marchioness of Lorne, Mrs. Turner, Perfection, Star of Bath, Souvenir de Berryer, and William Bull.

It might be objected that most of the foregoing are old varieties, but they are names I took from a collection growing in the open air, and it does not naturally follow that they are improved upon by varieties of more recent date. It is superfluous to name varieties of Delphiniums, because so many seedlings are raised and named every year; but such remarkable advances have been made in the perennial Larkspurs of late, that I would advise anyone to get a few of the newest varieties from some raiser of note, and save seed for the purpose of raising seedlings. Raisers with limited space at command should not attempt too much. It is better to raise only fifty seedlings from a really good strain than five hundred from an indifferent one.

R. D.

The Lyre Flower (*Dielytra spectabilis*).—When encouraged to develop into a good specimen this is a grand border plant. It occasionally gets cut by spring frosts and should be planted in sheltered situations, especially in cold districts. Last year the spring was free from severe frosts, and in several gardens near

where I am writing I saw the *Dielytra* in grand form.—E. H.

Early-flowering Snowdrops.—I observe "E. M." in GARDEN, Jan 4, speaks of *G. Elwesi* opening its blooms on Dec. 23 at the foot of a south wall. On going around our grounds on Christmas Day I observed our first bloom was just opening. A week later I noticed several almost open. On the 7th of January I could have gathered a nice bunch of blooms. In our case the bulbs are situated where they obtain not a gleam of sunshine, they being under some large trees on the edge of a bank. No doubt the dry position is the cause of early blooming, as I observed that the bulbs ripened off their growth early in the season last year. Some bulbs here in the kitchen garden at the foot of an east wall will be a fortnight later in coming into bloom.—JOHN CROOK, *Forde Abbey*.

Origin of British plant names.—The discussion which has taken place respecting the derivation of the common appellation of the Anemone (*Windflower*) naturally leads to a desire to know something as to the origin of common or British plant names. To readers who are neither scholars nor botanists it would seem as if the term "*Windflower*" were given to the Anemone (of course, our native variety) because of its facility for turning its back to the wind when it blew hard. Is it not probable that ancient Britons called the Anemone *Windflower*, as so clearly indicating which way the wind blew, centuries before the now popular botanical appellation of Anemone was ever heard of? There are myriads of our common flowers which have common names doubtless as old almost as the plants themselves. What more natural, then, for the unlearned to call the *Campanula* Bellflower, without regard to Greek roots or Latin derivations? It would be difficult to find any connection between *Viola* and the ancient common term of the Pansy, Heartsease, now so generally corrupted into Pansy, and yet not nearly so pretty. How on earth did the sweet-scented large forms of *Mathiola* get the odd designation of Stock, or the *Dianthus barbatus*, Sweet William? How ancient also are these names. Here is a wide field for inquiry open to those who have time and means of research. It is not enough to know how old such appellations are; what we want to learn is why so applied. That common appellations have always been popular is evident from the fact that they have endured for centuries. The scholar who looked for derivations of Stock or Sweet William, for instance, to Greek or Latin roots would, I think, make a grave mistake.—A. D.

RAINFALL, 1889.

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which 0·1 or more fell.
	Inches.	Depth.	Date.
January ...	0·65	·34	9
February ...	1·58	·70	10
March ...	2·62	1·17	8
April ...	3·92	·73	8
May ...	3·23	·62	24
June ...	0·43	·17	1
July ...	1·82	·46	20
August ...	2·97	·60	9
September ...	1·66	·98	23
October ...	3·05	·53	27
November ...	1·02	·23	24
December ...	1·70	·42	6
	24·65		151

—WILLIAM CRUMP, *Madresfield Court Gardens*.

Soot for lawns.—I am very much surprised that soot is not more used in cleansing and renovating lawns. Lawns that are liberally sprinkled with it at this season will be remarkably free from worm casts, which often prove so troublesome and unsightly, and when the soot-dressed surface begins to grow in spring it will assume a very dark green appearance, not obtainable from any other dressing. Soot produces all the good results of manure without exciting an over-

luxuriant growth, which is not desirable on lawns, and it should be used largely wherever real velvety lawns are desired. At this season it does not matter what the weather is when it is put on, as the moisture in the ground will soon absorb it.—J. MURK.

NOTES OF THE WEEK.

Galanthus Elwesi and several of the *G. nivalis* varieties, such as *poculiformis*, &c., are now fully open, being quite a fortnight earlier than they were with us last year. *G. Imperati*, *caucasicus*, and the small-flowered, but welcome *G. Fosteri* are also in bloom.—K.

A pretty arrangement in the greenhouse at Kew is a group of blue and blush-coloured *Hyacinths*, with pot plants of the Siberian Squill as an edging. Throughout the season many choice arrangements of forced bulbs, the colours well contrasted, may be seen at Kew.

A good late **Chrysanthemum** is *Maggie Mitchell*, a Japanese variety, which is a plant of bushy habit, covered with flowers, white, suffused on the outer surface of the florets with lilac. There are two specimens of it in the temperate house at Kew, one only just coming into bloom.

Callas from Sewardstone.—Beautiful blooms of the *Arum Lily* (*Calla aethiopica*) have been sent us by Mr. Melles, Sewardstone Lodge, Sewardstone, the spathes unusually fine, and the leaves of great vigour. We should like a few details as to the culture that has produced such excellent spikes.

Rhipsalis salicornioides is a curious member of a strange genus. It was introduced in 1830 from Brazil, and a plant may be seen in bloom in the Cactus house at Kew. The habit is dense, the thin shoots terminated with yellow flowers, which are bright and showy. Those who like Cactuses should have this *Rhipsalis* in their collection.

Iris reticulata.—Amongst this group the most noticeable just now is *Iris Bakeriana*. The flowers are pale blue or lilac, the tips of the sepals dark velvety purple with numerous spots or blotches of the same tint down the claw. The type *reticulata*, ever bright and welcome, as also *I. sophonensis*, a variety of inferior colour, are also in flower.—K.

A good winter-flowering **Honeysuckle** is *Lonicera Standishi*, which is flowering freely against the museum facing the pond in the Royal Gardens, Kew. It is not strictly a climber, but may be so treated, and in every good garden there should be a plant or two of it. The flowers are white, deliciously scented, and produced in profusion. It may also be grown as a bush in the shrubbery.

The winter **Aconite** is one of the prettiest flowers in the Royal Gardens, Kew, at this season, and a good use is made of it by planting it freely on the rockery, at the foot of trees, and in the small beds planted with standard Roses. One bed is remarkably beautiful. It is planted with the Siberian Dogwood (*Cornus sibirica*), whose brilliant red stems are in rich contrast to the carpet of yellow flowers on the soil. Such a simple flower as the winter Aconite deserves to be more freely planted. We can go into many good gardens without seeing a single flower of it.

Galanthus Umbricus.—I have from several sources a Snowdrop under the name of *Galanthus Umbricus*, but which I find is only our old friend, the common Snowdrop. I am told that the bulbs were received from Italy under the above name, and suppose they have been collected in the district of Umbria, and sent out under that name as a new species. I have long deplored this kind of thing, as it adds to the many difficulties already existing, and may often be the means of retarding, rather than increasing a love for these little hardy gems "that come before the swallow dares."—K.

Apple Blenheim Orange.—Mr. Hibberd, who was, we think, unjust to the Blenheim, has, however, something interesting to say about it:—

The Blenheim is fastidious in respect of atmosphere as well as soil. On heavy land near London it rarely attains to fine quality, either without or within, having little colour and a poor flavour. In its home and all around Oxford it is grand; it is even more grand in some gardens in Hampshire, and has actually been named Beauty of Hants on account of the splendour of samples grown in that county in gardens near the sea. Another Blenheim district is in the neighbourhood of Reading, where it attains its largest size and finest quality on trees that from the day they were

planted to this hour have scarcely been touched by the pruning knife.

We will say a little more, that it is the best Apple that grows in English soil. It must be the task of British gardeners and orchardists to overcome its slowness to bear by trial of different stocks.

Early spring flowers at Long Ditton.—*Narcissus minimus* commenced flowering at Long Ditton on the 9th of January. Autumn-planted bulbs of *Anemone fulgens* are now flowering, and a large crop of buds is expanding daily. *Galanthus Elwesii* has been flowering since Christmas. Winter-flowering *Crocuses* are most beautiful when the sun shines upon them.—P. BARR.

Bramley's Apple.—We have some of this Apple from Mr. Merryweather, of Southwell, and desire to say a few words in favour of it, as a really fine late fruit, good to cook, large and handsome, keeping a rich, sharp flavour long. In a plantation we have made of the tree in not favourable ground, the growth, as compared with that of the best Apples, is the most satisfactory. Not long and over-vigorous like young Blenheims, or warped and poor like some others, but a fine, vigorous, yet balanced growth.

Jasminum gracillimum is a beautiful indoor Jasmine that is not often seen growing well in our stoves, but when in full beauty there are few flowers so worthy of the name of *gracillimum*, or of such a sweet fragrance that pervades even a large house. There is a specimen in the stove at Kew with each of the slender branches wreathed with the white flowers, which are produced several together in clusters at almost every joint in the stems. We have here a ready-made spray that only wants a little greenery to set off the purity of the flowers. The plant is in a pot and trained up one of the pillars, which it hides with its graceful growth and profusion of bloom. It is not an old species, having been introduced from Northern Borneo in 1881, and requires similar cultivation to other stove Jasmynes.

Double Cocoa-nut.—At a recent meeting of the Royal Botanic Society a specimen of the double Cocoa-nut or Coko de Mer, now known to come from the Seychelles, a small group of islands in the Tropics, was presented to the museum. For some hundreds of years these nuts have been occasionally found washed up by the sea, where their extraordinary appearance, large size, and mysterious origin gave rise to many stories of miraculous virtues in the cure of diseases; some are even said to have been sold for their weight in gold. This specimen had belonged to General Gordon, and was given by him to General Gerald Graham, by whom it was presented to the society.

Epacris.—The *Epacris*, like the Heath, has fallen into disfavour, but we suppose the time will come again when both plants will receive the attention that was given them a few years ago. At Kew these never have been cast out, and at the present time there is a number of the best varieties in various sized pots, some of the larger specimens showing a wealth of bloom that is most welcome at this season. The best varieties are *Hyacinthiflora*, Walkeri, bright crimson; *Sunset*, pale pink; *Bride*, white; *Devoniensis*, bright cherry-rose; *Vesta*, white; *Salmonia*, salmon-pink; *Hyacinthiflora candidissima*, one of the best of the white kinds; and *Lady Pamure*, white. *Epacris* quickly suffer from want of attention. Once the soil gets dry and the plants flag, it is difficult to restore them to their former health.

Snowdrops.—Here the first blooms of the common Snowdrop (*Galanthus nivalis*) made their appearance on January 6. We have large numbers of Snowdrops growing on the Grass, where they look well, the Grass forming a nice setting for the foliage and flowers, which do not get splashed with soil from heavy rains as they do when the bulbs are growing in the borders. Anyone who can do so would do well to devote a spare piece of Grass to the growth of bulbous plants. The great point in their well-doing is to allow the foliage to die off naturally before mowing the Grass. It is surprising how quickly the bulbs of Snowdrops increase when

not interfered with. Ours have been in their present position for fifteen years—how much longer I cannot say—and yet they show no signs of failing vigour, as they flower freely every year, requiring no attention beyond care to see that they are not disturbed in any way.—SOUTH HANTS.

The first Daffodil.—Our earliest Daffodil this season is the true *Ajax minimus*, now in flower along with the cyanean variety of *Iris reticulata* and *Iris stylosa alba*. *N. pallidus præcox* and *N. Regina Margherita* are in bud, and several Snowdrops are in full blossom, such as *Galanthus Umbrius*, *G. Imperati*, *G. nivalis pallidus*, *G. Elææ*, the last a new discovery made on Mount Athos last year. *Crocus Imperati*, *C. Sieberi*, and several others are also in flower or bud.—F. W. BURBRIDGE.

The Tenby Daffodil is already in the market, which will soon be as gay as in spring by reason of the large supplies of flowers received from France and the Scilly Isles. The Tenby Daffodil is one of the sweetest flowers of its race, its exquisite shape, compact, yet not formal, and bold, rich yellow colour fitting it for many choice arrangements of cut bloom. It is more eagerly sought for than even the Paper-white *Narcissus*, which is, however, commoner, through greater quantities being received. The foliage of the Mahonia, rich glossy brown of various shades, is the best for using with this early Daffodil, as it is for *Chrysanthemum* flowers. A spray made up of the Daffodil flowers and Mahonia leaves was a happy piece of colour effect—rich, decided, yet soft and harmonious.

Tulips.—Mr. Douglas, in THE GARDEN, Jan. 4 (p. 6), does not seem to have grasped my meaning when I asked where the new Tulips come from. I was perfectly aware that many new Tulips (seedlings of *Gesneriana*) were raised annually by Tulip fanciers. But when do they ever raise one like *T. vitellina*? In asking where the new Tulips were coming from I was referring to these garden hybrids to which I have every reason to believe *T. vitellina* belongs, and of which, so far as I know, no authentic information is on record. We have such Tulips as *elegans*, *fulgens*, *macrospila*, *maculata*, and many others that have long been inmates of our gardens, but about the origin of which we know next to nothing, and can only guess at their probable parentage. There is a vast difference between the Tulips Mr. Douglas refers to and that lately figured in THE GARDEN.—D. K.

Christmas Roses at Bromsgrove.—It is really wonderful that there are hundreds of gardens in England where the Christmas Rose is unknown. Taking all its merits into consideration, its facility of cultivation, its hardiness, its beauty, and the time of its blooming, I have no hesitation in placing it in the very front rank of hardy flowers. Ever since the end of October we have had abundance of its pure and beautiful blossoms. The first crop came from some large plants which were lifted from the open ground and placed in large pots just outside the drawing-room windows. Finding the weather rather windy and generally unfavourable, I removed the pots to a cool greenhouse, where they gave a large quantity of snow-white blossoms for five weeks. By the time they had finished blooming the open-air plants were in full beauty, and gave over 400 blooms on December 21. I have now just returned home, after a fortnight's absence, and find literally thousands of flowers in perfection. The plants are in many cases 31 inches across, and almost solid sheets of flowers. Good loam, a little peat, and plenty of manure are all that they require; once planted in this, all they ask is to be let alone.—H. M., Bromsgrove, Worcester-shire.

Iris Bornmulleri is the name of a new *Iris* in flower just now at Kew. It was distributed by Herr Max Leichtlin, of Baden-Baden, who is said to have received the bulbs from Armenia. *I. Bornmulleri* is very like *I. persica* in habit. It has the same solitary flowers, with a long tube, almost hidden by the several overlapping spathes. The flowers, not very large, are bright orange-yellow, with brown spots on the outer segments, and slightly bearded. The three inner segments are represented by very

small narrow filaments, not readily noticed when looking casually at the flowers. This is most extraordinary in an *Iris*, and is the only case known to us of the entire or almost entire abortion of the petals. It is said to be nearly if not the same as one collected by Mrs. Danford on the Sicilian Taurus and named *Xiphion Danfordiæ* by Mr. Baker in 1876 (*Journal of Botany*, page 265). It is a decided acquisition to our spring flowers.—K.

***Chrysanthemum* shows of the future.**—The discussion on big *Chrysanthemums* in THE GARDEN, and the wretched way of showing the flowers generally have stirred up schedule makers and those who wish to relieve the dismal monotony of flower shows. A meeting of those interested in the *Chrysanthemum* was held the other day, and from the remarks of the speakers it is evident there is a strong desire to alter the lumpy style of groups and encourage what we are pleased to call naturally grown plants, in which we have the full beauty, expression, and elegance of the flower. One speaker was bold enough to say there should be a class set apart for flowers not fed and dressed. It will be interesting to see whether those who make the schedules take heed of the desire to reform the present formal style of exhibition, but it is hard to alter existing lists of classes, which remain the same from year to year, and to make even a slight alteration is a radical step decried by the special group who grow simply to obtain prize money. It is not their wish to interfere with the big bloom craze when it means a reduction of £ s. d.

Freesias are worth a note now in the greenhouse at Kew, where there is a beautiful group of *refracta* and *Leichtlini*, whose flowers fill the house with a sweet fragrance. A coloured plate of *refracta alba* and *Leichtlini major* appeared in THE GARDEN for July 29, 1882, and these are two of the best forms in cultivation. The most common and the best is *refracta alba*, which is usually absolutely pure white, though occasionally marked by a few violet lines, and an orange colour on the lower segments of the corolla. *Leichtlini* has a more open throat and yellow in colour, varying in intensity, and the orange colour on the segments is deeper. *F. aurea* has, we believe, flowers of a deeper colour, but if in cultivation, it is little grown, and *F. odorata* is the same as *refracta*. *Freesias* are easily grown, but it is not everyone that seems to succeed with them. It is important to well roast the bulbs when the leafage commences to wither. Loam and peat or leaf-mould, in equal parts, with a dash of sand to keep it open, suits *Freesias*.

Arrangements of cut flowers are not always so wanting in tastefulness and due regard to harmony of colour as the few bouquets recently shown at the Royal Aquarium, but it is seldom flowers are well arranged and the various tints happily distributed. The bouquets are lumpy, containing twice the amount of material necessary, and the flowers, hidden by Fern fronds or *Asparagus*, fail to display their individual charm and beauty. Some of the most charming arrangements are the sprays worn by ladies. Some pretty and simple designs are to be seen in the florists' windows, and especially tasteful is a spray made of the deep rose-purple flowers of *Helleborus abchasicus*, or one of the later-flowering *Hellebores*, backed with the rich bronzy-red foliage of the Mahonia. The contrast of colour is quiet and pleasing, quite as much as in another "spray" made with white or cream coloured *Roses*, backed with the same leaves, with here and there a Grass, so as to make a soft veil over the flowers, but not sufficiently dense to hide them. A flower much used now is the *Clivia*, but it must not be overdone, its strong colour making a garish and vulgar mixture, especially when used with the bold yellow of the Tenby Daffodil, an early variety in great favour at this season. A beautiful spray can be made with the Neapolitan or Marie Louise Violets, backed with the richly veined and coloured leaves of the common Ivy. The "sprays" and button-hole bouquets are quite free from the lumpiness and coarseness of the fashionable bouquet, and in very few cases is more than one flower brought into requisition.

THE LODGE, BROAD HINTON.

THE view taken by the Rev. John A. Lloyd, vicar of the parish, in the garden of The Lodge, Broad Hinton, Wilts, the residence of Mr. J. W. Brown, is looking eastward through an opening between some fine Firs, and shows one of the white horses of Wiltshire cut in the chalk on the Hackpen range of downs on the road to Marlborough, to commemorate the Queen's accession in 1837. Box, Ash, and Beech trees do well on the chalk; and the garden has a pleasant walk under some sheltering Beeches made gay in spring by large quantities of Snowdrops growing at their roots, the trees affording a very needful protection from the keen blasts which sweep along the downs. The house and garden stand at an elevation of 630 feet above the sea,

resting monuments of the Wroughtons, Sir John Glanvil, Speaker of the Short Parliament, and the great Duke of Wellington, formerly lords of the manor.

STOVE AND GREENHOUSE.

SANCHEZIA NOBILIS.

I SHOULD much like to see the order of Acanthads again become popular as ornaments for our stoves, and I intend from time to time to call attention to some with the hope of bringing them again to the front. It is astonishing what a bright display these plants make, and some

lateral also, and are enclosed in crimson bracts at the base, the flowers themselves being tubular, each some 2 inches long, and rich deep yellow in colour, the lobes at the mouth being reflexed, and the stamens exserted. The culture of the plant is very simple. The drainage must be good, and the soil should consist of turfy, light loam, good peat, and leaf-mould in about equal parts, the whole made fairly sandy. The temperature of the stove is necessary to its well-being, and the atmosphere must be well charged with moisture. In addition, a liberal supply of water should be given at the roots, and frequent syringing will be necessary to keep insects down. I am surprised that such a beautiful plant has not become a permanent resident in our stoves, and I fear at the present



View in the gardens at The Lodge, Broad Hinton. Engraved for THE GARDEN from a photograph sent by the Rev. John A. Lloyd.

and a very fine Box hedge surrounding the kitchen garden to the north-east makes an otherwise bleak aspect suitable for growing early crops. Wall fruit does not prosper, and most kinds of Apple and Pear trees are very liable to disease, seldom attaining to any great size and rapidly falling into decay as soon as the roots arrive upon the chalk. Water, as in other places of high elevation, is procured with difficulty, the wells averaging some 150 feet in depth. Rain-water has, therefore, to be carefully stored and sparingly used in the gardens. Five miles from the range of downs seen in the distance are the celebrated stone circles of Avebury and the enormous artificial mound called Silbury Hill, both of which interesting memorials of the past are scheduled in Sir John Lubbock's Preservation of Ancient Monuments Bill. In the ancient parish church hard by are some inte-

may be had in bloom at all seasons, while not a few serve to brighten the stove during the dulllest and most dreary months of the year. The plant named above is one of the most gorgeous of the family. It and a variegated variety named *S. nobilis variegata* were introduced from Ecuador about twenty-five years ago by the Messrs. Veitch and Sons, of Chelsea. Both the species and its variety are identical, saving that the typical plant has rich deep green leaves, whilst those of the variety have a deep green ground, the mid-rib and all the primary nerves being broadly marked with bright rich yellow and the margins also of the same colour. The shoots all produce a terminal spike of flowers which are very ornamental in the species, backed by the green leaves, but in the variety the effect is very striking. The panicles are terminal and

moment that it stands a very fair chance of extermination. W. H. G.

Begonia socotrana.—It is now about ten years since this *Begonia* was first discovered on the island of Socotra, and although a very pretty plant, I have heard from time to time of its being a shy bloomer, but a fine batch grown by Mr. Bain in Sir Trevor Lawrence's garden at Barford Lodge is now flowering most profusely and presents a charming appearance, whilst flowering at this particular season it is doubly valuable.—W. H. G.

Croweas.—The flowers of the different kinds of *Crowea* are individually less attractive than those of some hard-wooded greenhouse plants, but what they lack in this respect is made up for by the quantity they bear and the length of time the plants keep on blooming. Coming in as they do during the autumn and winter months, when there is not too much bloom, is still more in their favour.

To have them in an effective state through the autumn the plants require to be started in a little heat about the end of this month or as soon as they go out of bloom. All the sorts require to be cut in freely before starting their new growth, otherwise the plants get so tall and straggling that they have an uncared-for appearance. The preceding season's shoots should be shortened to within from 4 inches to 6 inches from where they spring. Croweas are liable to suffer from the attacks of brown scale, and where this has been troublesome it will be well when all the soft shoots are removed to dip the plants in a strong solution of insecticide. A temperature of 50° or a little over will suffice for them. Syringe overhead once a day, and after they have broken into growth any plants that require more room may be potted. They will thrive in either loam or peat, but in the latter the growth is usually freer; consequently where peat of good average quality, that is not too hard in texture, can be had, it is well to grow them in it.—T. B.

DRACÆNAS FOR DECORATION.

WELL-GROWN plants of Dracænas in proportionately small pots are always useful for decoration. Where the means exist for a proper and expeditious propagation of young stock, it does not matter very materially if a few plants now and again are injured through being exposed, either in a colder atmosphere, such as the conservatory for instance, or in one that is void of humidity, as in a room. Plants that have had hard usage can be very conveniently reserved for stock, for it will rarely happen that a Dracæna is killed outright. In this respect Dracænas have an advantage over many other plants which are more sensitive to a somewhat rough treatment; it will seldom happen that the stock of any one kind is lost with even ordinary culture. It does, however, often occur that but poor examples are seen where, with no extra pains, good or at least presentable plants might be had by careful management. It matters not what class of plants comes under our observation; if we wish to excel in their culture and make them prominent features in our gardens, then we must study their requirements as to temperature, atmospheric moisture, soils, &c., and thus work out the problem of their individual needs. When this has been done successfully, cultivation is reduced to a far more simple matter, with the result of a saving in labour and anxiety as to the future. Dracænas that have now become leggy with no prospect of future usefulness, except in the case of a few which perhaps may still be in good health and adapted for grouping as standards, should at this season of the year be set aside for propagation. Those having a healthy top may have that taken off and then struck in the propagating pit in a brisk heat, whilst the healthy part only of the stem should be cut up for propagating from eyes; the fleshy roots will frequently make the best of plants, but are generally slower in making a start than the eyes. I generally like to have some of each. I have found them to start well into growth when simply plunged into or buried (more properly speaking) in Cocoa fibre refuse, which is kept always well moistened and at a high temperature (80° to 85° will not be too much for them). Dracænas may be propagated from the tops in jars of water, but it is not recommended where there is better means in a propagating pit. The chief point to aim at is that of obtaining a quick start into growth, and afterwards maintaining the same until the young plants are fairly well established in small pots. Then, unless it is urgent to press them onwards, it will be better to subject them to the usual treatment of stove plants, and thus endeavour to get the plants into character without causing them to become drawn, and with foliage that is not enduring. A

well-grown Dracæna at the end of the first twelve months of its life should have retained nearly every leaf it has made; it will by that time, and in the case of most sorts, be well coloured for its kind. When the plants have well filled their first pots with roots, they should have one more shift given them, the best and strongest into 6-inch pots, the weaker ones into one size smaller. This will carry them over the first year of their existence very well, in fact, better than if in larger pots, for if a Dracæna has a superfluous amount of soil about its roots when winter comes on, many of them will decay or become unhealthy. I attribute this to the inability of the plant to assimilate the moisture in the extra amount of soil so quickly as it should do, and yet a goodly amount is needed if the plants are to be kept healthy and growing; consequently, a plant that has well filled its pot with roots will take up this moisture in a free manner, and reap the full benefit of the same. If the plants are required for decoration whilst in a comparatively small state, see that every facility is afforded them of becoming well established before they are used at all; there will not then be so much danger of the roots perishing by the change from their growing quarters to an atmosphere that is not so congenial to their well-being.

INSECTS.—Of insect pests the most troublesome are the white thrips, which, if left undisturbed for a little while, will sap the very life out of the foliage, leaving it of a sickly yellow colour. These thrips generally congregate in groups until they increase to such an extent as to cover nearly all the underside of each leaf. Fumigation with tobacco paper, not too strong, for three nights in succession will destroy most of them; but if time can afterwards be given to sponging each leaf carefully, then a good clearance may be made for a long time to come where a fairly moist atmosphere can be maintained. This insect is most troublesome when the plants are near to or, perhaps, just over the hot-water pipes; in such places it increases rapidly. Black thrips are also very destructive, and must be well sought after before they get too numerous; on the darkest coloured kinds this thrips is not so soon recognised unless a sharp watch be kept. Red spider will at times attack the foliage, but it is mostly to be found on large-sized plants, for which it either has a preference, or that plants of extra size escape the beneficial effects of the syringe more than the smaller ones. Sponging the foliage with soft soap and water in which a little sulphur has been well mixed is about the best remedy. Green-fly, when found on Dracænas, is generally located on the leaves that are not expanded. The black-fly is, however, the most troublesome and likewise the most difficult to exterminate; this, too, will attack the unfolded leaves and very soon damage them. After a good fumigation, it is a capital plan to make a mixture of soft soap and tobacco water, of moderate strength only, and then with a camel's-hair brush, the points where the fly congregates may be moistened, and each plant afterwards dipped into clear water. This operation should be repeated after a week or two to clear off any younger stock. Slugs and a small species of snail are very partial to these plants, and will in a few nights do a lot of harm if they are not caught. They are not often trapped easily. Sometimes they take up their abode in the axils of the leaves, where they are not so readily seen, or even possibly suspected. Baits should be laid for them at the base of each plant, and a close search made at night when they are feeding. In troublesome cases each plant should be examined carefully in the daytime,

for the insects will at times be found around the exterior of the pots and on the surface between them. The search for these troublesome pests should be persevered in until they are exterminated, for it is annoying to see a well-grown plant disfigured just as it is attaining a useful size, with well-coloured leaves, to which they have a decided preference. As a remedy against the depredations of insect pests in general, it is an excellent plan to have a bag of soot (that has been taken from a chimney, the fireplace of which has not had coke burnt in it so as to be impregnated with sulphur fumes) always kept in the water-tank. This not only acts as a preventive, but it is also a capital manurial agent, imparting a darker colour to the foliage of young plants. J. H.

ECHEVERIA RETUSA.

IN greenhouses where a temperature of about 50° is maintained this will be in bloom at the present time, and will continue to flower all through the winter. In cool houses, from which frost and damp only are excluded by fire-heat, it does not commence to flower much before March, lasting in bloom up to May. It is a neat-habited, showy little plant, that is well worth the attention of those who like to have something bright and rather out of the ordinary way when there is not much in the shape of flowers outside. The bright orange flowers on rigid stems that spring from neat rosettes of foliage are so numerous, that when in full bloom good plants make a brave show, and the colour is so distinct as to form a welcome contrast to the various shades of pink and white that predominate in the conservatory at this time of year. It is grown to a limited extent by market growers round London, and a large batch of plants in full bloom just now has a very cheerful appearance. If window gardeners were aware of the value of this little plant there would be a greater demand for it. In April the plants should be pulled to pieces. Let the soil dry out first, as then the greater portion of it can be shaken away without injury to the roots, and the plants get the benefit of a body of fresh compost. It is not, however, very important that any great quantity of old roots be retained, as, like all the members of the family, roots are thrown out all up the stem, and being of a very succulent nature the foliage does not suffer much until these new roots are made. I have often when rather pressed for time just cut through the stems close to the soil and put each piece in a $4\frac{1}{2}$ -inch pot, standing them for a time in a shady place and watering when needful, and they have made capital blooming plants by autumn. In any case when repotted the stems should be covered with the new soil quite up to the leaves. Sandy loam with some sand is the best soil, and good drainage should be given, as all plants of a succulent nature are very susceptible to stagnant moisture at the roots. Let the plants have all the sunshine and air possible through the spring and early summer, and in July put them in the open air in a sunny situation, but be careful to bring them in before the middle of September, as the Echeveria is rather tender, and if the points of the blooming stems are frosted but slightly, the flowers will not expand later on. A good roasting in the sun is what this little succulent requires, and then it will yield a good harvest of bloom. I know of but one drawback to the growth of this plant, and that is the grub of the black Vine weevil, which eats its way into the stems, and just as the flowers should be expanding the whole plant collapses. My plants were so much infested that at one time I thought I must give up the culture of this Echeveria, but I found a way out of the difficulty that has never since failed. Instead of repotting in spring I shake the plants out in June, and wash all the old soil from the roots, so that, if possible, not a particle of it is left. This should not be done before the latter end of the month, as by that time the weevil has deposited its eggs, and in washing the soil away, the eggs or, perhaps, newly hatched grubs go with it. The crowns are then laid in light soil in a

frame in the full sun and kept watered. By the end of July they will be growing freely, and are then taken up and potted. It is not absolutely necessary to lay them in a frame, but I find that by so doing it gives them a good start, as they make roots so freely, and in a couple of months after potting the pots are full of roots. These being of a fine hair-like nature, a little more care in watering is required than with the many winter and early spring-blooming plants. As readers of *THE GARDEN* generally know, plants of a succulent nature are very impatient of much moisture at the roots in winter, and the *Echeveria* is no exception to that rule. Plants that are getting an intermediate temperature to bring them along may of course be watered with tolerable freedom, but where the thermometer drops to below 40°, water should only be given when the soil gets dry. Departing from this rule endangers the health of the plants very seriously. J. C. B.

THE PROPAGATING HOUSE.

WHERE no provision in the shape of hot-water pipes is made for bottom-heat one is obliged to fall back on the old leaf-bed, and this in our case is built up in a house that was formerly a small Pine stove, but now answers the triple purpose of Tomato house in late spring and summer, warm greenhouse in autumn and early winter, and propagating house from the end of January until it is no longer required for that purpose. The bed is thrown out to a depth of 4 feet and filled in with good Oak leaves, into which a very little long litter is worked, and this, with a few inches of cocoa refuse for plunging, furnishes us with sufficient warmth for our purpose. When the inventory of all cuttings necessary for the summer decoration of the flower garden has been made, a note should be taken of all other plants that may be wanted for different purposes throughout the year and provision made to start them. Perhaps the first to claim attention because they are often specially required are all kinds of plants adapted for table decoration. Tuberous Begonias are rapidly coming to the front for this work, and there are few more pleasing subjects for a centre bowl or vase. Varieties specially adapted for the purpose may doubtless be picked out from almost every batch of seedlings, but the better plan is to secure a few very free-flowering double-flowered forms in the scarlet, rose, and pink shades. A few of these may be started in the propagating house, and the others allowed to come on at will without the aid of artificial warmth, ensuring thereby a long season of these very useful plants. A little *Gloxinia* seed may be sown at the end of January, and if the seedlings are transferred to small pots as soon as they are ready they will throw some good flowers before the end of the summer. A few of such seedlings, each with four or five flowers, make a very pleasing centre piece rising from a carpet of *Selaginella*. A little *Cyclamen* seed should also be sown about the same time. The scarlet berries of *Rivina humilis* are sometimes handy; this grows very quickly from seed, and may consequently be included in the list. Fine-foliaged plants also claim attention, as a lot of healthy young plants is always acceptable where there is a considerable amount of house and table decoration. The propagating house is also the receptacle for additional supplies of other plants, such as winter-flowering Begonias in variety, Bouvardias, Epiphyllums, Coronilla glauca, Eupatorium, Sparmannia and the like, that may be wanted later in the year. It is as well at this season, before the propagation is fairly started, to make a note of all the most useful things, and either increase or partially discard the stock as the case may be. No hard and fast line can be laid down, as individual requirements are necessarily very different, although I think we may take it for granted that in the majority of cases one can hardly have too many hardy plants for decoration, or for producing flowers for cutting. For this latter purpose the winter-flowering Pelargoniums must not be forgotten, and a batch of the best known and most effective varieties should be a prominent feature of the propagating house. Claremont.

E. BURRELL.

Amomum magnificum.—On page 546 of your last vol. (December 14, 1889) you refer to this, that is, *Alpinia magnifica* of Roscoe and Hooker (syn., *Nicolaia imperialis*, Horan). Your account of it scarcely corresponds with my experience of a plant brought by myself from Rio in 1878, which has since grown well with me, making barren shoots each year of over 4½ feet in height, which have not bloomed with me. I send you a drawing made at Rio of a plant in the Botanic Garden there, from which you will see that the growth is rather that of *Hedychium* than of an *Alpinia*, but the flowers are not terminal nor pendent, as in *A. nutans*, but rise from the ground in distinct stalks, and the foliage is of a much paler green and softer texture than that of *Alpinia nutans*, which blooms with me each year by the side of the *Nicolaia*. I am surprised that the *Scitaminæ* are not more cultivated in our stoves.—R. MILNE-REDHEAD, *Springfield, Seedley, Manchester*.

The flowering of Camellias.—I have tried to force Camellias in November and at midwinter in a temperature of 65° and 70°, and my experience is that the flowers do not open so freely and fully then as in a temperature of 50° or 55°. We have been cutting Camellia flowers in the conservatory here since November. At present they are very abundant, the old double white (*alba plena*) being still one of the best for general purposes. We have never applied fire-heat except to keep out frost. I have noticed that the flowers do not open so well and are not of such good substance as when allowed to develop naturally. I have also noticed that when fire-heat was applied for some weeks together the flowers opened very imperfectly compared with the shoals of massive blossoms that appeared in a week or two after the fire-heat was discontinued.—J. MUIR, *Margam*.

CHRYSANTHEMUMS.

MID-WINTER CHRYSANTHEMUMS.

EVEN if we would, the National Chrysanthemum Society will not allow us to let the Chrysanthemum alone. I do not find fault with the society. It was established for the improvement of this particular flower, and although some may become very impatient and almost hate the sight of the word Chrysanthemum, yet it is the society's business to keep it well before the public gaze. Apart from the now usual mid-winter exhibition of Chrysanthemum flowers held on the 8th and 9th inst., nothing would satisfy the restless spirit of the committee but that there must be another conference meeting, which was held in the Aquarium Board room in the evening of the first day. The interest of the gathering centred in a short, but very practical paper read by Mr. Kipling, who, in reading the paper, ventured to reply to the self-propounded question, "Are mid-winter Chrysanthemums required?" and of course the answer was in the affirmative. No one seems to be better qualified to discourse upon this theme than is Mr. Kipling, for he is not one of the growers of fat flowers, which, like bullocks at cattle shows, are only fit to win prizes and then die, but he specially caters for the supply of large quantities of Chrysanthemums at Christmas and for several weeks onward, and his beautiful stand of flowers at the show, naturally grown and shown on stems ranging in length from 8 inches to 16 inches, showed that he can do as well as talk. It needed no showing nor argument to prove that Chrysanthemums are needful at mid-winter. They are now, as Mr. Kipling remarked, indispensable, and also he was enabled to say that not only does he find the flowers to travel packed fully two days from Knebworth to Paris and come out quite fresh, but also keep well afterwards in water for a fortnight. To have beautiful bright fresh flowers so enduring in winter is indeed a great gain, and shows that in all well regulated gardens Chrysanthemums should be held indispensable for greenhouse and room decoration. The Japanese varieties are generally the best for the purpose.

The cuttings should be put in during March and April, as some are more precocious than others, and the plants need the protection of partial shading when stood outdoors during the heat of the day, as it is undesirable to have the wood too hard, as being conducive to early budding. The pots should also be plunged in soil or ashes to keep the sun from rendering the roots too hard and set. Placed in unheated vineries at the beginning of December and subjected to a temperature of from 45° to 50° when the buds expand, the plants should bloom not from laterals, as some have assumed, but from leading shoots for several weeks.

The discussion which followed Mr. Kipling's paper was all the more interesting because informal, and rather took the form of questions, to which replies were liberally furnished. If of the large number of growers present but a few would act upon the information given, the mid-winter shows of the society might be made of considerable proportions. Just now the temptation to win prizes in November induces growers to centre their efforts upon that season, and thus we see the market glutted with bloom then, whilst it is worth ten times as much in January. On the subject of how to increase the attractiveness of the coming centenary exhibition, various diverse opinions were expressed, showing that there are many growers who would like to see some breaking away from the stereotyped methods of showing groups of plants, of trained plants and of flowers, if satisfactory methods could be devised. Groups, it was shown, were far too stiff and formal, and when not properly faced were often ugly. The employment of fine-foliaged plants in dressing the groups was urged. It is, however, no new suggestion. The desirability of so improving groups of Chrysanthemum plants at exhibitions has been strenuously advocated in *THE GARDEN* for a long time. The introduction of naturally-grown plants in classes was also urged, but there seems to be some difficulty in determining what is a naturally grown plant. It would be odd, with all the ability concentrated on the committee of the National Chrysanthemum Society, if some form of class could not be established, which should satisfy the requirements of those who dislike the now common method of contortion found in what are called trained plants. The difficulty seems rather to be in not having the will. The same difficulty was presented when Mr. Bevan not only urged the setting up of blooms in a more natural way, but even urged his case with the offer of a liberal prize to that end. There was more eagerness shown to offer objections than to present possibilities. Still, with such examples as were found in the charming stands of flowers set up by Mr. Kipling and Mr. Taylor, Sir John Lubbock's gardener, at the recent show, it does seem as if classes for blooms naturally shown ought to be established. Why not have classes for trebles set up on stems varying from 6 inches to 12 inches in length, and supported by wire or not, at the option of the exhibitor? A grand class would be found in round baskets full of Moss and tubes, each basket containing nine whites in trebles, distinct, nine yellows, bronzes, pinks, purples, crimsons, &c., got as near to colour as could be. A dozen such baskets would make one of the finest displays yet seen, and one which ought to be possible with some of our larger growers. It is very evident that there is a seething element of dissatisfaction with the present methods of showing Chrysanthemums amongst growers and critics, and very soon the societies will have to take account of it.

A. D.

La Joyeuse.—Those who are ordering varieties for flowering this year will do well to make note of *La Joyeuse*. There are two Chrysanthemums of this name; one sent out by Bouchardat, which has a rose-salmon colour shaded violet, and the other an introduction by Délaux, white and mauve. Neither of these correspond exactly with the variety flowered at Chiswick last season under the name of *La Joyeuse*, as the flowers were creamy white, tinted with yellow in the centre. It is of no use for exhibition, but as a Chrysanthemum for cutting from it is one of the most grace-

ful and charming things of its kind. The slender shoots bear as many as seven open flowers in elegant profusion, and the whole plant is so smothered with bloom as to hide the foliage. Late in autumn it was in full beauty, and handfuls of flowers could have been picked from a single plant. Such a variety as this would please ladies who want graceful sprays of bloom when the Michaelmas Daisies are over.

Roseum superbum is classed as a Japanese reflexed variety, and is one of the prettiest varieties sent out by Délaux in 1883. It has two other names, the commonest of which is *Souvenir d'Haarlem*, and it was so labelled in more than one stand at the recent show of the National Chrysanthemum Society. The Intended is another of its titles. When the plant is stopped about twice, and therefore what is called "naturally" grown, it bears very late in the autumn graceful sprays of flowers of charming colours, more so than in those for exhibition. It was remarkably fine last autumn in the Royal Horticultural Gardens at Chiswick, and one plant had such a profusion of rich bloom as to weigh down the stems. When we see the Chrysanthemum in this dress, it can be seen how the grace and beauty of the plant are stolen from it by high feeding and constant stopping. One spray had six fair-sized blooms of a rose-lilac colour that melts into creamy white, which shades to pale yellow—a rich medley of tints beautifully and softly blended.

Ralph Brocklebank has been one of the finest late Chrysanthemums this year, and throughout the season the blooms of it have been in their best character. It originated with Mr. T. Winkworth, gardener to Mr. R. Brocklebank, Childwall Hall, Lancashire, in 1886, and on its first appearance soon became a favourite. The flowers are like those of the parent in character, but of a more charming shade of colour—a soft yellow tint that agrees with the somewhat flimsy florets. The blooms at the November shows were in many cases of remarkable grace and beauty, but utterly spoilt by bad staging. They were jammed six together on a small board in which there was only space for three, the florets intermixed so as to destroy their individual expression. This season has also shown that R. Brocklebank is an invaluable late flower. It has been good everywhere.

SHORT NOTES.—CHRYSANTHEMUMS.

Snowdrop is a pretty late pompon variety that is useful for cutting from at this season. The flowers are quite double, pure white and small, not larger than a halfpenny. It is also very free.

Yellow Ethel or Mrs. H. Jones, as it is sometimes labelled, is the best late Chrysanthemum in its line of colour. Yellow Ethel is sufficiently expressive. It is an exact counterpart of Ethel, from which it is a sport, except in colour, this being of a clear and beautiful yellow. All who like late varieties should grow it.

Moonlight is one of Waterer's varieties sent out in 1885, and has been shown well this season. It has been slow in coming to the front, but everyone should add it to their collection. It is not only late, but the flowers are large, outer florets broad, those in the centre narrower and more twisted; the colour almost white, but with just a suspicion of yellow. Its tall growth is against it.

Lord Eversley.—There are few late incurved varieties, but this is one of the best. It originated with Mr. Wildsmith, of Heckfield Gardens, in 1887, and has pure white flowers, which in their early stages have a tinge of green. They are well incurved, not too large, and exceedingly chaste. It was shown well at the recent show of the National Chrysanthemum Society.

Kioto, exhibited at the recent show of the National Chrysanthemum Society, is a promising late kind. The flower is of average size, not too big, the florets irregularly arranged, abundant so as to make a full, dense bloom, and rich self yellow colour, deeper than in any other late kind. It seems to be a genuine late-flowering Chrysanthemum.

Mrs. A. Waterer.—This is a new late Chrysanthemum that will be added to the list of mid-winter

varieties. The flowers are of fair size and creamy white in colour, the florets towards the centre taking on a greenish tinge. It is not remarkable for either beauty of form or colour, as it is somewhat coarse and ragged; but when we have so few late novelties it cannot be passed over. Several blooms shown recently were scarcely in condition.

ARE CHRYSANTHEMUMS WANTED AT MID-WINTER?*

THE question I have to submit for your consideration, Are Chrysanthemums wanted at mid-winter? might well be answered by asking another, and correlative question, Are flowers wanted at mid-winter? But it will probably be advisable to set forth the reasons why I consider that the answer should be in the affirmative. There are few people, I imagine, who have a taste for flowers, and thoroughly appreciate them, that would deny the necessity for having them in abundance at a season of the year which includes the festivities of Christmas and the new year. At that season, as so well known, there is the greatest demand for flowers, and it is also a matter of common knowledge that they are then very scarce and most difficult to be had. This being the case, flowers are at mid-winter appreciated as flowers irrespective of their names. Consequently, Chrysanthemums, if they can be had at that season, are not likely to prove less welcome, or to be less appreciated by the general flower lover than the blooms of any other group of plants that could be mentioned. This is looking at the question simply from a common sense point of view. We might, however, look at it from another, and sentimental standpoint that, perhaps, from which the true lover and enthusiast of the Chrysanthemum would view the matter.

Most individuals have a taste—sentimental if you will—or hobby for pursuing some particular object, and as taste is not arbitrary, they have a perfect right to follow the bent of their tastes and inclinations so long as they do not interfere with other people. Well, the Chrysanthemum enthusiast has a taste and hobby for the cultivation of this particular flower in its many phases, and I have no doubt were he asked the question, Are Chrysanthemums wanted at mid-winter? he would promptly reply, Yes, and add, perhaps, at any other time they can be had. He would, I venture to say, be perfectly justified in his answer and opinion, notwithstanding what a few individuals may say about Chrysanthemums not being wanted at this season or that season. For my part, I can say that their flowers are appreciated at all seasons of the year, even to all the year round, which I have in my practice more than abundantly proved to be possible, but, perhaps, not generally quite desirable. However, at no season of the year do I find them so acceptable, so useful, and to fill so great a void as from the beginning of December to the end of January, or even later, a period of the year when there is a great dearth of other flowers, and those available are mostly forced, and produced at considerable cost and last but a little time in good condition in a cut state. It is here, then, that the usefulness of the mid-winter Chrysanthemums is clearly apparent. They step into the breach, as it were, and supply a felt want, and I claim consideration for them on grounds other than those of a sentimental character. They, indeed, fill a unique and useful position amongst winter-blooming plants, and from them a general demand for flowers can be met and supplied.

CULTIVATION.

The mid-winter Chrysanthemums have another, and not the least, claim to our attention. Their cultivation, as compared with those grown for autumn decoration and for exhibition, is very simple, very inexpensive, and requires from the grower only a tithe of the labour and watchful care the others demand from him. The cuttings are struck late, are a very little time on hand before they can be finally potted off, and the pots plunged

to their rims in some cool half-shaded spot for the summer, require in the hottest and driest of weather water only once a day, and on dull days none whatever. As ordinary decorative bloom only is the object sought, there is no anxiety about the time the buds shall be taken, no thinning out of buds and shoots, and no feeding up with liquid manures as in the production of a few fat blooms. They will stand out of doors to the latest date possible without being injured even by a degree or two of frost, and when housed the accommodation of the coolest structures meets their requirements. Indeed, the Peach houses or the latest vineries, where low temperatures are necessary for resting the Vines and Peach trees, are the best places for housing and retarding late Chrysanthemums up to the time it is necessary to push them into bloom. When this period arrives a little warmth becomes necessary, and to this they respond gratefully. Lastly, I know of no class of plants that gives so large a return for the labour bestowed, the space occupied while under glass, and the little fuel needed in their production, as these mid-winter Chrysanthemums.

KEEPING QUALITIES.

Not the least point in the favour of the late-blooming Chrysanthemums is the long-keeping qualities of the blooms, and their capability of enduring close packing and long journeys. With ordinary care in packing they will, on reaching their destination, come out of the box as bright and fresh as could possibly be desired. Of course, the long-keeping quality of the blooms is to a certain degree common to all the sections and under all phases of their cultivation. But I find this quality in the flowers greatly emphasised in the mid-winter blooms, and this, no doubt, is due to the plants having been grown under a natural system, and under the hardest conditions possible, thus giving to the flowers a toughness and greater substance of petal. Damping of the blooms is hardly known among them, and we are therefore saved from the annoying and tantalising heartaches experienced by the exhibition bloom grower at seeing his brightest and fondest hopes, which are centred in his biggest and fattest of blooms, crumbling away day by day. With reference to the long-keeping of the blooms, I may mention that my noble employer writes me to send nothing but Chrysanthemums, as no other flowers come to hand in so fresh and bright a condition or last so long. They invariably retain their freshness from a fortnight to three weeks after being sent, and I would like to ask what other cut flowers, except the Christmas Rose, will endure a two days' confinement and transit across the Channel, and yet come out fresh and bright and last for a fortnight or longer? So much for the usefulness and I might say the importance of the mid-winter Chrysanthemums.

VARIETIES.

A few remarks on the varieties that I have found to be the best to grow for the production of flowers at this season may not be uninteresting. There are three points or qualities essential in a mid-winter or late Chrysanthemum. The first point is its lateness to bloom, which should be natural to and inherent in the variety. Secondly, it should have a free habit of growth and be a very free bloomer, as labour would be thrown away on a variety that would not yield liberal and adequate returns in the shape of flowers. Thirdly, the colour of the flower should show up well under both natural and artificial lights. Most of our floral decorations at this season of the year have to be seen under artificial light; colour in the flowers is therefore of some importance, and those colours which come out well under that light are the most valuable. Whites, reds of different shades, and yellows, including deep bronzy oranges, are the best colours, while purples, lilacs, and their several shades are the worst for the purpose. The varieties which I have found to fulfil the several conditions therein enumerated are *Etoile du Midi*, *Kæmpfer*, *M. C. Hubert*, *Meg Merrilies*, and its sports *Ralph Brocklebank* and *Countess of Lytton*, *Ceres*, *Mrs. C. Carey*, *Ethel*, *Yellow Ethel*, *Thunberg*,

* Paper read by J. Kipling, Knebworth, at Conference of National Chrysanthemum Society, Jan. 8.

Boule d'Or, Moonlight, Gloriosum, Mrs. H. Cannell, and Golden Gem among the Japs; Boule de Neige, Snowdrop, Madame Sentir, and one or two others among the reflexed and pompon sections. In the section of the single varieties will be found some that are admirable for the supply of flowers at mid-winter work. Hitherto, this section has not made much advance in general favour, possibly because the Japanese varieties have been more attractive and have elbowed them out of the way at a time when blooms are so very plentiful early in the season. I believe, however, the most useful and proper position for the single Chrysanthemum will be found as a mid-winter flower. Their free-blooming and the long-lasting qualities of the flowers are not surpassed by any others, and they have in a cut state and when arranged in vases an elegance and grace all their own, and they can be looked upon at the winter season, not as Chrysanthemums, but as various coloured Marguerites. Some years since I bought the set of twelve, the first I believe Mr. Cannell sent out, and each year

variety is only just setting its buds, and will bloom in February. Cuttings of these sorts are rooted with the general batch, but the plants are housed about three weeks later in a cool, airy place.—L.

FERNS.

POLYPODIUM VULGARE VAR. TRICHOMANOIDES.

Of the many varieties we now have of the common Polypody, I know of none so beautiful as the above. The origin of this variety is, I believe, unknown. Certainly it does not appear to have been developed by gradation to its present perfection through the many other varieties, because one of the peculiarities of the plant is its occasionally developing two extreme forms of fronds on the same plant, one being an exact counterpart of the species *Polypodium vulgare*, found so frequently on our hedge banks,

We have to thank Messrs. Backhouse, of York, for use of electro. R. POTTER.

Hypoderris Browni.—This is a somewhat remarkable Fern. It is rare, although introduced to cultivation forty years ago. I believe this Fern is peculiar to the island of Trinidad, with which we have a constant communication, and consequently it should not remain scarce. It has somewhat the appearance of a dwarf broad-fronded *Aspidium*, but in the arrangement of the indusium it more closely resembles *Woodsia*. The fronds each grow from about 1 foot to 2 feet in length, and rise from a creeping rhizome; the colour of the frond is pale green, and the stem is stout and reddish brown, clothed with short hairs of the same colour. The sori appear to be scattered all over the under side in a somewhat irregular manner. It is not a market Fern, and this no doubt is the reason why it has not become popular. It requires strong heat, and enjoys



Polypodium vulgare var. *trichomanoides*.

has proved more and more their value for mid-winter blooming. This season they did not commence to bloom till the beginning of December, and they have been a perfect mass of flower up to the present date. The best varieties of the twelve are Mrs. Langtry, pinkish white, very free; Magenta King, bright purplish rose; Canariense, terra-cotta, very elegant; Brunette, brick red and orange, very free and useful in a cut state; Ellen Terry, Mrs. Killock, Monte Carlo, and Gus Harris; the two latter are very compact in growth and make excellent pot specimens.

Chrysanthemum Beauty of Castlewood is an American variety similar in character to Edwin Molyneux. The outer part of the florets is more golden than that variety, while the inner side of the florets is much paler in colour—a deep brick-red colour. It is a large, bold flower, and one likely to make a good exhibition variety.—E. M.

Late Chrysanthemums.—Three of the latest-flowering sorts I grow are Mrs. C. Carey, white, Ethel, white, and The Khedive, rosy-purple. The last-named

while the other is so wonderfully and highly divided that it forms a most beautiful plume-like mass. In the cultivation of this plant I have found it a good plan to cut off the typical *P. vulgare* fronds as they appear in the spring. The plant then makes another effort and puts forth an additional crop of fronds, which are invariably those of *P. trichomanoides*. The plant is by no means difficult to grow, it only requiring a compost of rough peat, loam, leaf-mould, and sand; if indoors, add a few nodules of vegetable charcoal to keep the compost sweet, and give abundance of water. It is, however, seen to best advantage when cultivated in shady nooks and crevices of rockwork, especially when planted a little above or on a level with the eye. I have frequently observed spores on the typical fronds, but have never been able to find any on the fronds which are so highly divided as in this variety. The best mode therefore to propagate it is by careful division.

moisture in the atmosphere of the house, but I do not think it likes wetting overhead from the syringe, as I have found its fronds turn black when thus treated. It should be carefully kept wherever found, for it is just one of those Ferns which will be wanted when Ferns again become fashionable.—G.

Cheilanthes Sieberi (*G. W. P.*).—The specimen sent is a form of this plant, very near the same as I have received from the Isle of Pines; it is also a native of Australia and New Zealand. It may be grown in a warm greenhouse, and should be potted in a mixture of rough stony soil, well drained. It is sometimes confounded with *C. tenuifolia*, from which, however, it is very different in its largest forms, the fronds being narrower in all cases. It is quite refreshing to find that these plants are becoming so popular again.—W. H.

Adiantum versailleuse.—This is certainly a very pretty kind, which I recently noted in first-rate condition at Messrs. Williams and Son's establishment; the fronds are beautifully crested and the segments are finely divided. I had seen this plant on

previous occasions, but had thought it resembled *A. Luddemanianum*, a form which does not appear to thrive well, but as seen now it attracts attention by its distinctness, and it is well deserving the attention of everyone who has a liking for these tasseled and crested forms. It is said to be a crested form of the old *A. cuneatum*, and it is a wonderful transformation.—W. H. G.

GYMNOGRAMMAS (NEUROGRAMMAS).

THE two plants referred to here, although destitute of the coloured farina so conspicuous as a rule in the members of this family, are yet plants of exquisite beauty, and are well deserving the attention of Fern lovers. These plants have been named *Hemionitis*, but they are more usually accorded a place in the *Gymnogramma* family, under the sectional name of *Neurogramma*. Under whatever name, however, they may be known, they are well deserving general cultivation. They require stove heat, potting in a mixture of peat and light loam, and plenty of drainage. Whilst enjoying a copious supply of water to their roots, they do not like water overhead from the syringe.

G. RUFA is a native of the West Indies and some parts of America. I have frequently received specimens from the neighbourhood of Panama. The fronds are simply pinnate, the pinnæ being nearly opposite, broad, and of a cheerful green. The fronds are erect and spreading, and each measures from 9 inches to 18 inches in length. It is a robust-growing plant, but it must not be syringed, as this gives it a bedraggled appearance.

G. TOMENTOSA is a plant very similar to the first-named. In this species the fronds are bipinnate, and the pinnæ are not blunt-pointed, but acute and deep green. The fronds measure each from 9 inches to 2 feet in height. It is a plant which I have found to be somewhat tender. It enjoys strong heat, and when so treated it thrives fairly well, but I have found that through the winter months, especially if kept somewhat cool, its fronds are very liable to break down. I think it is more plentiful than *G. rufa*. *G. tomentosa* is a native of various parts of the West Indies and Brazil, but I do not remember ever having received it from its native habitat. W. H. G.

Polystichum Richardsi multifidum.—This is one of the prettiest crested Ferns I know. Its fronds are long and ample, and the ends of the pinnæ and the apex of the frond are distinctly crested, and this, too, without any malformation whatever. This plant, which comes from New Zealand, I am told, is one of the prettiest of greenhouse Ferns.—W.

Asplenium Adiantum-nigrum grandiceps (*J. Thomas*).—This is the name of the specimen sent; it is a very pretty form of the black Splenwort, and it has been well grown. I remember some years ago having this plant, and having great trouble with it; it was too warm for it, I suppose, for it was constantly smothered with thrips. *J. Thomas* would greatly oblige by stating under what conditions his plant has been grown.—W. H. G.

Adiantum Mariessi is a very pretty species of Maiden-hair. I recently noted a very handsome plant of this form, which was, I think, sent out by the Messrs. Birkenhead, of Sale, about five years ago; it has somewhat the appearance of *A. Capillus-veneris*, but the fronds are more branching and robust, and the ultimate segments are more distinctly wedge-shaped. I am not aware as to its origin, but can confidently recommend it as a very beautiful and pleasing plant.—G.

Adiantum Neo-Caledoniæ.—This is a new species of Maiden-hair Fern of a very pleasing and striking appearance, and one that was certificated by the Royal Horticultural Society during the time when Mr. Thomas Moore was amongst us, so that we have his authority for its being a new plant; it is of robust habit, the fronds being tripinnate, the pinnules very much attenuated and

sharp pointed, and of a full deep green. I think this plant was also sent out by the Messrs. Birkenhead, of Sale, some five years ago.—H.

Lastrea obliquata var. *Germinyi*.—This is another beautiful plume-like crested variety, which was introduced to commerce by M. Linden some few years ago, but it has not become generally known. Its black-green stems and rich green fronds, which are crested on the apex and on the points of all the pinnæ, render it a very beautiful plant. The typical *L. obliquata* is a native of New Caledonia, but this plant is a native of the Malay Islands, and differs from the species in being nearly smooth on the under side, whilst the species is very scaly. It further differs in the points being all crested. It is a beautiful free-growing plant for the warm house.—H. G.

THE ORCHARD.

GRAFTING OLD APPLE TREES.

WHILST the Fruiterers' Company is sending round the hat for, to that body, the paltry sum of £5000, the interest upon which is to be given away in prizes for well-managed orchards, it may be well to remind the proprietors of old plantations that the shortest cut to fame lies in re-grafting sound, healthy, but inferior sorts with the cream of the choice varieties which do well in their locality. The finest and most profitable crops in the future no doubt will be gathered from young trees worked on dwarfing stocks, planted upon modern lines in soils and situations which just suit them, and these in due course will compensate for the removal of very old plantations which will not pay for grafting. Of these it is unnecessary to write one word, as they can have no part in winning prizes or being profitable, but in this and all other great Apple counties there are thousands of younger trees which will give a good return if properly managed. It is as yet too early to graft; not so to make a selection of good scions, which should be taken off healthy trees and heeled in where they will remain dormant until the sap in the stocks is in motion. When this stage is reached and not before, the grafts must be attached, and in about three years they will commence bearing. The stocks meantime must be prepared by partial heading back, and, considering that the buds are unusually forward, I may say this work should be performed not later than the first week in February; if a fortnight earlier so much the better. The operation of preparing and attaching the scions is purely mechanical, but the preparation of the stock entails care and forethought. A man, for instance, may head hard back, leaving a dozen large stumps minus spurs, and although each stump may take four scions it may fail, the stock having been too much for it; but if smaller branches to the number of fifty are shortened for the reception of one or two grafts each, with a few sap-drawing and possibly fruit-producing spurs behind them, the result may be quite satisfactory. Some old grafters in this locality trim off every bit of spur wood and polish up their stocks until they are as bare as line posts, and when remonstrated with they say, "Oh, this is my plan; if you wish all this rubbish retained, you must take the responsibility." I have taken that load upon myself, and in all cases have secured the best results where a great number of small branches have been worked and the back spray has run riot the first, and in some cases the second season. All old spurs and spray at heading time then should be left as aids to the roots, and, mindful of the fact that each branch must be still further shortened when the time for

grafting arrives, enough and a little to spare should be retained for the convenience of the operator. Where trees are headed back they should be thoroughly cleansed with soapsuds, brine, or lime water to free them from parasites and insects, and the better to ensure a clean start, the wood used for grafts should be dipped in a strong insecticide.

Grafting, as I have observed, being purely mechanical, is not so difficult as many people imagine, but it must be performed at the proper time, viz., just when the buds on the back spurs are ready for bursting. The scions, having been kept half buried in cool moist soil, should be deftly cut to fit the space prepared for them, the exact union of the two on one side at least being imperative. If yearling wood is used the scions must be tightly tied in, but when older pieces are let in with the saw, ligatures are not necessary. In either case all freshly cut surfaces should be well covered with grafting wax or a mixture of cow manure and clay, the latter, as a rule, being used in old orchards. The selection of sorts is a matter into which I need not enter, but, assuming that the Blenheim, Ribston, or Cox's Orange Pippins are good in the locality, these are the varieties I should introduce in preference to others. If the second were too tender or subject to canker, Claygate Pearmain might do well, as it is very hardy, a sure cropper, and superb for late cooking or dessert purposes. W. C.

TASMANIAN, AUSTRALIAN, AND NEW ZEALAND APPLES AND PEARS.

IN the cultivation of Apples and Pears these colonies (more particularly Tasmania) are making great strides. The object of their increased production is to enable them to enlarge their consignments to England, to our Indian Empire, and to America. Their shipments have hitherto proved tolerably remunerative, and there is no doubt but that the efforts they are now making to improve their method of packing, &c., will be attended with a further measure of success. Especially will this be so, as in addition to the fine varieties they already have, some growers are introducing other choice kinds well adapted for shipment, such, for example, as Cox's Orange Pippin, Ribston Pippin, and Blenheim Orange.

Pears will also be shipped to this country with advantage to the producer. Easter Beurré, Chaumontel, Winter Nelis, Doyenné du Comice, and some other choice kinds are well suited for this purpose. Glou Morceau is another valuable kind, but whether it will stand the journey is questionable; it is worth trying. The Vicar of Winkfield has been tried, but it is a common Pear, not wanted here, and besides it does not bear the journey. Our principal steamship companies recognising the importance of the trade, and foreseeing the commerce which will result from the extended Apple and Pear cultivation which is taking place, are offering facilities both as regards cool chambers (regulated to a suitable temperature) and freight to meet the requirements of all. The antipodean season being the reverse of ours, shipments of the new crop arrive here early in April, and continue until nearly the end of June. The passage to this country occupies only from five to six weeks. The temperature of the cool chambers found most suitable is 40°, and no time is lost on the arrival of the vessels in discharging their cargo, and a very short interval occurs between the ships being docked and the public auction in Covent Garden. Owing to the comparative failure of the Apple crop in Europe and America

this season, large shipments will be made to this country from the Antipodes.

The above particulars are communicated by the well-known firm of J. W. Draper and Son, Covent Garden, London, who perhaps receive larger consignments of fruit from our colonies, America and the Continent than any other house.

OVER-ZEALOUS PRUNING.

MORE often than not orchard trees are much neglected, anything in the shape of thinning out not being attempted till perhaps it becomes absolutely necessary to cut several fagots of wood out of each large tree. Occasionally, however, the other extreme is reached—too much attention in the way of close pruning being resorted to—this being especially the case where the owner of a few trees takes an active interest in the matter. During the past three seasons I have been watching an experiment on several very large standard Apple trees, and as it has proved what I fully expected would be the case, a good instance of what to avoid in pruning, I propose to describe it for the benefit of inexperienced readers of THE GARDEN. Early in January, 1887, the owner of these trees had them freely thinned out, the whole of the best placed reserved branches being also well shortened back, so much so that I fully expected the intention was to graft the whole of them with a superior variety of Apple, but such was not the case. During the following summer all the shortened branches broke strongly, and the tree became well furnished with stout, yet apparently well ripened shoots varying from 18 inches to 3 feet in length. So far good. Unfortunately, the next step decided upon was to lightly thin out these young branches, those preserved being cut back to about half their length. This was a very great mistake. If the branches had been left to their full length, not even their tips being removed, the greater portion would have formed fruit-buds throughout their length during the following year, and next season there would have been a good chance of a full crop. As it is, all the pruned branches broke strongly, and at the present time there is quite a thicket of young shoots all over the tree, and few, if any, flower-buds. I am a little curious to see what the next step will be, but if the owner is not content with merely thinning out the shoots, but must needs spur them all back to near their starting point, yet another season will most probably be lost.

In this district there are several old orchards in a much neglected state. It is true the greater portion of the trees are of little value other than for producing cider fruit, but even in this case they would repay for a certain amount of intelligent labour expended on them. Not only are the trees running into each other all round, but they are also in many instances a mass of spindly growth. What crops they bear are produced on the upper surface of the trees only, and there is usually either a great abundance of very small fruit or none at all. Much of the underwood might well be cleanly sawn or cut out and the remainder freely thinned out. Extra long branches ought to be fore-shortened, that is to say, cut well back to better placed inner branches, thus keeping the trees within proper limits, as well as admitting more light and air. Much stunted or, it may be, cankered old branches rarely produce good fruit, but if these during the course of two or three annual prunings are gradually cut back to about half their length, the trees, if in fairly good health, will eventually become well clothed with young free-bearing growth without the loss of a crop for a season or two. It has frequently been pointed out how quickly the character of a fruit tree may be changed by grafting a superior variety on it. There is no necessity nor wisdom in cutting a tree down to the main limbs in order to graft these, the better plan being to shorten all the younger branches to near where they are about 4 inches in diameter, the grafts being inserted in these. In this manner a large tree of a poor variety of Apple

might be quickly clothed with branches, say of Blenheim Orange, this being much the quickest way of obtaining a good crop of this undoubtedly very valuable, but, in its earlier stages of growth, shy-bearing sort. I. M. H.

EXTENSION TRAINED APPLES AND PEARS ON DWARFING STOCKS.

HOWEVER anomalous grafting to check growth and training to encourage it may appear, there exists but little doubt that this is the plan which must be adopted by fruit growers who wish to secure heavy crops of Apples and Pears and keep their trees going for a number of years. The growth, it is true, is slow, but it is sure, and, provided the crops are judiciously thinned, most beautiful specimens may be made quite perfect in all their parts. Some years ago I planted a number of pyramids and bushes worked on the Doucin stock, and my pruner kept them in admirable form by the use of the knife, but getting tired of seeing prim examples the exact counterpart of each other, I determined upon cutting out a portion of the branches and allowing the others to go. Each of these principal branches is regularly spurred in true cordon fashion, and each winter the spurs are thinned, but the leading points are left full length, provided their strength does not endanger the balance of the trees, in which case they are more or less tipped, with the result that they extend about 1 foot each way in the course of the summer. The result has been highly satisfactory, as they crop profusely in average Apple seasons, and trees which not only chafed under the use of the knife, but showed unmistakable signs of canker, are now fertile, and make young wood quite free from this troublesome disease. Well pleased with these sets of trees, I have planted Cox's Orange Pippin, Ribston Pippin, Claygate Pearmain, Cox's Pomona, that grand Apple Striped Beaufin, and others in fifties, and although on a weaker Paradise stock they are making model heads, and many of them will not be touched by the knife. The soil in which these trees are growing is a good heavy kitchen garden loam made friable by a liberal admixture of ashes from the rubbish yard fires; they stand 6 feet from row to row, 4 feet from tree to tree, and eventually each alternate tree will be lifted and transplanted to fresh ground. The main points in the management of all miniature trees are the selection, where rents are low, of suitable ground in a clear atmosphere away from towns, planting with healthy maidens which have not been cut back, enrichment by trenching in fertilisers for a preparatory crop, say of early Potatoes, and keeping all the manure on the surface in the form of a heavy mulch, washed in by copious supplies of water throughout the season of growth. Pruning, as I have already remarked, should be limited to the suppression of gross shoots, and thinning out, as a matter of course, where they are likely to become too close together; whilst cleansing may be accomplished by frequent syringing with home-made soapsuds, containing the usual quantum of washing soda.

Pears on the Quince stock should be earthed up to the working with rich compost consisting of burnt refuse, lime rubble, and loam, and over this a heavy mulch of thoroughly good manure. In the selection of maidens for this mode of culture, preference, I may say, should be given to those which are worked close to the ground, first, to ensure roots from the scion; and second, to keep those of the stock within the influence of solar heat. When thoroughly established in good loamy soils Pears on the

Quince will stand a heavy mulch every year, and sewage water *ad lib.* throughout the season of growth. The mulching in course of time may get too high, but this may be prevented by lightly forking up and raking off the old before the fresh manure is applied. The trees, again, like Apples, must be kept in balance by the pinching of gross shoots in July and thinning out where too thick in winter, also by spur-pruning, as the best Pears are obtained from spurs composed of a few bold, well-ripened buds. The shoots of most varieties will grow nearly vertical at first, but when they commence bearing, the weight of the crop will cause them to droop in good seasons to an extent which will necessitate support. W. C.

DESTROYERS.

THE INCREASE OF INSECT PESTS.

As a proof of how insect pests spread, I may quote a communication from a Mr. Maskell to the *Entomological Monthly Magazine* on one of the Coccidæ (*Icerya purchasi*), nearly allied to the mealy bug, and its enemies. He says, "The matter is more interesting to us in the South Seas, to fruit growers in California, or at the Cape of Good Hope than it is to English horticulturists, who will not ever, I hope, have an opportunity of knowing practically what *Icerya* is capable of in the way of destruction. It might be a new experience to some of them to see, as I did a couple of months ago, a grove of Wattle trees (*Acacia* sp.), none of which was under 30 feet high, and many of them 50 feet, standing up, nothing but bare trunks, killed stone dead by *Icerya*, not one of which had been known in the locality eight years ago, and yet at the time of my visit only a few *Icerya* were to be found in the neighbourhood; one had to look about and hunt for specimens where, say in 1886 or 1887, there were millions. This insect first appeared in New Zealand about 1877, and had not reached the locality of which I speak until 1881, had increased in five years so much as to cover profusely the vegetation, had killed amongst others the grove of Wattles, and had then in two or three years more suddenly decreased in numbers until it is no longer plentiful. The reason of this decrease is certainly not want of food, for this pest is practically omnivorous, and there is any quantity of vegetable nutriment available for it. What has brought about the improvement has been the native enemy, a species of *Coccinella*" (a beetle belonging to the same genus as our ladybirds). I am sure all horticulturists will join in Mr. Maskell's hope that we may never know practically what this pest is capable of in the way of destruction, and I do not suppose we shall on account of the difference in climate, unless it got a footing in our greenhouses. The "stitch in time" is a very true proverb, and never more so than when dealing with insect pests. They should never be passed over because they are so few that it is not worth while to trouble about them. Who knows what numbers may be had from the few in a fortnight's time? As soon as they are noticed, a sharp look out should be kept for them, and means at once taken to destroy them. The destruction of the *Icerya* by the *Coccinella* is another proof of the balance which Nature keeps when left alone. Some creatures may under particularly favourable circumstances increase enormously for a time, but then its foes increase and its numbers are reduced to perhaps below its average proportions. When we unnaturally grow plants under glass and they are attacked by insect pests, we must destroy them ourselves, as the natural enemies cannot get at them, and are very likely hundreds of miles away. G. S. S.

Woodlice eating Mushrooms.—Can you tell me what animal eats these Mushrooms? There are no mice in the place, and the only living thing seems to be woodlice. There are two beds, and in both when a tiny Mushroom appears it is im-

diately eaten. This is our second crop. Our first crop flourished and bore well. Can you account for it and help me with a preventive?—R. T. BIRCH.

* * In reply to the above, the woodlice are no doubt the culprits, and are old offenders in this respect. Trap them by laying small garden pots on their sides half full of dry Moss, and a piece of Potato or Apple at the bottom. Examine them every morning and shake the woodlice into boiling water. Pour boiling water into any places where they congregate. They are difficult creatures to exterminate, and much perseverance is necessary.—G. S. S.

MOLES IN GARDENS.

"R. D." has some very sensible remarks on the above at p. 603. There can be no doubt that moles are always injurious—mostly intolerable—in gardens. Those who, like "R. D.'s" Essex clergyman, have a craze in favour of moles are most unneighbourly neighbours. I had such a one, a farmer, who allowed the moles to honeycomb his Grass meadows that bounded a portion of our garden. The effect upon garden crops and prospects was most disastrous. Whole crops of the Cabbage tribe, Peas, Carrots, Onions, and seeds were simply wrecked again and again. The havoc among flowers in bed and border was simply ruinous. The farmer said we, too, had wireworms, and the more moles the fewer worms. But as we had always had good crops before the raids of his moles, we could not see it in his light. We therefore set to work on the moles, inside and outside the garden, with the result that our usual good crops returned. Where moles are plentiful and labour and patience also abound, a good many may be caught by watching for their working times and throwing them out, as advised by "R. D." The interval between their spells of work is mostly about four hours, so that it is easy to time the chances of throwing them out.

But the practice needs much caution and great expertness in execution to render it successful. The mole's sense of hearing seems marvellously acute; hence a soft footfall is the first step to success. Then the thrust of the spade must be sudden, well directed, and sufficiently deep to underburrow the mole. Then he must be thrown out, quick as thought pitched up in the air, when the fall suffices to kill the mole. Either the shock or the fall mostly suffices for this purpose, as the mole is very easily killed, and in any case is peculiarly helpless and easily destroyed on the surface.

Even the most expert digger-out of moles must, however, be prepared to draw many blanks, as, while few living things are more helpless on the surface, none are more prompt or fertile in resources of escape underground. D. T. F.

Maggots in Apple-tree branch.—Enclosed for your inspection is a piece of a branch from an Apple tree, in which you will find a large maggot, it being the second one found on the same tree. It is doing considerable damage, having eaten or bored a hole up through the centre of a stout branch. The first one was much larger. We have in the garden here a large variety of Apple and other fruit trees, but only on this one tree, viz., Cox's Orange Pippin, have they been found. Kindly give me the name of the maggot, and whether a new pest to the fruit tree.—W. H. C.

* * In reply to the above, the maggots infesting your Apple tree are the caterpillars of the wood leopard moth (*Zeuzera aesculi*), a by no means uncommon insect whose caterpillars live in the branches of various trees, but the Apple is their particular favourite. When a small branch, such as that you sent, is attacked, it is better to cut it off below the insect, split it open and kill the caterpillars, as there is no chance of its living after being bored. A larger bough should be examined and the entrance to the burrow found. A flexible wire with a sharp point should then be pushed into the hole with a view of stabbing the caterpillar with it; if the caterpillar cannot be reached in this way a piece of tow saturated with

tar or paraffin oil should be thrust in and the entrance tightly closed with clay, or a piece of cyanide of potassium stuck on to the end of a piece of clay in the form of a lead pencil may be pushed in as far as possible and the hole filled tightly with clay.—G. S. S.

IS THE HOLLYHOCK DISEASE CURABLE?

I SHOULD be sorry to damp the ardour of "Sanguinea," but bitter and oft-repeated disappointments compel me to answer his question in the negative.

For many years Hollyhocks were our most telling feature; they suited our terrace walls and relieved the flatness of our flat and formal style. Through the simple device of saving our finest strains and purchasing a package of the finest seeds annually, our stock had reached a high level of excellence. In an evil hour we begged some cuttings of some specially choice, but also vigorous varieties. The next season the American disease invaded us. For a few weeks it confined itself to the strange strains. From there it advanced with leaps and bounds until the whole stock was attacked.

Its progress was so rapid and the disease proved so virulent, that the wrecked stalks were cut down and burned, and as many as possible of the diseased leaves picked off. The surface soil was also removed, a top dressing of manure given, and the roots thoroughly soaked with house sewage. Throughout the late autumn many of the plants responded hopefully to this stimulating culture, making vigorous and apparently healthy growth. But the next summer we had scarcely a spike worth looking at or a clean plant in the garden or pleasure ground. We felt the shock severely, the Hollyhocks leaving a void that nothing could fill in the garden or landscape, and we determined to adopt the most radical measure of uprooting and burning the entire stock, removing all the old soil, and starting with fresh strains and some plants from a distance. This is more than a dozen years since, and the result was that the last state of our Hollyhocks was far worse than the first. In fact, in all our future trials we have never found a strain comparable in vigour and beauty to the original one that we had grown for so many years. After several bitter failures with fresh plants on maiden soils and sites we determined to starve out the pest by growing none. But this seems hopeless; for after intervals of two or three years we have tried again, and hardly have the plants been planted, and not once bloomed, without the disease establishing itself. Only last season we tried again, and I regret to say that at the present moment we have not a clean nor a promising Hollyhock in the grounds. The irresistible logic of facts has, therefore, driven me to the hopeless conclusion that where the Hollyhock disease has once established itself it is incurable by the skill or wit of man.

Sulphur is of no use, neither is paraffin oil nor other dressings, and my experience of late years is that there are no Hollyhocks in the county quite free from the ravages of this dire destroyer. True, they are not all equally infested. Far from it. In some sites and soils the fell destroyer's power is held in check through influences and forces that are absent from other places. Hence, here and there we find Hollyhocks, occasionally, too, almost within sight of those destroyed, over and over again growing and blooming fairly well, though seldom up to the old standards reached at Saffron Walden or elsewhere. But no sooner are these moved from their relatively safe localities and planted on those on which the plague of this disease has rested heavily, than the plague follows as a matter of course.

There are two causes for this. One is probably that the germs of the old disease lurk and lie in wait in the old lairs to see if any new plants may turn up. The other is that the new plants themselves are already attacked with the disease in embryo. Only last year I was advised of a perfectly clean collection of Hollyhocks in certain grounds. I went, saw, and left them where they were, as they were full of the fungus in a semi-suppressed condition. Like most, perhaps all, other

fungoid pests, the Hollyhock disease needs two conditions for its active destructive development—the presence of the spores in the earth, air, water, or physical environment of the site, and possibly these now exist everywhere, and a certain subtle something in the vital condition or physical or other surroundings of the plants that enables the disease to master them or the plants to master the disease, or, rather, hold it more or less in check.

Further, it seems that whatever those fostering or restraining forces may be, they cannot be relied upon to protect the plants from this destructive pest in districts where it has once obtained full sway, and successive crops of Hollyhocks have been swept off through a series of seasons.

D. T. F.

GARDEN FLORA.

PLATE 736

ROSE DOCTEUR GRILL.*

YEAR by year Continental Rose raisers favour us with long lists of novelties, and although many of these new kinds never come into cultivation, yet with such a variety to select from, the labour of raisers would indeed be vain and discouraging if a trial did not result in the finding of some new kind possessing merit and distinctive qualities differing from, but equal to those of other good Roses. Each year sees a few new sorts that are destined to take their place as standard kinds, permanent additions to a beautiful, ever-increasing, but none too numerous family. The spring of 1887 saw the distribution of several fine Tea Roses, including Dr. Grill, which forms the subject of our coloured plate, Mme. Etienne, Princess Beatrice, Ethel Brownlow, and Luciole.

Dr. Grill was raised by Bonnaire, and is by far the best Rose that he has yet given us. As yet it has not figured very prominently in exhibition stands, and I did not see it this year in some of the large Rose nurseries. This, however, is not owing to lack of good qualities, but rather to the fact that it has been overlooked, coming as it did in a year which saw the advent of a number of good new Roses. The plate, which so faithfully portrays the fine form and charming colour of the flowers, was drawn from blooms cut from a group of bushes planted in the open bed in the previous November and left unprotected. Before the season was far advanced all the qualities that constitute a good Rose were abundantly manifest.

The plant has a vigorous constitution, with a sturdy, erect, and rather rigid habit of growth. The flowers are remarkable for their fine form, the outer petals being shell-like, large, and helping to build up a bloom of good substance. It has the additional merit of being a remarkably free bloomer, and the flowers open well. This was especially noticeable during the dull and wet days of last August, for whilst many Roses then could not open, Dr. Grill braved the elements and kept up a display. As will be seen by the drawing, the shades of colour in the flower are various and happily blended.

* Drawn for THE GARDEN by H. G. Moon, from plants in open beds at Gravetye Manor, September 10, 1889. Lithographed and printed by Guillaume Severeys.



The prevailing tint is a coppery-yellow, shaded and suffused with a clear tender rose, which deepens at the base and externally is somewhat of the same tint as the common pink Monthly. Though quite distinct from, it has points of resemblance with two other first-rate Teas, Mme. Lambard and Jules Finger, in its habit of growth, freedom of flowering, and ease of opening; its vigour denotes hardiness, and it should become common and popular as a garden Rose. Whilst kinds of such merit annually appear, interest in trying new Roses will not lack, and those who speculate in them will be well rewarded for all expense and trouble in finding something of merit, and will earn the gratitude of thousands of Rose lovers whose means are limited, and who before making new purchases await the published results of others' trials. The frequent publication of these plates of fine Roses should be a powerful factor for good in extending the open-air and flower garden culture of Tea Roses. With all the plates recently published it has been intimated that the flowers were from unprotected plants in open beds, and what is possible in one garden is possible in many, even though granting that there are exceptions. If success in the present case is attributable to any one thing, it is to the starting with sturdy plants worked in the open air and upon the seedling Brier stock. The planting out of weak Tea Roses that have been grafted upon and often only imperfectly joined to a stock whose roots have been coiled up in a pot has never been satisfactory, and never will. From such a practice there will always be a large percentage of deaths.

A. H.

KITCHEN GARDEN.

FORCING ASPARAGUS.

NOTHING is more easily forced than Asparagus, the principal hindrance in many cases being a poor supply of roots for the purpose. In some instances Asparagus is forced in the beds where it is permanently established, but by far the greater number of gardeners who are annually called upon to supply a long succession prefer to lift and force the requisite number of roots. It is decidedly unwise to break up a good bed of Asparagus, unless another has been prepared during the previous three years to take its place, the usual plan being to break up the oldest bed on the place every winter and to plant a new one in the spring. Seeing that "J. B." failed to state the circumstances of his case, it will perhaps be best for me briefly to describe both the methods of forcing above alluded to, and he can then adopt which he pleases. Supposing he has a narrow bed, or one not more than 4 feet wide, well filled with strong Asparagus, and abundance of heating material, consisting, say, of fresh leaves and stable manure, or the latter only, he may well try the first mentioned system. After the heating material has been thrown into a heap for a few days and given one or two turnings it is ready for use. On each side of the bed open a trench 2 feet wide, or the width of the alley, and 3 feet deep, the soil being wheeled away for the time being, after which firmly fill these trenches to rather above the level of the bed with the heating material. The surface of the bed ought next

to be lightly forked over, prior to receiving a covering of very light soil or leaf-soil, to a depth of 4 inches. If there are any garden frames, sashes, or lights available, these may well be used for covering the portion of the bed to be forced, a few temporary sides being easily constructed, and all should be further covered with mats or litter. Failing these coverings, a good bank of leaves and strawy manure disposed over them would serve to enclose warmth, and also to exclude cold rain and snow-water. It is a somewhat slow process, but, all going on well, the first shoots ought to be ready to cut in less than a month. It must also be remembered that a great quantity of Asparagus cannot be cut from a short length of bed, and at least an area of 18 feet by 4 feet should be forced at one time, this yielding a good supply for about one month. Beds thus treated must not be cut from in the summer, but if fairly strong growth is formed they may again be forced during the following winter. In one large garden in the midlands they have beds prepared especially for forcing, the sides of these having pigeon-holed walls, and thus formed and the alleys well boarded over, the Asparagus can be forced either with the aid of manure or hot-water pipes.

For forcing lifted roots a mild hotbed and a garden frame are the principal necessities. A very strong bottom-heat, if not actually fatal to the Asparagus, will at any rate induce a very spindly growth, and if the bed has to be formed solely of stable manure, instead of a mixture of leaves and manure, it must be well prepared or sweetened and moderated by frequent turnings. The bed may be formed rather wider than the frame to be set on it, and from 3 feet to 4 feet in depth, according to the quality of the heating material used. Some of the shortest of the manure should be thrown inside the frame, and on this be placed about 4 inches of good loamy soil. The lights ought then to be put on, and not till the trial stakes kept plunged in the bed can be borne comfortably in the hand should the Asparagus roots be placed on it. Nor ought they to be lifted long before wanted unless a severe frost is anticipated, in which case they may well be stored under cover and kept dark and moist till the bed is ready for their reception. In lifting, a start should be made at one end of the bed, and all the crowns with as many roots attached to them as possible be carefully forked out right ahead. The next proceeding should be to pack the crowns thickly together over the surface of the hotbed, and the roots being properly spread out will overlap each other considerably, but plenty of fine soil must be distributed among and the crowns be finally covered with about 4 inches of fine light soil. Beginners are apt to be too sparing of their crowns, but if good-sized dishes are wanted at one time, not less than two lights should be closely packed with roots. Asparagus will certainly keep for a few days, but the quality is much deteriorated in consequence. Even experienced gardeners seldom cover the crowns sufficiently, and after a heavy watering they become bare and dry, while from the first the shoots are far too short when cut. In mild weather a newly formed bed is liable to become over-heated, and if at any time it becomes dangerously hot after the Asparagus is on it, deep holes should be formed in the bed and air left on the frame till the heat has cooled down sufficiently. If only moderately hot, the bottom-heat not exceeding 70°, the top heat being somewhat lower, the frames may be kept well matted over both night and day, especially if blanched shoots are preferred. The soil about the roots ought to be kept uniformly moist, and the heat being maintained in the bed with or

without the aid of linings, a succession of shoots will be maintained for nearly a month. A second bed ought, therefore, to be formed and stocked with crowns in about three weeks after the first was started. Asparagus forces very quickly, the first shoots being well above the soil in a fortnight or thereabouts according to circumstances. The best way to detach the shoots is to trace them down to the crowns and then twist them off. Force every bit of growth out of the crowns, as they will be of no further service, and quite the smallest shoots are utilised by cooks for soups.

W. I.

CELERY.

OLD customs die hard, even when improved systems of cultivation have been persistently advised, and this is more noticeable in the kitchen garden than in any other department. If this were not so, the old plan of pricking off Celery in a rich bed of soil, and finally planting out when the plants have reached a large size, would have given way long ago to the better way of pricking it out into the trenches, when quite small, direct from the seed-bed. In this way much time is saved and far better Celery is grown, while the plants are better able to take care of themselves during the growing season if the weather should be dry. The ridges are available for early crops of many things, Peas, French Beans, Lettuces, Potatoes, &c., doing remarkably well in such positions. In a small frame on a hot-bed made up for Cauliflower, Brussels Sprouts, Lettuces, and early Broccoli, Celery plants sufficient for a large garden may be raised. The plan I follow is to mark out the frame into sufficient plots for the above-mentioned seeds, which are sown very thinly, and then the Celery is sown over all. The Cauliflower, Lettuce, &c., can be drawn and pricked out before they can injure the Celery, and the latter will then remain and form nice sturdy plants for putting out as early as convenient.

I am led to send this note by the great superiority of the Celery I pricked out into the trenches last year over that which was unavoidably treated in the old-fashioned way, because of want of room till late Broccoli were cleared off. The former gave us no trouble during dry weather and had no help from the water-pot, yet it averages at least 1 lb. per stick heavier than the latter; while it came in for use by the middle of September, quite crisp and well blanched, the other being much later. I was surprised to see by "R. D.'s" note (Jan. 4, p. 5) that Standard-bearer had proved disappointing to some growers. Here it has been for the past two years the very best Celery I have grown, always good in quality and very hardy. Wright's Grove Red is also a first-rate Celery. I prefer Wright's Giant White to the same raiser's Grove White, as it is quite as good in quality and solidity and grows much larger. I think the first three Celeries mentioned above are the best I have ever grown, and can scarcely be beaten. Will any grower who has tried them together tell us if he could find any difference between Wright's Grove Red and Veitch's Early Rose? Here I grew them side by side in two places last year, and I have not been able to detect the slightest difference in them. As this is the first time I have grown Early Rose, I cannot say whether a mistake was made in the seed or not, but it is scarcely likely that there was, as I got it from the best possible source.

J. C. TALLACK.

Livermere Park.

Parsley in winter.—This is in daily use in most establishments. Many notes have appeared in THE GARDEN recently on how to obtain this in winter. I do not remember having seen the following simple contrivance noted, namely, a wooden barrel with large holes bored at equal distances all round the outside of it; then a large pipe or four pieces of board nailed together which makes a square placed in the centre of the barrel, and filled in all round with good soil. When full, plant some good strong Parsley roots, one in each hole and on the top. About the end of July place the

barrel in a shady place till the plants are well established, and by winter the barrel will be quite covered with beautiful green Parsley. This barrel can be placed in any cold house to furnish a supply in bad weather, or can be put into heat to give a fresh supply in spring.—JOHN CROOK.

THE CAPSICUMS.

ALTHOUGH in the northern parts of France the use of Capsicums is hardly known, except as pickles, and then mostly when they are employed to fortify other kinds of pickles, such as Gherkins, the case is very different in Spain and Italy, and even in the south of France, where, as in the warm regions of North and South America, Capsicums form a distinct article of general consumption, either in the form of sauces, or eaten raw, or prepared in different ways, as is done with Tomatoes. For the last-named purpose the large sorts, which are known as the Mild-flavoured (Piment doux) and the Large Bell Capsicum (Piment gros carré), are almost exclusively used.

But besides its use in supplying the dinner-table, there is another purpose for which this family of plants may be employed, and one which is deserving of attention, although up to the present it has scarcely been thought of in France, that is, the employment of some of the kinds as ornamental plants. In this way they are frequently made use of in England both in gardens and apartments, where the great variety of form and the remarkably rich colouring of the fruit or seed-vessels are highly appreciated.

When grown for ornament the Capsicums should be in pots, a way of growing them which suits them very well, and for which the following instructions may be serviceable: The seed is sown from February to April in leaf-mould on a spent hotbed under a frame. The seedlings are pricked out in lines under a frame similarly situated, and are kept near the glass, care being taken to give air whenever the temperature outside of the frame allows this to be done with safety. Later on, when frost is no longer to be feared, the seedlings are planted out in some spot that is sheltered and well exposed to the sun, and where the soil is very light and abounds in humus. Later still, when the plants are well established and are on the point of coming into flower, they are potted in the same kind of soil as that from which they are taken up, each plant being carefully lifted with a small ball, so as to lessen the danger of their suffering from the removal. The plants when potted might even be kept close in a cold frame for a few days (in order to prevent them from dropping their leaves), and then hardened off by gradually admitting air. When they have quite recovered they are taken out and planted in good positions, the pots being slightly plunged in the soil. From time to time the pots should be turned round, both in order to prevent the plants from rooting through the bottom and also to ensure a regular and even growth by bringing every part of a plant in succession under the influence of the full sunshine. From time to time also any growths that are too strong may be pinched out, in order to secure a regularity of shape and clear away anything that would injure the general appearance of the plant or hide the seed-vessels, which are its chief attraction.

Except in the dimensions of the leaves, the greater or less vigour of the plants, the shapes and sizes of the seed-vessels (in which, however, there is a considerable degree of diversity), the Capsicums, although the species or varieties are very numerous, exhibit only comparatively slight differences amongst the various kinds.

Still, there may exist a considerable amount of diversity on the same plant as regards the appearance of the seed-vessels in different stages of ripening, when they may be seen to range from green to the deepest yellow or red through various shades of both colours. There are even some varieties of which the leaves, flowers, and seed-vessels are all of a violet-purple colour. There is also a diversity in the arrangement of the seed-vessels, some of these growing in an erect and others in a pendent or drooping position. In addition to very marked differences in size, there is also very great diversity in the shape of the seed-vessels; they are found short, long, regular, misshapen or monstrous, slender and long-pointed, or stumpy, obtuse, and truncate, &c. The flavours also are very diverse, from the mild-flavoured to the very pungent or biting kinds which are known as "mad" Capsicums (Piment enragé), and are chiefly used for fortifying weaker pickles, such as Gherkins, as mentioned before.

The following is a description of some varieties of Capsicum which we particularly remarked this year in a collection of these plants grown in the open ground by MM. Vilmorin, Rue de Reuilly, Paris, and which might have been seen in their fine exhibit of vegetables at the last general horticultural exhibition:—

PIMENT DU CHILI (Chili Pepper, or Chillies).—A curious variety, with long, slender, erect, and very numerous seed-vessels, from about 2 inches to nearly 2½ inches long and about one-fourth of an inch in diameter, of a very bright scarlet colour, and exceedingly hot and pungent to the taste. The plant is bushy, very branching, and very ornamental from the number and fine colour of the seed-vessels, which contrast boldly with the green foliage, producing a pleasing effect.

PIMENT A BOUQUET (Cluster Pepper).—A dwarf, very bushy plant, of compact habit, in consequence of its shoots growing in clusters or bundles. Seed-vessels erect, very slender, about 2 inches long and about one-fourth of an inch in diameter, long-pointed, curved, of a fine orange-red colour, and very pungent in flavour.

PIMENT ROUGE LONG OU COMMUN (Long Red or Common Capsicum).—Seed-vessels pendent, slender, of a long conical shape, from 4 inches to 5 inches in length and about 1 inch in diameter at the thickest part, of a deep bright red colour, and usually very pungent, or even burning, to the taste. Amongst seedlings, plants occasionally occur which produce seed-vessels that are almost round in shape. This variety, which is very extensively cultivated, is most generally known by the name of "Long Pepper."

PIMENT JAUNE LONG (Long Yellow Capsicum).—Seed-vessels pendent, of a fine bright yellow colour, about 5 inches long, slightly twisted, humpy, and pointed in shape.

PIMENT DE CAYENNE OU P. ENRAGÉ (Cayenne, or "Mad" Pepper).—Seed-vessels curved, sometimes twisted and warped in shape, of a bright red colour, from 3 inches to 4 inches in length, and about half an inch in diameter. This is considered to be a variety of the common Red Capsicum. It is so pungent in flavour, that the term "enragé" or "mad" is popularly applied to it.

PIMENT DOUX D'ESPAGNE LONG ROUGE (Mammoth Spanish Capsicum).—Seed-vessels from 5 inches to 6 inches in length, and nearly 3 inches in diameter, twisted, and of a fine vermilion colour.

PIMENT CARRÉ JAUNE HATIF (Early Yellow Pepper).—Seed-vessels obtuse, sub-truncate, from 3 inches to 4 inches in length, and from 2 inches to nearly 3 inches in diameter, of a bright yellow colour, irregularly ribbed, and sometimes slightly horned.

PIMENT CERISE (Cherry Pepper).—Seed-vessels nearly spherical in shape, often slightly mucronate, a little over an inch in diameter, of a fine bright red colour, and very pungent in flavour. There is

a sub-variety in which the seed-vessels are yellow—the only point in which it differs from the type.

PIMENT TOMATE (Red Tomato Capsicum, or American Bonnet Pepper).—A plant of vigorous growth and erect habit. Seed-vessels very depressed in shape, and resembling Tomatoes or rather Cantaloup Melons in their regularly ribbed sides. Flesh dry, poor, almost insipid. The variety *P. Tomate nain hâtif* differs in being earlier; the seed-vessels are also smaller and of a dark red colour; they are about 2 inches in diameter and truncately rounded at the top.

PIMENT MONSTREUX (Monstrous Capsicum).—Seed-vessels 5 inches or more in length and from 3 inches to 4 inches in diameter, usually twisted or warped, and obtuse and truncate at the extremity.

PIMENT CARRÉ DOUX D'AMÉRIQUE (Bull-nose Capsicum, or Sweet Mountain Pepper).—Seed-vessels very large, truncate at both ends, somewhat irregular in shape, ribbed, and of a deep bright red colour.

The varieties of Capsicums here enumerated are not the only ones that exist, but they are the kinds that are most frequently met with in cultivation.—*Revue Horticole*.

MANURIAL COMPOSTS.

THE best manure is that which is made in covered yards. It contains all the necessary elements of fertility, though in a somewhat rank and crude form. Such manure is excellent for most crops after it has been absorbed by the soil, but it is too strong to be brought into immediate contact with the roots of plants. In dealing with this manure the practical gardener would rather work it into a compost with other substances, and this is a comparatively easy matter, and there need be no loss of strength or any of its manurial elements. Make a bottom or base of road parings or the clearings from ditches or banks, on this place the manure trodden down firmly, and then cover with a layer of soil or some absorbent of similar value. In a few months this will cut down and be excellent for Celery, Cauliflowers, Lettuces, or other crops of either fruits, vegetables, or flowers. Six months ago I had a large heap of manure from a cow shed treated in this manner, and now it is mellow and suitable for any plants to root into. And really there is no loss in bulk, as the turf and other matters placed on the bottom and with which the heap was covered afterwards are of equal value with the manure itself. I have seen the evil of planting crops on land that has just been dressed with rank manure, and prefer, unless time can be given, to work the manure into compost for most plants. Of course the character of the soil dealt with should have some weight. But I find on a fairly porous soil the compost system is the best. Where the soil is heavy and holding the manure can be placed on the land in autumn or early in winter, and there is time for the two to become blended before the cropping takes place. Now-a-days there is more than one kind of stable manure, or rather there is more than one kind of litter used. Where Moss litter is employed for bedding the manure is excellent; in fact, I prefer it to straw. In some stables sawdust is used, and being short of manure some time ago I bought a few loads, but it is poor stuff in comparison with Moss litter or straw. One advantage of working the manure into compost is that the more fleeting elements are absorbed and fixed in the bulk, and are not so likely to be carried down to the drains by a heavy rainfall as when the manure is taken straight to the land at once. All the Cabbage tribe are gross feeders, and stronger manures may be placed on the land they are to occupy than would be desirable for most crops. The best way of manuring is to give a moderate dressing for every change of crop. This keeps the land in good heart and well up to its work, and it suits most crops better than heavier dressings at longer intervals. Celery is a crop by itself, so far as regards manuring, and here the compost system is undoubtedly the best. In poor,

porous soils the plan adopted with Celery may be followed in the treatment of other crops with advantage. Cauliflowers, Lettuces, Peas, and Scarlet Runners will do better with a layer of rich compost beneath, not actually in contact with the young roots at the dawn of life, but where the roots as they gain strength can find the rich food provided for them. E. H.

Triumph Marrow Pea.—Now that the Pea-sowing season is so close at hand, I should like to draw attention to the capital dwarf Pea above named. From my own experience of it for three years I regard it as the best main crop dwarf marrow Pea in cultivation, and if those who grant certificates to novelties knew the rare merits of this kind they would be more chary in granting honours to some others very much inferior. Triumph has rather small seed for the size of the pod, but that is because they harden thoroughly. For that reason the seed is harder for sowing than is large succulent seed. In height the Pea is, without sticks, 2½ feet, and when staked about 12 inches higher. The pods are freely produced. The green Peas are rich in colour and of excellent flavour.—A. D.

Cabbage Lettuce Perfect Gem.—This is one of the very best of all Cabbage Lettuces for a private establishment. It has given me more satisfaction than any other kind, and I strongly recommend it to the notice of those growers who have to supply a goodly amount of salad. It is in size below the average of its class, but this is amply compensated for by the very firm hearts that are obtained with but little waste. It can be grown more closely together than many kinds, and will thus give a far better return than those of more luxuriant leafage. Where the utmost economy of space is the prime consideration in the garden, Perfect Gem is sure to find favour. It has also been highly approved of in the kitchen, and inquired after there in preference to larger kinds. This is in itself a good recommendation. I have not tried it in frames, but have no doubt that it would give good results when thus treated for late use. Its compact growth should especially recommend it for this mode of culture.—J. H.

Brussels Sprouts for winter and spring.—Some may think they are not intended for any other seasons, but many are anxious to sow them early and have the sprouts matured by September. This is much too early to produce a crop of the most serviceable description. I have found from experience that September sprouts are of little use for a midwinter or spring supply, and as these are the times that sprouts are most wanted and of the greatest value, I would not advise the raising of plants too early. It is after Peas, Kidney Beans, and other vegetables are over that the Brussels Sprouts ought to come in, and our best at the present time and those that will remain sound until April are from seed sown in the open border early last April, and planted out in June or as late as July. There is only one purpose early ones are valued for, that is exhibition, but the main crop should not be included with these, and while there are many advantages in raising a batch of early Cauliflowers, Lettuces, Celery, and some other things under glass, time and space of this description should never be devoted to Brussels Sprouts. As to the value of a good supply of sprouts in winter, I regard them as second to no other green crop, and they should be largely grown in all gardens. Amateurs who avoid them make a great mistake. They are much harder than either Savoy or Broccoli.—CAMBRIAN.

When to sow Parsnips.—Many are anxious to sow their Parsnips early in February, and I have even known them to be sown in January, but I cannot see the advantages of sowing thus early. Indeed the early sowing has many drawbacks, as the soil is rarely in good condition until March. If anyone will sow a few rows in January or February and more early in April, I have no hesitation in saying that by November, which is as early as Parsnips are wanted in the kitchen, the April lot will be the better of the two, as Parsnips, like many other vegetables, deteriorate after being

matured for some time. All growers of this root crop know that they decay and rust to a great extent, especially about the crown, at this season, but late-sown ones which are in their prime when winter comes on suffer much less in this respect.—CAMBRIAN.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

CUCUMBERS.—If winter Cucumbers are not making satisfactory progress, a few seeds of Telegraph or some other favourite variety should now be sown and pushed forward for a supplementary supply of fruit in March. It is as yet rather early to make a nursing bed for a single frame, no doubt the best place for the raising of these and Melons, neither is it necessary where a Pine stove is at work, and the removal of a single Pine plant will give ample room for raising seedlings in quantity. When the surface of the bed is too far away from the glass, a snug and safe home may be provided by the introduction of a square box which may be filled nearly full of hot tan or leaves for the reception of the small pots containing the seeds, sown singly or in pairs. A square of glass placed over the top will facilitate germination and protect the young seedlings from the ravages of crickets and cockroaches through the night, but it must be taken off or tilted through the day to prevent them from becoming drawn. Time being important, have the fruiting pots or ridges ready for the plants by the end of the second week after sowing, pull out the weakest where the two seeds have germinated, and transfer them before they become pot-bound.

Plants in full bearing will now take more water, and that of good quality, as half the winter plants are ruined by being kept too dry. It is too early to resume direct syringing, but the surface of the bed and the walls may be thoroughly moistened twice on fine days and once only when the weather is dark and cold. Encourage root action by turning and renovating all available parts of the bed, also by the removal of all male blossoms, superfluous shows and weak growths, by light cropping and cutting when a foot or so in length. As growth improves gradually resume the pinching of the strongest shoots, and make room for fruiting laterals by the removal here and there of old and useless leaves.

If the latest plants have been kept steadily progressing throughout the winter, they may now be allowed to set and swell off a few fruit; but bearing in mind that these should give the best return from the beginning of March onwards, pressure for the present must be very light. Winter plants do best in a bottom heat of 80° and an air temperature of 65° to 70° by night, with a rise of about 10° from fire and 15° from sun heat. Covering greatly conserves warmth and moisture, especially on bright and windy nights.

CHERRIES.—When the buds in the early house become prominent, raise the temperature to 45° on mild nights and 50° to 55° by day, always with a chink of air, be it ever so slight. Trust as much as possible to genial warmth from fermenting material, which turn and renovate frequently, as moisture from this produces the best results and often saves recourse to the syringe. A nice dewing over with tepid water on bright fine mornings is always acceptable, but at no time should the buds be found wet at the close of the day. As days lengthen the most gentle circulation on the hot-water pipes with top and bottom ventilation will help the buds rapidly forward, always provided the temperature is allowed to rise by day and fall back to the minimum through the night; then, as the flowers show colour, the house, when quite dry, must be moderately fumigated to prevent the appearance of green-fly. Watering, as a matter of course, must be regularly attended to, for, notwithstanding the fact that Cherries rarely drop their buds, they resent neglect or excess when fruit apparently well set should begin to swell. If the trees are in pots

give plenty of water at a temperature of 60° when necessary, but avoid dribblets, as this method leads to fatal consequences when the crock roots become dry.

STRAWBERRIES.—As early batches of plants approach the flowering stage press down the leaves to prevent an accumulation of moisture, and move them if necessary to a light and airy part of the house. Warm the pipes through the day, syringe the foliage, the paths, and walls when the temperature begins to rise, and repeat the damping when the house is closed for two or three hours on bright days. The best time to water plants is early morning, otherwise the attendant may be misled by moisture from the syringe, when an inch below the surface the balls may be too dry. An experienced hand can tell by the appearance of the pot when a plant is dry, but those who have not done so should make watering a study, for much as the Strawberry resents drought, it is quite easy at this early stage to give too much. Each batch of plants as they approach the flowering stage must be fumigated twice when dry and cool, and when pollen becomes plentiful the fertilising brush should be introduced. Maintain a supply of fruit by the introduction of fresh plants from the reserve, but avoid crowding, as the heaviest and most useful crops are gathered from plants which come on steadily and are found in full flower in March and April.

HARDY FRUITS.

The most important work in this department is pruning, cleansing, and training whenever the weather is favourable for outdoor operations. Wall trees, with the exception of Peaches and Figs, by this time should be finished, and home-made soap-suds being plentiful, the trees and walls may be well washed once or twice a month until the buds become prominent in the spring. Newly planted trees, as a matter of course, will not be pruned or trained, as the compost will still be settling and carrying the roots and tops downwards, whilst the shoots left intact will retain all their stored sap ready for the strain which newly planted trees always feel when solar heat pushes them in advance of the roots in April and May. Peaches must be detached from the walls, washed on mild days, and made secure from injury by snow and wind. We tie the shoots to long rods let into the ground and made secure beneath the coping, and whilst the buds are quite dormant dress the walls, the real stronghold of insects, when the wash is not likely to be diluted or removed by rain. Apricots have received a seasonable check, but the buds, naturally forward, will soon resume swelling under the influence of bright sun. When this progress becomes evident, all preliminary arrangements must be made for hoisting nets or canvas, but the latter must be kept in the store room until the flowers are ready to expand.

BUSH FRUITS, including Currants and Gooseberries, may still be pruned, care being taken that the heads of the latter are made sufficiently thin to admit the hand. When this work is finished, scrape away the surface soil and old mulching, dress with quicklime, and give plenty of light, rich compost or manure, but do not fork it in. If birds are troublesome, enclose the quarters with nets, not too small in the mesh, but small enough to prevent the entrance of the bullfinch, as a very small-meshed net holds snow, and sometimes sinks with the weight, when the bushes suffer. A skeleton framework is easily made by driving in Larch stakes 6 feet apart each way and straining strong wire over their tops some 3 feet to 5 feet above the ground. When the fruit is safe from birds and frost remove the nets, leaving the framework, as it will last for years, but return the nets before blackbirds attack the ripening berries. Red and White Currants should be closely spurred, a few young shoots being left where there is room or the old ones require removal. We do not net our Currants, but syringe them with soapsuds, and whilst wet sprinkle with quicklime. Black Currants produce their finest fruit on natural spurs and young wood of the preceding year; also they do best when the bushes are allowed to stool

from the ground. To keep them in good order, a few of the oldest branches should be cut out close to the soil. Crossing branches also may be cleared away, and here and there a tall shoot may be tipped. The aim, however, should be a constant supply of bright young growths, from one to three years old, and the less they are touched with the knife the finer and better the crop of fruit. The pruning of Vines may be commenced towards the end of the month, for if left too late and the spring is mild they are apt to bleed. The great fault in winter management consists in leaving too many canes, 2 feet apart being quite close enough where they are expected to ripen their fruit. When pruned, let them be well washed with soapsuds and sulphur, to make a clearance of mildew and red spider, and train for all the young growths to start from the upper sides of the main branches.

THE ORCHARD.—One might write page after page upon the renovation of old orchards, and then the most skilful follower would not make thousands of decrepit trees pay. These, then, should be well looked into, and if past their best or the fruit is poor in quality, progress should be initiated by clearing them away and planting fresh ground with approved sorts. As second-rate Apples are now out of date and some good ones can be grown, these only should be selected and planted well. Old trees really worth keeping may be thinned, cleansed and top-dressed, and if protected from the ravages of the winter moth, care must be taken that the paper bands are well smeared with grease. Draining, too, a very important matter, is work which can be carried on in bad weather, but this may be carried to excess, especially upon thin soils. In the

MODERN ORCHARD young pyramids and bushes must be gone over with the knife, and if damaged, cankered or crossing shoots require removal, now is the time to cut them out. A young shoot taking the lead also may be shortened, but beyond this keeping the trees in form, the less they are pruned the heavier and better crops they will bear. Keep a sharp eye on woolly aphis and dress with soft soap and paraffin before it has time to spread. Renew stakes where necessary, pad well with something soft before they are re-tied, and give the same attention to those which will stand another year. The coming orchard must be composed of quantities of given sorts in the form of extension pyramids and bushes on stocks most likely to suit the variety and do well on the soil. W. C.

KITCHEN GARDEN.

KIDNEY BEANS.—Very few succeed in bringing these to anything like a free-bearing state during the duller part of the year, but if the start to force them is made now, success is much more certain. What is needed is a brisk heat ranging say from 60° to 65° by night, and not less than 10° higher in the daytime, a fair amount of light, room, and atmospheric moisture also being necessary. At this early date pots are to be preferred to boxes. The 9-inch pot is most generally used, any good loamy compost answering well. For affording moderately large dishes, from twenty-five to thirty pots are enough for one batch, and a constant supply being desirable, a fresh batch should be raised about every eighteen days. Sowing in small pots and shifting into larger sizes is so much wasted labour, and top-dressing is also a useless operation, the Beans very seldom rooting up into the added soil. Fill the pots nearly full, make the soil moderately firm, sow about nine sound seeds in each pot, cover with about 1½ inches of soil, and either plunge the pots in a brisk hot-bed, or set them on the hot-water pipes till the plants are well above the soil. Afterwards they must be raised well up to the light, the number of plants being early reduced to about six in each pot, and duly supported by twigs or stakes. Not till the pots are well filled with roots is much water needed, and when the plants have arrived at a bearing state liquid manure should be frequently given. The best forcing variety will be found in *Ne Plus Ultra*.

FORCING PEAS.—These will not stand hard

forcing in any way, but they may be forwarded considerably in a temperature intermediate between a stove and greenhouse heat, or in newly started vineries and Peach houses. They may be grown in pots, boxes, or ridges of soil along the fronts of vineries and Peach houses. Heavy crops need not be expected in any case, but a few early, if small, dishes are always acceptable. Pots 9 inches, or a trifle larger, are the best for suspended and back shelves, while boxes about 10 inches wide and as much in depth are best adapted for standing in a row either on a front stage or on a border along the front of a fruit house. Where there is no front wall to shade the Peas these may well be grown on a narrow raised mound formed on the surface of a fruit border, the fronts of successional and late Peach houses being in some instances suitable for the purpose. In each and every case rich loamy soil ought to be used, the seeds being sown rather thinly, or much as they are in the open ground, and the plants lightly supported by stakes. At the outset only enough water should be given to keep the soil just moist, but when the plants are commencing to flower much more moisture and some liquid manure will be needed. Either *American Wonder*, *Chelsea Gem*, or *William Hurst* are suitable for these early crops, all being dwarf and productive.

POTATOES IN POTS.—It is not often these are found very profitable, but if room and time can be afforded there is no reason why a few extra early dishes should not be taken from plants in pots. Whether the size of pot shall exceed 8 inches or not should depend upon circumstances. The size named is the best for the high back shelves of newly started vineries, a good position for Potatoes in pots, but if they are stood on the ground near the fronts of vineries and Peach houses being gently forced, larger sizes may perhaps be best.

A light loamy compost or a mixture consisting of two parts of loam to one of old Mushroom bed manure is suitable. The sets ought previously to have been forwarded in gentle heat, each when placed in the pots having a strong sprout attached. Half fill the lightly drained pots with soil, pressing this down rather firmly, then fix the tubers uprightly and carefully, three parts fill up the pots with more of the soil, the remainder being added when the shoots are nearly up level with the rim of the pots. One strong tuber is enough for an 8-inch pot, two, three or more going to the larger sizes. Water carefully for a time and let the haulm have as much light as possible. The old *Ashleaf*, *Mona's Pride*, *Victory*, or any other short-topped early variety may be grown in pots.

EARLY CARROTS.—A mild hotbed and a shallow frame are necessary for the production of extra early Carrots. A two-light, or if need be a larger frame set on a hotbed not less than 3 feet in depth at this comparatively early date should be partially filled with some of the shortest of the heating material so as to bring a surfacing of about 6 inches of fine sandy soil well up to the glass. Form shallow drills 8 inches apart, moisten these if at all dry, then sow the seed not too thickly, and either smooth over the bed or, better still, cover the seed with more fine soil. Keep the frame close and well matted over till the seed has germinated, then gradually expose and admit all the light possible with a moderate amount of air during the warmest part of the day. If the plants are at all crowded thin out early and lightly freshen up with tepid water occasionally. Air must be given freely when the plants are well advanced in growth, or they will not bulb or thicken at the roots so quickly as desirable. The French Forcing is the quickest in growth, and the roots are very tender and sweet, but if a long succession is desired from a single bed *Nantes Horn* ought to be sown.

RADISHES.—The earliest pullings of Radishes are usually obtained from Carrot frames, the seed being sown in shallow drills drawn mid-way between the rows of Carrots, all being sown at the same time. It is a great mistake to sow Radish seed thickly at any time, especially when it is sound and new, as in frames all are almost certain to germinate, and unless the seedlings are freely

and early thinned out, very few, if any, tender young roots will be available. The less thinning out necessary, the better at all times. When sown with Carrots, the frames must be looked after closely, Radish seed germinating in a few days and much more quickly than Carrots, and if not uncovered and exposed to the light as soon as up, the plants will quickly become badly drawn. The Radishes, and not the Carrots, must be studied also when ventilating the frames, the former not standing a stewing temperature after they are once up. Only quite small and tender Radishes are generally admissible to the dining-room, and if a regular supply is needed, frames must be given up to their culture, a fresh sowing being made every fortnight or thereabouts. The Early White and Scarlet Forcing Turnip varieties are of very quick growth and superior quality; French Breakfast, Crimson French Breakfast, and Wood's Frame being also well adapted for forcing.

CHICORY.—Good, well-blanching Endive is still plentiful, but the time may soon come when only the latest-raised plants and which have but little heart will be available, and it is then when good perfectly blanched Chicory leaves prove acceptable to the salad maker. Supposing the strong roots grown in the garden last season were duly lifted, cleared of leaves, and stored in a cool shed, about a dozen of these may be packed rather thickly in a 9-inch or larger pot, if necessary, using rich soil, and be either placed in a Mushroom house or in a forcing house. In the former case no covering ought to be needed to ensure a thorough blanching of the young leaves as they grow, but in light houses the Chicory must be covered by inverted flower-pots and otherwise well darkened. Stout roots kept well supplied with water are very productive of young leaves, but it is advisable to introduce fresh batches into heat every week or ten days. W. I.

PLANT HOUSES.

CHRYSANTHEMUMS.—Where the necessary striking of cuttings for next autumn's blooming has not yet been carried out, or in the case of any kinds of which a sufficient quantity has not yet been secured, cuttings should at once be put in. When the plants are required for ordinary decoration and for providing cut flowers, it is much better to confine the cultivation to a limited number of varieties that are capable of maturing a large crop of flowers than to follow the mistaken fashion of growing an unlimited number of sorts, the only characteristic of which is that they can be made to give two or three blooms that are three or four times too large to be really serviceable. The early varieties that bloom towards the end of summer when there are quantities of other flowers to be had of a more useful character may with advantage be left out. The autumn-flowering *Mme. Desgrange* is quite early enough; this with the most free-blooming of the later autumn sorts and a few of those that can be made to bloom in January represent all that are really worth taking into account. If the cuttings are got in without further delay they may be struck in a cool house or pit, the result of which will be the production of sturdy plants in place of the weak stock that is struck in heat later on.

TUBEROUS BEGONIAS—SEED SOWING.—Where these Begonias are to be raised from seed it should be sown now, in order to admit of the plants gaining enough size early in summer to give a long season of bloom. In the event of the plants being used in the open ground, it is equally necessary that they should be raised early. Seed of the best strain that is to be had should alone be used. A compact habit of growth, with a disposition to push up successional shoots from the crowns of the tubers in the course of the season, and a profuse flowering habit are the properties to aim at. Flowers of medium size, both in the double and the single forms of these Begonias, are much preferable to a few monster blooms. The sowing should be carried out in the ordinary way, using finely sifted soil that is somewhat light, so as to admit of the seedlings being moved from the pans

or boxes whilst yet small without injury to their roots, such as occurs when the material is heavy and adhesive.

BEGONIAS—OLD TUBERS.—Only a short rest is necessary for these, and the advantage of starting all, or a portion of the stock early is seen in the longer season of bloom the plants give. In the case of small tubers, especially of the double kinds, there is a further gain in starting them early in the year, as it admits of their gaining strength enough to bloom well before the summer is far advanced. It is not well to use pots that are larger than requisite at first, as a shift may be given after the roots have got well hold of the soil. An intermediate temperature is sufficient to start the roots in. When much heat is used the stems get drawn, however much light the plants are exposed to. In the case of double varieties that it is desirable to increase, the tubers may be divided. All that is needful in the division is to make a clean cut with the knife, and to see that each piece has a portion of crown attached. Before potting allow the several pieces to lie on the potting bench a day or two, so that the wounds may dry up a little, and in potting use the soil in a somewhat drier state than for ordinary things.

DOUBLE PETUNIAS—CUTTING STRIKING.—The best of the double white varieties now in cultivation are little inferior to Camellias where large flowers are wanted for cutting. They are much slower growers than the single sorts. To have plants large enough to be at all effective in summer, cuttings should now be got in. They are best put singly into small pots, drained, and half filled with a mixture of sifted loam, leaf-mould, and sand, with sand alone on the top. In an ordinary striking frame, where there is not too much heat, or under propagating glasses they will root in three weeks.

POTTING SOILS.—Where potting soil, either peat or loam, is stored under cover for any length of time it seems to lose much of its goodness. It is now necessary to get a sufficient stock of the different articles, loam, peat, leaf-mould, and sand, under cover. An open shed where the wind can act freely on them is the best place to put them. Spread them out thinly on the floor and turn them over from time to time so as to assist the drying process.

T. B.

ORCHIDS.

DENDROBIUM NOBILE NOBILIUS.

THIS is one of the finest, if not the very finest forms of this old species ever introduced, but it is a plant which, when I had it in the collection at the Messrs. Rollisson and Sons at Tooting, I failed to persuade anyone that it was of exceptional merit. The plant was nearly lost during the international exhibition held in Ghent in 1878, not by distress through the journey, as has been stated, but by the steam from the newly-painted pipes in the house in which it was exhibited, and which rendered most of the new plants therein staged almost leafless. What I now wish to say is that I have recently been shown a flower of a form very near to Wallichianum. I therefore fear that the high price realised for this plant after it passed out of the hands of Messrs. Rollisson has induced some unscrupulous person to trade upon its good name, and to sell this inferior form in its place. It will be well, therefore, to give a description of the plant, now that its season of blooming is coming round, in order to enable those who may have plants to identify the true form.

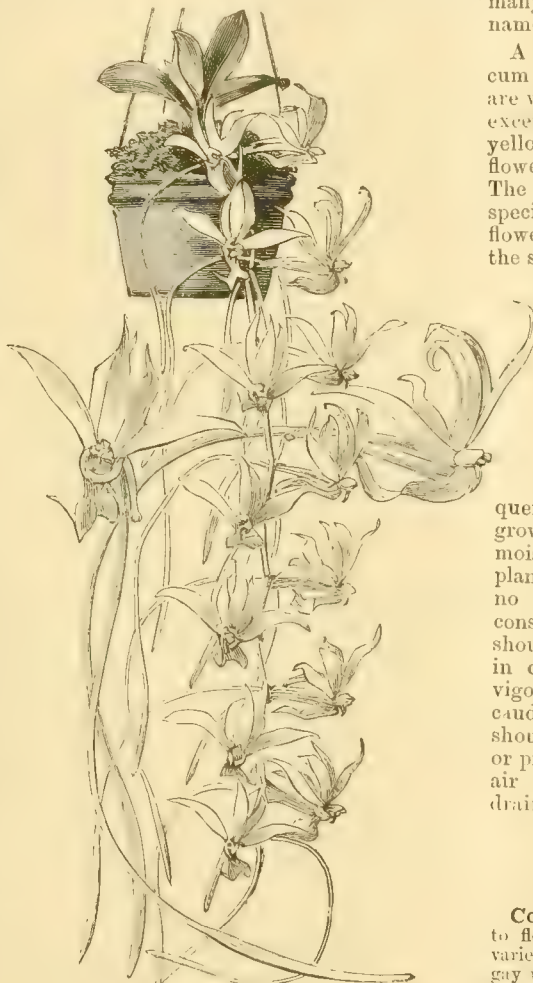
D. nobile nobilius in its growth exactly resembles the typical plant. The flowers are each 4 inches across, and the sepals and petals are rich rosy-purple, the petals much the darker, and far darker towards the tips; lip large, considerably over an inch across. The base of the lip is very dark blackish-purple. In front of

this is a zone of white, the apical portion recurved and of a rich deep amaranth-purple, the flowers being thick and fleshy in texture. It is a variety which cannot be mistaken, and it is without doubt the finest extant for depth of colour.

W. H. GOWER.

ANGRÆCUM FUSCATUM.

THE genus *Angræcum*, which was established by Dupetit-Thouars, comprises a pretty large number of species, all of which are natives of very warm latitudes. In his "Histoire particulière des plantes Orchidées recueillies sur les trois îles australes d'Afrique de France, de Bourbon et de Madagascar," 1822, Dupetit-Thouars figures twenty-seven species of *Angræ-*



Angræcum fuscatum.

cum, namely, *A. triquetrum*, *inapertum*, *pectinatum*, *flicornu*, *gladiifolium*, *fragrans*, *recurvum*, *rectum*, *expansum*, *implicatum*, *ramosum*, *parviflorum*, *citratum*, *superbum*, *eburneum*, *sesquipedale*, *palmiforme*, *palmatum*, *crassum*, *striatum*, *aphyllum*, *multiflorum*, *caulescens*, *carphorum*, *gracile*, *Calceolus*, and *elatum*.

The species which forms the subject of the present notice (*A. fuscatum*), although likewise an African one, does not occur amongst those enumerated by Dupetit-Thouars. It is a native of the Comoro Islands, from which it has recently been introduced by M. Humblot. The following is a brief description of it: A very dwarf plant. Leaves oval, slightly mucronate, thick, and of a fine green colour. Inflo-

escence tolerably strong, in a pendent cluster. Individual flowers comparatively large; segments acutely pointed, very entire, slightly recurved; spur very long, curved backwards, very slender; scent rather pleasant, but faint.

Although it belongs to the small-flowered section, *A. fuscatum* is not devoid of merit from an ornamental point of view, as it is a comparatively strong-flowering species, and when in bloom is by no means wanting in gracefulness. It is sometimes erroneously named "*furcatum*," a specific appellation which properly belongs to a very different species found in the island of Réunion. The plant here figured (see illustration) was grown in the gardens of the Muséum at Paris, where there is a large collection of species of *Angræcum*, most of which are new or rare, many of them being still undetermined and unnamed.

A remarkable peculiarity in the genus *Angræcum* is that in almost all the species the flowers are white, or nearly so. We only know of two exceptions, namely, *A. citratum*, which has yellow flowers, and *A. elatum*, in which the flowers have a red blotch at the base of the spur. The segments of the flower of the last-named species are long and narrow, and although the flowers are comparatively large or medium-sized, the species must be classed in the small-flowered section. To amateurs who are fond of decidedly ornamental plants we can hardly recommend more than the following species: *A. sesquipedale*, *caudatum*, *eburneum*, *superbum*, *Brongniartianum*, and *Leonis*.

As regards their culture, all the species of *Angræcum* require the temperature of a warm house, and those that are of delicate growth should be very frequently watered, while the more vigorous growing kinds should be kept in a still moister condition. Moreover, as these plants, having no pseudo-bulbs, can lay up no store of nutriment, they must be kept constantly growing. The dwarf delicate kinds should be grown in *Sphagnum* Moss alone and in comparatively small-sized pots. The more vigorous-growing kinds, such as *sesquipedale*, *caudatum*, &c., besides requiring larger pots, should have the *Sphagnum* mixed with crocks or pieces of broken bricks, which serve to admit air to the roots and also to maintain perfect drainage. — *Revue Horticole*.

SHORT NOTES.—ORCHIDS.

***Cœlogyne cristata*.**—This is now just beginning to flower. This and the pure white form and the variety *Lemoniana* will continue to keep the houses gay until the dearth of flowers is past. One great drawback to the *Cœlogyne* is its lack of fragrance.

***Dendrobium heterocarpum*.**—This is a beautiful sweet-scented plant, which should be grown in quantity and placed about in various parts of the house. It is called *D. aureum* by some authorities. It enjoys strong heat during the growing season.

***Lælia anceps Stella*.**—This fine variety is now flowering in several gardens round London, and it is a great pity that we have not yet found out how to bloom these plants more freely. Large specimens with seven or eight leading growths often only carry one spike of bloom.

***Cypripedium insigne* and others.**—This is a useful old plant for flowering in mid-winter, and fine forms have occurred since these plants became popular. Independent of *C. Maulei* and *C. punctatum* violaceum, there are a host of others, among the best being *The Woodlands variety*, which is now blooming with Mr. Measures at Streatham, with thirty flowers, the ordinary form with twenty-one blooms, and *punctatum* violaceum, with twelve and fourteen flowers. These with many others are now very beautiful.

Dendrobium Wardianum.—This is now beginning to flower freely. We have not seen much variety amongst it at present in the colour of the flowers, but there is much variation in the shape of the lip, some forms being much more open and spreading than others, and the maroon patch at its base does not appear to be so large in the Burmese form as in that of the typical plant from Assam.

Zygopetalum Mackayi.—Here is an old plant flowering well and it has done so for the last three years. Mr. Turner, of Derwent Lodge, Dartmouth, says he has a plant of this Orchid now in full beauty, and with seven spikes of bloom. Its beautiful flowers are always ornamental, and the colour renders them very attractive. The plant likes intermediate heat.

A blue Cattleya.—*C. Trianae leucophaea* is a veritable blue Cattleya, by far the bluest I have ever seen, the sepals and petals being pure white, much waved at the edges, and the lip large and prettily frilled; the front portion is of a deep rich mauve-blue, stained in the throat with orange, the colour of the lip, with the purity of the sepals and petals, rendering this a very effective flower.

Spathoglottis Lobbi.—What a pretty little plant this is! I am in receipt of a flower from Mr. White, gardener to Sir Trevor Lawrence, the flowers being of a clear yellow throughout. I used to have a fine lot of this plant in the collection at Tooting, and the only fault I had to find with it was that it flowered without leaves. The front lobe, rounded and deeply bilobed in front, is slightly deeper in colour than the sepals and petals. The leaves when they appear are narrow and deep green. It is a pretty terrestrial plant which should be grown in turfy light loam and peat.—W. H. G.

FRUIT GARDEN.

BUD-DROPPING IN PEACH HOUSES.

THE great bugbear with which Peach growers have to grapple is the dropping of the flower-buds just when the flow of the sap is accelerated by the most gentle warmth, and so persistent is this shedding of the finest and most promising forerunners of fruit, that it never rains, but it pours, until all the strongest shoots are literally budless, whilst in not a few instances the very weakest growths develop a perfect blossom. Some varieties, all forcing gardeners know quite well, are more subject to this disorder, I will not call it disease, than others, but the hardest are bound to give way where certain conditions under which forced trees flourish are neglected. The old Noblesse, double Montagne, Malta, Belle Beauce, and the Early Mignonne, the very finest and best of varieties, are terribly subject to bud-dropping, and to such an extent do they fall, that I have known trees of the first year after year but moderately cropped, although every flower which opened carried its fruit to maturity. But why do trees under glass cast their buds when the same same varieties against open walls set a profusion of fruit, and often require much thinning? Well, the cause in the majority of cases, no doubt, is a falling off in the supply of water, not when the sap is rising, for the mischief may have been done months before, but immediately after the leaves have been shed, and under the mistaken idea of hardening and ripening the buds, the roots have been allowed to become dry. The only remedy in this case lies in prevention, if I may use the term, and prevention consists in giving the roots a sound, solid, calcareous loam, resting on ample drainage, which cannot become waterlogged when copious supplies are given throughout the autumn. I have often stated that the culture of the succeeding crop commences immediately after the foliage of the passing season is ripe, and those who allow their borders to become only partially dry may know what to expect in the spring. Other

causes, no doubt, are at work, such, for instance, as overcropping, the premature loss of foliage by insects, and the injudicious use of insecticides, especially of rank soft soap at the time of cleansing; but these, like the preceding, are disorders which may be prevented by careful thinning, by a free use of the garden engine and by erring on the side of weakness when mixing up poisonous compounds. Again, there prevails an opinion that unripe wood is most given to bud-casting. Overcrowded wood, from which the rays of the sun, light and fresh air are excluded, may resent this bad treatment; but who ever heard of a well-managed tree in an early, a midseason, or even a late house going to rest in an unripened state when trees on open walls hold their smaller buds and gradually swell them into perfect flowers? The best answer to this assertion is the undeniable fact that the earliest forced trees are most subject to the disorder, and the cause, in my opinion, may be set down to too much mistaken kindness. Take, for instance, a tree whose fruit is ripe at midsummer; its flower-buds will be as forward as others on walls which do not ripen their fruit before September. The forced tree is syringed daily, and partially or entirely shut up in the evening for two or three weeks to "fetch up" the buds; but really and truly this is the very treatment which fetches them off, for they get too forward, become overripe, and although freely ventilated later on, the autumn proving fine and mild, aided by flushes of water or rain after the drought they make a push, and the owner prides himself on having his trees in splendid condition. By degrees the early winter frosts and general cooling of the soil check the flow of sap, the supply is cut off, and although the buds still hang their doom is cast, for they have been pushed to a stage which they should not have reached until after the house was again closed for forcing. If anyone doubt this, let him examine one of his own trees which has cast its best buds, and he will find all the strongest and best shoots nearly budless, save perhaps a few of the most backward near the points, whilst the very weak shoots are all he has left to depend upon. The disorder in this by no means uncommon case is clearly due to over-ripening, as so frequently happens in hot, dry seasons, and the remedy, as I have just observed, rests in prevention—first, by continuing the copious supplies of water, and second, by running down the roof lights to their fullest extent, or taking them off altogether on the very day the last Peach was gathered, and keeping them off until the end of October.

FRUIT GROWER.

Orange culture on open walls.—One often meets with large Orange trees in private gardens grown in tubs, &c., and kept in cold glass structures during winter. It is not often one hears of their being grown on open walls successfully in our climate. In the gardens of Tyneham House, Isle of Purbeck, near Wareham, Dorset, there is a large Seville Orange tree on a south wall in the open in a most flourishing condition. In the autumn it had from 300 to 400 Oranges on it. The fruits are very useful for making marmalade, for which they are used at the above place. When in bloom the scent must be delicious. The sweet kinds are now being tried outside.—J. C. F.

Apple Lord Suffield.—I quite agree with the remarks of "A. D." (p. 19) on this Apple. If anyone desires to have it always full sized he must plant a number of young trees every six or eight years. Trees from five to ten years old bear heavily and produce most handsome fruit, but I never saw a tree over the latter age that retained its original fertility. I know of trees in this locality that invariably furnished first-prize fruit at our local show eight or ten years ago, but which now entirely fail

to win a prize, and yet they have received the most careful attention. When the trees are small the heavy crops of huge fruit they bear are very captivating and frequently induce beginners to plant them largely, but my experience and that of many others is that they gradually decline till the fruit becomes very inferior, and in this respect it differs from many well-known Apples, as some kinds bear equally as good or better fruit when beyond their teens than before they reached them. As to the quality for cooking of Lord Suffield Apple when in its prime, nothing can be said against it.—J. MUIR, *Margam Park, South Wales.*

GROS COLMAN GRAPES NOT COLOURING.

I HAVE a house of Gros Colman Grapes. Will you tell me the reason of some of the Grapes being green and partly coloured and shanking? My house is a lean-to and stands full south. Will Gros Colman and Lady Downe's Grapes do in one house?—F. W. C.

** In the absence of all information as to the position and condition of the roots it is impossible to say with any degree of certainty which of several possible causes may have induced shanking and arrested the process of colouring. Therefore in order to enable "F. W. C." to draw his own conclusions I will enumerate the following, viz., starting too late in the spring and the maintenance of too low a temperature, overcropping, allowing the roots to get into a cold wet subsoil, checks from sudden exposure by injudicious ventilation when the Grapes commenced colouring, loss of foliage which is very tender by exposure to very bright sun or the ravages of insects, and, most common of all causes, an insufficient supply of water. Any one of these defects might produce the evils complained of, but it is more than probable that several of them have been at work, and if so, having thought out the problem, "F. W. C." must correct or avoid them in the future.

Gros Colman and Lady Downe's can be grown well together, the long season and high temperature essential to finish and quality in the first being highly beneficial to the second, and then, in order to have them first class, they should be started not later than the first week in March, and grown on under Muscat treatment until the fruit is ripe. Being free-rooting varieties, they require an abundance of water which should be given in a tepid state, and the better to enable them to take copious supplies, the borders should be made of sound sustaining loam intermixed with porous materials, including old mortar, charcoal and crushed bones, the latter in preference to animal manure, which may be used freely as a mulch when the crop is swelling and ripening. Rather deep narrow borders resting on ample drainage suit them best, as the principal part of their work is performed whenever summer heat is greatest, and, provided they never feel the want of water, the roots may be kept partially or entirely inside the house with advantage. The foliage of Gros Colman, as I have just remarked, being rather tender, it frequently happens that a check is produced by the cupping and browning of the finest leaves, especially in light bright hermetically glazed structures, no matter how abundant the top and bottom ventilation. An insufficient supply of water at the roots and overcropping, also a close, moist, confined atmosphere intensify this evil; hence the importance of keeping the pipes warm and ventilating freely through the night. If this treatment does not keep the foliage fresh and healthy, Vines in houses facing full south often derive the greatest benefit from very light shading through the hottest part of the day. Indeed, so magical is the effect of a piece of Haythorn's or a double thickness of herring netting, that I have known Vines which always came to grief completely cured in a single year.—W. C.

Useful Pears for a succession.—The following dozen will give a succession from August to April if well grown: Jargonelle, Williams' Bon Chrétien, Beurré Superfin, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, Doyenné du Comice, Glou Morceau, Bergamote d'Espéren,

Beurré Rance, Josephine de Malines, and Ne Plus Meuris. The Quince stock is not reliable always and everywhere, and neither will all varieties of Pears do equally well upon it. If plenty of nourishment is given in the shape of water and surface top dressings, the fruits grow to a large size and are fine in colour and finish; but when planting Pears on the Quince for the first time it should be looked upon as an experiment, and not entered upon too largely to begin with.—E. H.

THE VINE.*

THE culture of the Vine as an article of fruit supply is one of the first importance as pertaining to private gardens—in fact the Vine may be placed at the head of those of English growth. Its luscious fruit can be had all the year round with comparative ease where the facilities exist for its cultivation. Grapes are never out of season, neither does the relish for the same abate, as it would do with fruit of a higher aromatic flavour. For the invalid, what is more acceptable than a few Grapes? It is not till within the last twenty years, however, that Grapes have been cultivated to a sufficient extent so as to place them within the reach of those possessed of but limited means. I do not think there can be much fault found now with the price of Grapes during the greater portion of the year, unless it be from the grower's point of view. It is not, however, as an article of commerce that I shall endeavour to say a few words, but more particularly as it relates to private gardens and gardeners themselves.

DIFFICULTIES TO OVERCOME.—There are a few drawbacks to the successful culture of the Vine which I will first mention. The first, and one that is a greater source of failure than any other, is that of being obliged to grow, in many cases, a houseful of plants as well as a roof covered with fruiting Vines. It should be apparent to any observer, even if possessed of but a slight knowledge of plant growth, that this is contrary to all rules of healthy development. We hear a great deal at the present time, and none too soon, of the overcrowded state of the dwellings of the poorer classes with its consequent results of sickness and premature decay, followed, alas, too often by an untimely grave. Yet this is just what is being done in many a house where Grapes are expected to be grown to perfection. Plants, like human beings, have their breathing functions, and to maintain the same in a healthy condition they must be provided with a due proportion of atmospheric air; this cannot be the case where overcrowding prevails. Often it will happen that the treatment necessary to successful Vine culture will not be in accord with that needful to the plants grown in the same house, when the commonest of all results will ensue, viz., one or the other must suffer. I have had myself to contend with this difficulty, and know what it means, but always endeavour to overcome it as far as possible by growing such plants under Vines as would best adapt themselves to the treatment needful for the latter, and by keeping down the numbers of the former as much as possible. Another source of failure in Vine culture is that of being limited to a small amount (and sometime none at all) of fuel to maintain the proper temperature during the earlier stages of growth and in the thorough ripening of late keeping Grapes. I am well aware that Grapes are grown without fire-heat at any stage, and that, too, with fair success, but the exception does not prove the rule. Only the most favoured in situation can rely upon good Grapes year after year without the aid of artificial heat at any period of their growth. Failure, too (like the foregoing instances beyond the gardener's control), will often happen in having to contend with a poor description of soil and frequently with a badly constructed and injudiciously ventilated structure. The reply to such cases as this is very brief—a poor outlay cannot be expected to yield a bountiful return.

* A paper read at the Ealing Gardeners' Mutual Improvement Society, November 27, 1889, by J. Hudson, Gunnersbury House Gardens.

PROPAGATION.—This, though often done by the nurseryman, has also to be performed by the gardener. It is an easier matter to propagate and grow on young Vines for planting where done in quantity than it is where only a few are required. In the latter case there is a greater risk of injury by overcrowding when in a young state, so also is there of attacks from insect pests through not being able to give the requisite treatment to keep down the same. Propagation, as most of us know, is effected chiefly from eyes of the previous season's growth. The wood chosen for this purpose should be well ripened, and in every possible case only those buds close home to the spur should be selected; those spurs on which bunches have been ripened should only have the eyes taken for propagation from below the bunch. The reason I assign for this is that the buds nearest home are, as a rule, the best developed. In support of this, I can only instance one fact, viz., the best and most compact bunches of Grapes are produced from the base of the previous season's growth. I do not advise bottom-heat to be resorted to in propagation, even at the very commencement. Without it the growth at first may not be so rapid, but later on amends will be made for this. I prefer to place each eye singly in a 3-inch pot rather than several close together in a larger one in order to save the young rootlets from any after injury in potting with a relative check thereto. Shift when sufficiently advanced and well rooted into 6-inch pots, thence into 8½-inch and 9½-inch, according to the strength of the Vines. Those in the larger size would, if well ripened, carry a few bunches the next season, as pot Vines, but better still the following year if cut back, restarted and shifted into 11½-inch or 12-inch pots as may be necessary; the 11½-inch size for early forcing, and the 12-inch for later uses. Thorough exposure to all the light possible is an essential point to observe; a close-jointed sturdy growth, wiry and hard, is better than one more sappy with larger foliage perhaps and wood also. I had occasion once to raise a number of Vines, from eyes chiefly, for future planting; these were each started in 3-inch pots as advised, being placed on a shelf at the outset in a vinery at work. When fairly well started they were transferred to a pit near the glass, and potted on into 8½-inch and 9½-inch pots. When about 18 inches high they were placed on the back shelf of a three-quarter span late vinery, over which the permanent Vines had not been trained. Here at a moderate distance between each other they made an excellent growth, so good in fact and thoroughly well ripened, that the head gardener in charge fruited some in pots early the next season. Being a lofty house, there was an abundant circulation of air going on that was conducive to a sturdy growth. The amount of water given them, however, in such a position was something enormous, but the results amply repaid that extra labour. They were, I might say, ripened off in the same position; the treatment given to the permanent Vines when ripening their fruit just suited them, and that far better than placing them out of doors in a sunny spot to attain these ends. Vines that are intended for fruiting in pots will be benefited if they are stopped when about one-third of the intended cane has attained its growth, and then be forced to break its main or otherwise dormant bud; this will tend towards a closer growth. All lateral shoots should be pinched at the first joint, so as to concentrate all the strength in the main shoot, and when the desired length of cane has been obtained it should again be stopped and re-stopped if necessary; this will aid in swelling up the back buds for the next season. Canes of the first season's growth that are intended for planting should be pruned to suit each respective case, but the closer home the better, and then kept quite cool until required for planting. Young Vines can be grown from eyes in pots and planted out the same year with most satisfactory results. I have succeeded well with them in this way, getting good canes to the top of the house the first season. By this mode ripe fruit may sometimes be had eighteen months from the time of starting from the eye, but I do not advise it if the durability of the Vines is the prime object. I planted out

those just alluded to about the middle of June in narrow inside borders, whence they went straight away to the top of the house without check, forming good canes with a small pith the opposite of which I do not like to see. These young Vines, I might add, were stopped when about one-third of the way up the roof and forced to break their main buds, as previously advised for pot Vines. This treatment may appear to be a check, but when once the Vine breaks forth again it will go on growing faster than before, and soon make up for any supposed loss of time by stopping. Vines are also raised from eyes without the aid of pots at all by selecting sods of fibrous turfy loam, and inserting one each in the centre of each turf with the addition of some silver sand. By this process, however, there should not be any delay in planting when they have well established themselves. This system answers best when the Vine in its earliest stages is near the glass, and is not to be recommended where far removed from it.

SOIL FOR VINES.—This is one of the most important factors in successful Grape culture. It is not every gardener's good fortune to have at his command the best kind of loam as the chief component of his Vine borders; often it is otherwise, yet I feel sufficient allowance is not made between one case and the other when drawing comparisons even as to the man's ability. I have only on one occasion been able to come across what I should term good loam for Vines in this particular locality. The loam in this neighbourhood is deficient in lime, and consequently lacks some of those properties which go towards building up and sustaining the Vine for a considerable period in a fruitful and satisfactory condition. I admit that we can procure soil around us that will produce a vigorous and promising growth with corresponding fertility for a few years, but it is not capable of keeping up the vigour for a great length of time. If I could select my soil regardless of expense, it should be taken from the limestone districts; such soil needs but little added to it. The carriage precludes this, however, in the majority of instances; therefore we must adopt other means. I prefer to obtain what might be termed a stiff yellow loam rather than that of a darker colour, which has a tendency to be somewhat too light. It should be the top spit of an old pasture with plenty of fibre. If the Grass is not of coarse growth so much the better; that which is more wiry and of finer growth is a better indication of adaptability to Vine culture. Having procured the best within our reach I recommend that it should be stacked up for two or three months as delivered, without cutting the sods to pieces in any way. But as it is being thus built up I would add between each layer a fairly good sprinkling of soot both for its manurial qualities and as a medium for destroying wireworm and the common worm found in soils. Old mortar rubbish is an excellent addition to our soils, and when obtainable should be freely used; failing this, lime with soot may be used in equal proportions. Charcoal is another ingredient not to be passed over; although not strictly speaking a manure, it has the property of absorbing food for plant life, giving off the same as needful when the roots are capable of withholding it. Burnt clay or ballast is another excellent addition to our Vine borders, assisting greatly to keep the soil from becoming too close and retentive. Crushed bones, inch and half-inch (as termed by the trade) should be included chiefly for the phosphate of lime (55 35) which they contain, and if possible used liberally. All of these additions can be made to the soil as it is stacked up without any difficulty, finishing off the top in such a manner as to throw off the rain, so as to preserve the soil in a moderately dry state. Later on, when it is needful to prepare for planting, the soil should be chopped down (not knocked to pieces with a fork so as to liberate the finer portions only) and thrown up together in a heap and afterwards turned once to thoroughly incorporate it together. Fine weather should be chosen for this work; in fact, all preparatory work relating to Vine borders should be done in dry weather. I might add before proceeding further, that clay even when pulverised may be used in addition to

the other soil. If the latter is of a very light character, it should, before use, be spread out thinly to expose it to the weather that it may crumble to pieces. I do not recommend either farmyard or stable manure to be used in the formation of Vine borders. Either may tend to a too vigorous growth, followed afterwards by an equally vigorous decline in the constitution of the Vine. These manures should only be used when one is compelled to rely on ordinary garden soil.

(To be continued.)

TREES AND SHRUBS.

BUSH HONEYSUCKLES.

(WEIGELAS.)

THE Weigelas have long been in the front rank of flowering shrubs; they are deservedly popular everywhere, being elegant, rapid in

tune thus describes *W. rosea*: "When I first discovered this beautiful plant it was growing in a mandarin's garden on the island of Chusan, and was literally loaded with its fine rose-coloured flowers, which hung in graceful bunches from the axils of the leaves and the ends of the branches. Everyone saw and admired the beautiful *Diervilla*, which was also a great favourite with the old Chinaman to whom the place belonged. I immediately marked it as one of the finest plants of Northern China, and determined to send plants of it home by every ship until I heard of its safe arrival."

The golden-leaved *W. Looymansii aurea* is a very fine ornamental shrub that usually retains its bright golden foliage through the season, and the variegated-leaved form is also an excellent kind. Weigelas should never be crowded, their proper place being as isolated groups on



Cut flowers of *Weigela (Diervilla) grandiflora (amabilis)* in a vase.

growth, and beautiful when in bloom. There is now a multitude of varieties, the originals of which are *W. grandiflora*, known also as *W. amabilis*; *W. rosea*, *W. floribunda*, and *W. hortensis*. These type species are natives of China and Japan, whence they have been introduced within the last forty years. They have been so much hybridised that the original kinds are rarely found pure. The most valuable sorts have sprung from *W. grandiflora*, which has the largest flowers, and these are excellent for use in a cut state (see annexed illustration), while the smaller, but more numerous flowered kinds have originated from *W. rosea* and *W. floribunda*.

W. rosea, introduced by the late Mr. Robert Fortune, is perhaps the most free-flowering and the most ornamental of the genus. Mr. For-

lawn or on the margins of shrubberies. Where Weigelas flourish they make large symmetrically-shaped specimens from 6 feet to 10 feet high and as much in diameter, with gracefully drooping branches, which, even when leafless in winter, are ornamental. Attention should be paid to top-dressing them with good rich soil annually, and to pruning them well, so as to retain only the vigorous stems and branches that yield the finest bloom. Weigelas are now known botanically under the genus *Diervilla*, which also includes other species, *D. sessiliflora* and *D. trifida*, from North America, being among them, but neither of these are, in their present stage, to be recommended for general cultivation, though they are worth planting on account of the bright tints of their autumn foliage.

THE AMOOR YELLOW-WOOD.

(*CLADRASTIS AMURENSIS*.)

THIS is one of those shrubs or rather small-growing trees that planters should make a note of. I do not consider it at all superior in point of beauty of flowers, nor yet, indeed, equal to the better-known *C. lutea*, so far as either habit or depth of foliage tint are concerned. It is, however, well worth looking after, and a fairly-sized bush when studded with the racemes of small yellowish green, sometimes nearly white, flowers is an object of general admiration. It blooms when in a comparatively young state, a matter of importance, while the young leaves impart to the plant an appearance that is wanted in at least ninety per cent. of our hardy trees and shrubs. Hailing from Amoorland, and judging of its hardihood from trees and plants from the same district, it is not very likely that this Yellow-wood will turn out to be perfectly hardy in all parts of the British Isles, but that it is so in the more favoured parts of England is a well-known fact.

In England there are some fine specimens of the American Yellow-wood, trees nearly 40 feet in height, and these, when that particular summer in which they flower comes round, are well worth seeing, for the profusion of white flowers can only be equalled by those of the False Acacia.

To grow this species in anything like a satisfactory way it must be planted in a warm and dry soil and in a shady and sunny position, for unless the young wood is well ripened before winter sets in, the chances are that it will suffer in consequence, and the free blooming nature of the tree be averted. In autumn the leaves of the American Yellow-wood are of an attractive golden hue, and when seen at that time in front of a dark-foliaged old Yew or beside a good-sized specimen of the Sweet Bay or Portuguese Laurel, the effect produced is truly grand. The proper placing of trees and shrubs is a matter of much importance. When the beauty and contrast they thus afford are justly weighed, any little trouble in the matter of arrangement is soon and amply compensated for. As regards the soil in which it is planted, I do not think that either of the species of *Cladrastis* is at all particular, for there are not a few examples of the commonly cultivated form thriving well in various of the southern English counties in soils of different qualities. That most suitable may, however, be a rather light sandy peat or loam, alluvial deposit freely mixed with grit being also a happy medium. A quiet corner where harsh winds are rarely felt, and where the soil is deep and warm will be found suitable for either species of the Yellow-wood. A. D. W.

Hedera dentata.—This "giant" Ivy is growing here over a doorway exactly like the engraving on p. 7, although not so wide an archway, perhaps. I can well corroborate all you say regarding its good qualities. This kind is not like some others, the Irish Ivy, for instance, in its growth, the leaf-stalks not being nearly so long as those of that variety. For this reason it presents at all times a neater appearance, and does not necessitate the annual clipping of the leaves to obtain the best appearance, as does Irish Ivy. A careful removal of surplus growth gives a tidy look to the plant. For covering a high wall in a short time this Ivy is unequalled, as if well attended to annual growths of 6 feet will be made. Attention is necessary in securing to the wall these stout shoots, as they do not always attach themselves the first year if the aspect is exposed to high winds. It is planted at the base of the wall on the east side of the mansion, and in a short time it has reached a height of 30 feet. At such a height the noble deep green leaves present a grand appearance. I cannot understand how this variety can have gained the reputation of being a slow grower. Given reasonable treatment, I doubt not but this Ivy will render a good account of itself, unless where it refuses for several years to make any progress in the way of climbing growths, the season's growth resulting in nothing more than a crop of blossoms on the point of every shoot. We have

here an instance of this. Three plants were put out at the end of a cottage with a view of covering it quickly. All commenced to grow freely until a height of 7 feet was reached; then one stopped and refused to do more than bear annual crops of flowers, while the other two are now 25 feet high, very dense in leafage, and of a delightful colour. The defaulting plant is not nearly so dark in the colour of its leaves, although all have had similar treatment.—S.

EARLY FLOWERING SHRUBS.

BEFORE the season for planting is over it may be of interest to note a few of the early flowering shrubs that are always so fresh and beautiful in spring. Among the earliest things to blossom is the Mezereum (*Daphne Mezereum*). It is very pretty either in single bushes or in groups. It is more a cottager's plant at present than one for the aristocratic garden, though it is difficult to assign a reason for this. Besides the showy pink flowers in spring, there is a crop of scarlet berries in summer which are very attractive. The Almond is another early flowering shrub that ought to be more extensively planted. *Forsythia viridissima* and *F. Fortunei* are very showy, though the flowers come before the foliage. *Lonicera Standishi* and *L. fragrantissima* are two beautiful wall plants. But one of the brightest shrubs in the border or on the house front in spring is *Pyrus japonica*, red and white. Among other shrubs which are rapidly brought on by early gleams of sunshine are the evergreen *Barberries*. *B. Aquifolium* and *B. Darwini* are the earliest to flower, though for graceful effect I think *B. stenophylla* has no superior. This plant must not be crowded in among a mass of other things, but should be isolated on a mound or some elevated position. All the evergreen *Barberries* transplant badly. I like moving them in autumn when it can be done early. It is a good plan to head them back after moving; it concentrates the growing force, and I think the plants sooner get over the shift. *Magnolia conspicua* is beautiful in April on a wall or as a bush in a sheltered situation. *Magnolia Lenné*, the purple variety, should also have a place. The *Ribes*, or Flowering Currants, are among the brightest of shrubby ornaments in spring. The double form of *sanguinea* and the golden variety, *Ribes aurea*, are worth growing for variety's sake. There is a marvellous beauty about the *Rhododendrons* in the districts that favour them, but they will not grow where there is much lime in the soil. The old *Azalea pontica* is one of the sweetest and most beautiful things for a good-sized group on the margin of the lawn. *Laburnums*, the *Guelder Rose*, the *Laurustinus*, the *Syringas*, and last, but not the least important and beautiful, are the *Hawthorns* in great variety. Very few planters make all the use they might of these, especially the bright-coloured kinds. Paul's Double Scarlet should ere this have made its mark in every garden, and there are soft-tinted kinds very beautiful and fragrant. E. H.

Scarcity of Holly berries.—If such weather as we experienced here during the latter part of November was general throughout the country, the answer to the query by "X." (p. 15) might be easily given. Previous to that time Holly berries were very plentiful; in fact, I do not remember ever having seen the yellow-berried variety so well fruited before, but very soon after the snow fell the trees were attacked by birds, so that in a very few days the whole crop disappeared, much to the regret of Christmas decorators.—J. C. TALLACK.

Liquid manure for Hollies.—It may not be generally known that liquid manure applied to the roots of Holly trees during the autumn or winter months will do much towards giving the leaves their natural green colour where any plants exist which have got into a sickly condition. It is not in every situation that the Holly, even the common variety, will succeed. I have here a hedge of this sort, 100 yards long, with an eastern exposure. Somehow the leaves have always been of a pale colour, except those on one part at the southern end, which is sheltered. The soil is heavy and freely mixed with chalk, but whether it is the

presence of this which accounts for the pale colour of the leaves or the exposed position I cannot say. During a few dry days in October a thorough soaking of liquid from the stable tank was given to the roots, and since then a gradual change has come over the foliage, which is now assuming a deep green colour. I propose to repeat the dose during the month of March just before growth commences.—S., Hants.

STREET TREES.

THE paragraph in THE GARDEN of Dec. 28, 1889 (p. 611), might have been written of other districts than Chiswick, but the way the trees are planted and staked in this suburb is sufficiently ludicrous. There has been for years past a widespread and laudable endeavour to beautify London and its suburbs by the planting of trees, and in such districts as Kensington the trees through careful planting and after treatment have grown in a way to give delight and beauty. It is the rule, unfortunately, rather than the exception to throw money to the winds on trees that cannot live well through a bad and ignorant system of planting. In one bye street the peculiarly unhappy season of April was fixed on to plant two long rows of trees just bursting into leaf, and stuck into the ground with a complete indifference apparently as to whether they lived or died. Unfortunately, more than half succumbed, another set was brought in to fill the gaps, and many of these followed the way of their fellows, the few remaining struggling into leaf, and in course of time becoming in some sense established. In nine cases out of ten the trees are planted to die, and it would be idle to look for other results while such delicate work is entrusted to men whose usual avocation is to sweep the roads. It is not often a thought is given as to the after requirements of the trees, though sometimes the space around the tree is left unpaved, so that water can be given in excessively dry weather. The policy is to so carefully raise the soil above the common level that any rain or moisture that might be washed down is utterly useless. To plant a tree well is imperative if a healthy, vigorous growth is expected, and if the first principle is assiduously ignored, the trees will die and leave gaps to disfigure the roads. The majority planted in the main road at Chiswick have survived the planting, but there is another terror in the staking. Though each tree is surrounded by an iron cage to prevent thoughtless men and boys from cutting the bark and destroying the branches, a long pole of the same height as the sapling itself and twice its thickness has been placed to each tree for the purpose apparently of giving support. The poles are neither planed nor trimmed, but stand forth in their bald ugliness to disfigure the road and trees and chafe the stem. It would have been easy to have so fastened the tree to the necessary iron case that only a severe gale would have broken the tenderest twig. The roots, through which the thick poles have been thrust, must have received permanent injury. The poles were not even tarred at the bottom to prevent speedy decay. Time only will show the effect on healthy young trees of such barbarous treatment. Already the pruner has set to work, and though the trees have been planted but comparatively recently, he has thought fit to trim them to a shape that might represent some figure of Euclid. In the London parks it is an annual custom to clip the shrubs and trees to one shape and space, so as to prevent their true freedom of character ever developing. Half-a-dozen shrubs are planted where there is not room for one, if this is permitted to spread and show its natural beauty and elegance.

The staking of trees is as important as the planting, especially if they are large-headed standards, as Horse Chestnuts, which are too frequently used in London suburbs. The time to stake them is directly they are planted, so that the stem will not rock to and fro, loosen the soil, and prevent the roots becoming established. It is impossible to keep the trees firm in the way they are usually staked, that is, to have a pole driven down by the side of the stem. One of the best ways of staking

trees in the open is to drive in three notched posts triangular fashion at about 6 feet or 8 feet from the stem, and drive them in until they are about a foot above the ground. Then have three strong wires fastened round the tree at about 5 feet from the ground, and fasten one to each of the stumps. If the wire should become loose it can be tightened by driving the stumps further into the ground. A piece of sacking or something of this kind should, of course, be placed round the tree to prevent the wire cutting into the bark, and the ties should be constantly looked to. Small trees should have the stake placed by their side, and the tree secured at the top of the stake with tar twine, of course placing cloth round the bark to prevent injury. No portion of the stake should be left above the tie, as it will chafe the bark when the wind rocks the trees. C.

ICE STORING IN SAWDUST.

I QUITE agree with Mr. Iggliden in your issue of December 28, that "it does not pay to construct the old-fashioned expensive ice houses," even if they were well adapted to preserve ice, which, so far as my experience goes, the majority of them are not.

Nor is the reason far to seek; earth and stone are fairly good conductors of heat. The heat of the earth is conducted by the stone into the ice house, melting the ice in contact with the stone; and when an air space is formed in the house the heat given out by the stone is absorbed by the air, and acts on all the exposed surface of the ice, causing rapid waste. As ice is formed on water by having its latent heat drawn off by exposure to a low temperature of 32° or under, so will it melt and return to its liquid form on exposure to a higher temperature by absorbing heat from the air. If we take two blocks of ice and expose one to a mild temperature, melting will go on rapidly more or less according to the height of the temperature. If we surround the other block (under the same conditions as to temperature) with a non-conducting substance like wool, flannel, sawdust, or similar non-conducting material, melting goes on much more slowly, as the non-conducting material prevents to a great extent heat from passing into it.

In whatever way we may try to preserve ice, efficient drainage without draught must be provided, so as to prevent the heat in the melted ice or water from acting on the remainder. To store ice with the least possible waste attainable in our variable climate the body of ice should rest upon and be surrounded by a non-conducting substance; it should also be covered with a non-conducting material which will subside with the ice, keeping its surface from being acted upon by the air. For this latter purpose nothing is better than sawdust. It is cleanly, a reliable non-conductor, it is cheap, easily obtained, and with the occasional addition of a little fresh material will last for years. In estimating the storage necessary for the supply of a large or small demand all the year round we must bear in mind that a large body of ice keeps better than a smaller body, i.e., 100 loads in one mass will keep much better than two masses of 50 loads in each. To girdle the year with a moderate supply of ice, I should say provision should be made for at least 100 to 120 loads. No doubt, a smaller amount might last the greater part of the year, but after allowing for waste could scarcely be depended upon to hold out till the new ice was secured the winter following. As to the best method of storage, opinions vary very much. It may be interesting to some of your readers to give a few notes of the plan of storage adopted here in 1876, and which has during the time which has elapsed since then proved thoroughly successful. I may say that previous to 1876, although we had annually about 120 loads in an ice house of the old type, supplemented by an ice stack or heap, of from 70 to 120 loads, supplies from both or either could not be depended upon after the first or second week in October.

I was instructed to try if some more efficient method short of going into stone and lime could be adopted which would give a plentiful supply of ice all the year round when required without fail. I decided

to try wood and sawdust as a medium of storage, and to put the whole quantity stored (about 250 loads) in one place, and as any erection above ground would be objectionable near the castle and cause extra labour in throwing the ice up, I thought it better to have the greater part under the ground level. We made a pit about 20 feet by 20 feet and about 7 feet deep, the material thrown out being levelled round the pit, and giving altogether about 10 feet depth. The bottom was made about 17 feet by 17 feet, to give sufficient slope to the sides which were lined with wood. The floor of the pit was slightly sloped to one corner, from which an efficient drain was conducted to a hollow near by. The floor was laid with rough wooden slabs for the ice to rest upon. A rise of about 5 feet in the ground on one side of the pit admitted of carts backing on the higher ground and shooting the ice down a temporary shoot into the pit by its own weight. One or two men with shovels keep the shoot clear and level the ice around the pit where required. Three or four hands with mallets break the ice into pieces, of about the size of half or quarter of a brick. In this way 150 to 170 loads in a short winter's day are easily disposed of. The ice is sometimes built up for a foot or two above the edge or level of the wood lining, then rounded off ridge-shaped or highest in the centre. The ice is broken a little finer on the surface, and beaten flat with the back of a spade to keep the sawdust from percolating too much through among the ice. A covering of sawdust from 15 inches to 18 inches thick is then laid over the whole. The sawdust is occasionally raked over, and any cracks or openings caused by sinking closed up. As the ice gives way round the sides of the pit, sawdust is packed in between the wooden lining and the ice, so that the whole mass is kept enveloped in sawdust. Ice can be had at any time when wanted, and at any hour of the day without injury to the bulk, as it is only necessary to clear the sawdust off a small portion of the ice to cut out what is required, replacing the sawdust when finished.

Ice stored in sawdust, besides being less subject to waste, is really cleaner than that usually obtained from an ice house, because in the latter as the ice melts the impurities remain on the surface of the ice; whereas in the former, the impurities left by melted ice are taken up by the sawdust, leaving the surface of the ice always clean.

Now as to keeping. I find from some notes kept for a few years after commencing the system that in December, 1877, at the end of the first year, there remained some fifty or sixty loads of old ice when putting in the new. In December, 1878 and 1879, there remained after meeting all demands for three years from sixty to eighty loads in a solid block both years. In preparing the pit for new ice on November 20, 1880, there remained a solid block of old ice 17 feet long by 14 feet wide and 8 feet deep. Since then I have discontinued taking notes, as I find that there is usually as much left in the pit at the end of the year as would with care nearly carry us through a second year in the event of our being unable to get ice in a mild winter. The ice pit has now been in use here about twelve years, and during that time there have never been less than fifty loads remaining at the close of the year.

The system has been tried on a smaller scale and found very successful. In 1879 we had to provide an all-the-year-round supply at the Commissioner's residence, Uppat House, a few miles from here. We made a pit on the same principle to hold from 110 to 120 loads. This has yielded a daily supply when required, and generally has a few loads remaining when the new ice is put in. The system has been adopted at several places in the north, and in each case with success. I may say that previous to 1876 we had to drive ice fully a mile at considerable cost, but by temporarily flooding two depressions in the park with pure water, we now get ice within 300 yards or 400 yards of the pit at less than half the expense and half the time required formerly.

It is an advantage to have the pit in a position where it will be shaded by trees from strong sun

in summer. Failing this, a thicker covering of sawdust or a covering of Spruce branches would, to a great extent, make up for want of natural shade.

D. MELVILLE.

Dunrobin Castle Gardens, Sutherland.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

THE first meeting of the year was one of the brightest ever held by the Royal Horticultural Society in January, and of especial interest to the orchidist, who would have found a rich series of *Dendrobium* hybrids and *Lælia*s. The time for meeting has been changed from eleven to twelve, and this reduces the long interval between the disposal of the committee's business and the lectures which are to be held at these gatherings throughout the year. On Tuesday the Rev. W. Wilks read a paper on "Winter Gardening," advocating the use of Evergreens in pots for the borders to fill the places of *Dahlia*s and other tender flowers, but not to interfere with the hardy plants and bulbs already planted. There is nothing new in this idea.

A first-class certificate went to each of the following:—

DENDROBIUM XANTHOCENTRUM.—This was one of a number of hybrids shown by Sir Trevor Lawrence, Bart., who has at Burford Lodge a rich series of this flower, many of the crosses showing an unusual delicacy of tint and decisive colouring. The *Dendrobium* named is a pretty flower, the sepals and petals richly tipped with bright magenta, the other portion shaded with the same cheerful colour; the lip is conspicuous, and in the centre boldly coloured with orange, relieved at the entrance to the throat by brownish crimson, and towards the front melting into white, which gives place at the margin to magenta. As the plant was small it is difficult to judge as to its other merits besides the individual beauty of the flower, but it promises well.

DENDROBIUM JUNO.—This is a hybrid between *Wardianum* and *moniliforme*, a species brought from China and Japan in 1824, and figured in the *Botanical Magazine*, 5482, under the name of *D. japonicum*. The hybrid has retained the characteristics of both parents. It will never become such a favourite as *Wardianum*; it lacks its boldness of colouring and delightful freedom of expression. The flowers are about the size of those of a good form of *noobile*, waxy in texture, and rich magenta-rose, that becomes paler towards the base. The lip resembles that of *Wardianum*, having a rich, velvety-lake colouring in the throat, outside this a pale buff colour, which gives place to white, made clearer by a rim of rose-magenta. The colours are charmingly vivid and rich, and the flowers will become stronger when the plant itself gains strength. From Sir Trevor Lawrence, Bt.

DENDROBIUM LUNA.—Another hybrid *Dendrobe*, this time a cross between *Ainsworthii*, itself a lovely hybrid, and *Findleyanum*. A small plant was shown carrying a number of flowers, which suggests that this is unusually free in bloom. The flowers are tenderly coloured with the softest shades, unlike the bold tints of "Juno"; the lip is creamy-white, that passes into a soft yellow in the centre, and tipped with magenta, the sepals and petals being suffused with the same delicate magenta shade. It wants a large plant full of bloom to make any effect. From Sir Trevor Lawrence.

DENDROBIUM MACFARLANE.—This is quite different from any of the hybrids described, and as distinct a *Dendrobe* in itself as the favourite *D. noobile*. It is one of Messrs. J. Veitch and Sons' introductions from New Guinea, a hitherto unknown land, so to speak, and from whence we may expect many beautiful Orchids and other flowers now that collectors are revealing some of its treasures to us. The small plant exhibited bore only two blooms, but we needed no more to show that we have here a beautiful species of distinctive shape. The flowers are of the purest snow-white, truly white, not tinted with colour, as so many of the Orchids labelled "alba," the only colour being on the lateral

lobes of the lip, which are boldly striped on the inner face with the richest magenta, and blotched on the outer surface at the margin with the same intense shade of colour, while running into the throat of the lip is a line of green, not very distinct. The whole bloom is of curious expression. It measures over 3 inches across, the sepals pointed and narrow, quite different to the petals, which are broad and narrowing sharply at both ends, as in the lip, the central portion in each case measuring about an inch in breadth. The species obtains its name from Macfarlane, a missionary in New Guinea. We shall hear more of this new *Dendrobe*.

LÆLIA ANCEPS SCHREDERIANA.—We have many beautiful forms of this lovely Orchid—*Sanderiana*, *Veitchii*, &c.—but few are finer than the variety that bears Baron Schroeder's name. A large plant, carrying several of the tall, handsome spikes, came from The Dell collection at Egham, which shows the variety to be not only of striking beauty as far as the individual flowers are concerned, but exceptionally free. The blooms are larger than the ordinary forms of *anceps* and pure white, except for stripes of a magenta colour on the side lobes of the lip. From Mr. Ballantine, The Dell Gardens, Egham.

An award of merit went to each of the following:—

DENDROBIUM NOBILE, BURFORD VAR.—This is as distinct and striking as the showy variety *Cooksoni*, and one of the richest coloured of the forms of *noobile*. The flowers are about the same size as those of the favourite species, but a great advance in colour, which is distributed chiefly on the lower sepals and lip. There is an intense velvety crimson colouring in the centre, as in *noobile*, and both the upper sepal and the two petals are richly shaded with rose-lilac, this colour appearing of greater intensity on the two lower sepals, which are almost entirely suffused with it, but it melts away into a quieter shade at the margins. The constancy and curious location of colour are unique features. From Sir Trevor Lawrence, Bart.

PTERIS SERRULATA GLORIOSA.—The forms of this Fern increase and multiply. Here we have another addition to the list, and which we may safely compare to the *Chiswick* variety, though it cannot be said the two are identical. The "gloriosa" form has a heavier tassel to the fronds, a greater freedom of growth, and therefore elegance, besides a paler shade of green colour. But these are differences of degree only. From Mr. H. B. May, Edmonton.

CHINESE PRIMROSE EYNSFORD PINK.—The Chinese *Primula* gives us many charming shades of colour, and in this variety we have a lovely rosy pink colour, as soft and beautiful as in a *Tea Rose*, and set off by a greenish yellow centre. It is a single flower, full, not rigid, but free and robust. From Messrs. H. Cannell and Sons.

CHINESE PRIMROSE HER MAJESTY.—Another single variety of the purest white intensified by the yellow-green eye, the flower massive, broad, robust, and large. The plant carried a strong truss of bloom that betokened a good constitution. From Messrs. Cannell.

CHINESE PRIMROSE EYNSFORD RED.—This is also a single kind, the flowers produced freely, and of a bright telling crimson colour. Its freedom and cheery shade will make it a favourite. From Messrs. Cannell.

ORCHIDS were the principal flowers, as we might expect from the season of the year. The small, but choice group from Burford Lodge contained a few other gems than those already described. *Lælia Patini* was represented by a plant carrying several flowers which are like those of *Skinneri*, purple-rose in both sepals and petals, the lip showing a much deeper shade. Of *Dendrobiums* besides those mentioned were *Dendrobium noobile* *Cooksoni*, and *D. n. Tollianum*, which has its flowers prettily coloured with rose-lilac. A striking Orchid is a variety of the dwarf compact-flowered *Lælia pumila* called *El Spiritu Sancto*, a fanciful name that might be applied to the Dove flower for obvious reasons, but not to such an Orchid as *L. pumila*. The

flowers are larger, broader, and more massive than those of the type, but retaining the same solid shape; the lip is of a deeper shade of rose-purple than the sepals and petals, and coloured on the outer surface with a vivid orange-yellow tint. Mr. A. Glover, gardener to Mr. E. Ellis, Manor House, Wallington, sent a splendid plant of the old Bolivian *Lycaste plana*, a beautiful Orchid when the plant is crowded with flowers, as in this specimen. The contrast of the olive-green sepals and ivory white rose-spotted petals is peculiarly happy. A good form of *Lycaste Skinneri*, in which the whole of the flower was richly coloured with deep rose, most intense on the lip, came from Mr. J. Jones, gardener to Mr. N. N. Sherwood, Dunedin, Streatham Hill. A choice series of Orchids came from Mr. Cowley, gardener to Mr. Tantz, Shepherd's Bush, comprising *Cœlogyne lentiginosa*, a free and uncommon kind, very beautiful when large, but not striking as a small plant; the racemes carry a number of flowers of a self greenish yellow shade; the lip coloured with brown, somewhat in the same way as *C. ocellata*. *Lycaste Measuresiana* is like *plana*, but the sepals are of a deeper brown, and both sepals and lip more thickly and richly spotted. One of the most delicate forms of *L. Skinneri* we have seen is *Lucyana*, of which a plant was shown. The sepals are just touched with pink, the petals delightfully coloured with a deeper tint, very prettily distributed towards the margin. Another form of this Orchid named *Imperator* was also exhibited; it has been described before. From The Dell Gardens, Egham, was brought a number of cut spikes of varieties of *Lælia anceps*, *Veitchiana*, and others, and an excellent specimen of *L. a. Crawshayana* was shown by Mr. De B. Crawshay, Rosefield, Sevenoaks; the flowers are finely coloured with rose-purple. Messrs. Sander and Co., of St. Albans, had also cut blooms of the type, *Crawshayana* and *Gouldiana*. This might be well called an exhibition of *Lælia anceps*, as yet another variety, this a white form, came from Mr. Harvey, Riversdale Road, Liverpool, the specimen carrying a number of spikes of white flowers. Messrs. Veitch and Sons also had *Cypripedium Calypso*, a hybrid between *Spicerianum* and *villosum* Boxalli, in which the parents are well defined, especially in the upper sepal, where there is a strong resemblance to *Spicerianum*; it is a pretty flower.

A hybrid *Cypripedium* also came from Mr. Myles, Appley Towers Gardens. Messrs. Pitcher and Manda, East Dulwich, S.E., exhibited also a hybrid *Cypripedium* named *Masereelianum*, a cross between *Spicerianum* and *insigne* Chantini, the result an excellent type of *Leeanum*. *Vanda Amesiana alba* was shown by Mr. R. Johnson, Stand Hall Gardens, Whitfield. Why called *alba* is not easy to discover. The flowers are not pure white, but have a flush of soft lilac on the lip, and in the recent importations of this fragrant Orchid there is a considerable variation in the depth of colour on the lip; some are richly shaded with magenta, others as pale as in the variety here called *alba*, and which is simply a pale form of the type. The plant was smothered with bloom, once again convincing us of the freedom, beauty, and value of this comparatively new Orchid. Mr. P. Blair, Trentham Gardens, brought a specimen of *Cattleya Trianae albescens*, a very tenderly coloured variety, free, and delicate; the sepals and broader petals of the purest white; lip soft lilac, except for the old gold colour at the entrance to the throat.

There were several miscellaneous exhibits. A large collection of cut pitchers of the hybrids and species of *Nepenthes* was shown by Messrs. Veitch and Sons. Amongst the hybrids were *Nepenthes Mastersiana*, still one of the best, *Dicksoniana*, *Amesiana*, and *Wrigleyana*, a very richly-coloured hybrid, handsomely blotched with rich chocolate on a dull green ground. Of the species the finest pitchers were those of *bicalcarata*, with its two horn-like processes at the base of the lid; *Hookeriana*, *Rafflesiana*, *sanguinea* and *Curtisi* (silver medal). Mr. Thomas, The Gardens, Chatsworth, sent several specimens of *Amaryllis alula*, a strong growing form, with tall sturdy stems and richly-coloured flowers. This fine old species might be seen more at this season. Messrs. Walshaw & Sons,

The Nurseries, Scarborough, exhibited flowers of *Calla æthiopica*, and Messrs. H. Cannell and Sons, several single Chinese *Primulas*, comprising *crispifolia superba*, white, and *Eynsford White*, in addition to the beautiful varieties certificated. Messrs. Barr & Son, Covent Garden, gave us a taste of hardy flowers by showing pans of *Galanthus Elwesii*, *Narcissus minimus*, *Anemone fulgens*, and several *Crocuses*. *Spiræa astilboides*, to show its value for forcing, came from Messrs. Paul & Son, Cheshunt; but though a lovely, graceful flower for indoors, it is not of the same value as the old *japonica*. We prefer to see it in the hardy garden, where its plummy panicles of flowers have their natural grace. The same firm also sent *Arum sanctum*, a deep crimson, almost black-spated *Arum* of interest from its curious character.

A large collection of Ferns was shown by Mr. H. B. May, Edmonton, amongst them good specimens of *Davallia elegans*, *Asplenium nobile*, *Lygodium dichotomum*, *Actinopteris radiata*, *Pteris cretica nobilis*, a Fern now well known for its richly crested character; *Gymnogramma schizophylla gloriosa*, G. Mayi, and G. Alstoni, one of the prettiest of the gold-powdered *Gymnogrammas* (bronze medal).

Fruit committee.—There was little business for this committee. Mr. Roupell, Roupell Park, showed an excellent collection of Apples for the season of the year, including good fruits of Bramley's Seedling, Wealthy, Wellington, Lane's Prince Albert, Blenheim Orange, and Cox's Orange Pippin. Mr. Morris, Taibach, South Wales, showed a good Queen Pine. Mr. A. H. Smee exhibited fruits of Apple Rembrorough. Two baskets of Mushrooms, gathered from inside beds, came from Mr. J. Miller, gardener to Lord Foley, Ruxley Lodge, Esher. Mr. A. Dean showed a series of Onions. A collection of Broccoli and Cauliflowers, comprising *Vilmorin's Easter Day* and *Early Penzance*, was sent from the Chiswick Gardens. Mr. Myles, Appley Towers, Ryde, sent bunches of Appley Towers Grape, a variety certificated in the autumn. Mr. Thomas sent from Chatsworth a plant in a pot of the Papaw tree full of fruit. It belongs to the *Passiflora* order, and has fruits of a similar shape and colour when ripe to those of the common blue Passion Flower. It is a native of South America, and was introduced as far back as 1690, growing at home to a height of from 10 feet to 20 feet. The fruit is edible.

GARDENERS' ORPHAN FUND.

KINDLY give me a little space to record some generous and most successful efforts which have recently been made in aid of our gardening charities. The promoters and conductors of such undertakings deserve our warmest and most sincere thanks, not only for the time and trouble they have devoted to the work, but for the splendid example they have set others to go and do likewise.

At Workshop last month the gardeners of that ducal district, headed by our good friends Mr. Henderson, of Thoresby (secretary), and Mr. Gleeson, of Clumber, organised a concert, which being patronised by the *élite* of the place, secured as a result a net profit of £56 4s. for the benefit of the Gardeners' Orphan Fund. In accordance with the rules of the fund, the following members of the committee have elected to become life subscribers: Mr. Egglestone, Firbeck Hall Gardens, Rotherham; Mr. Gleeson, Clumber Gardens, Workshop; Mr. Horton, Welbeck Gardens, Workshop; Mr. Henderson, Thoresby, Ollerton, Notts; Mr. Jefferson, gardener, Carlton House, Workshop; Mr. Mallender, Hodsock Priory, Workshop; Mr. Sutton, Workshop Manor Gardens, Workshop; and Mr. Woods, Osberton Gardens, Workshop.

At Reigate the committee of the Reigate and District Chrysanthemum Society (Mr. J. Brown, Great Doods, Reigate, secretary) decided to hold their show last autumn for the benefit of the two great gardeners' charities—the Gardeners' Royal Benevolent Institution and the Gardeners' Orphan Fund. Their efforts have been so successful as to secure a net profit of £100, and with grateful thanks I have to acknowledge the receipt of £50 sent in

aid of the Gardeners' Orphan Fund. The following members of the committee have elected to become life subscribers: Mr. James Brown, gardener to Mrs. Waterlow, Great Doods, Reigate; Mr. Thomas Budgen, gardener to Miss Baker, Holmfels, Reigate; Mr. Alfred Elphie, gardener to Mr. J. Clutton, South Park, Reigate; Mr. William Hamilton, gardener to Mrs. Grice, Beechwood, Reigate; Mr. James Hoad, gardener to Mr. G. Simpson, Wray Park, Reigate; Mr. Fred. Parfitt, gardener to Mr. E. Horne, Park House, Reigate; Mr. Wm. Peters, gardener to Mr. W. Finch, Danecroft, Reigate; Mr. James Port, gardener to Mr. J. C. Saunders, Shagbrook, Reigate; Mr. C. J. Salter, gardener to Mr. T. B. Haywood, Woodhatch Lodge, Reigate; and Mr. Robert V. Smith, gardener to Mr. A. G. Taylor, The Margery, Reigate.—A. F. BARRON, Hon. Sec. Gardeners' Orphan Fund.

United Horticultural Benefit and Provident Society.—The quarterly meeting of the above Society was held on Monday evening at the Caledonian Hotel. Four new members were elected, making a total of forty-two during the past year. The annual meeting will take place on Monday evening, February 10, at the above hotel.

Sulphide of potassium.—In THE GARDEN Oct. 19, 1889 (p. 354), "J. C. B." speaks of the value of this for destroying mildew, and I should be glad if he would explain through THE GARDEN how it is that, having tried the solution one-half the strength advised by him on a house of Roses, I find all the woodwork just as if I had syringed it with some mixture like clay and water, only it is much harder to get off. I think we ought to have had a word of caution about using it inside or anywhere near paint. I write for the benefit of others who may be thinking of trying the above, and who may find themselves placed the same as myself. Perhaps "J. C. B." will be good enough to give us a few more hints on the use of sulphide of potassium for mildew both inside and out.—E. H. K.

Paraffin oil as a fruit tree cleanser.—Fruit trees of all kinds, both as standards and on walls, the latter especially, are apt to be infested with insects. These are not always transitory summer occupants, but include scale and the host of pernicious pests that accompany American blight. Summer syringing has little effect on these, and if once a tree is allowed to get into leaf burdened with parasites, the chances are that, do as one may, they will remain there all the summer, and affect the health of the tree to a most injurious extent. To remedy this I have tried many kinds of insecticides, but not one of them has proved so efficacious as paraffin oil. This is the best insect destroyer that anyone could possibly use. If it is mixed at the rate of half a pint to three gallons of water and sprayed lightly on the trees, every vestige of insect life will disappear as if by magic. If one man keeps the solution well stirred while another applies it with the syringe, there need be no fear of its not mixing with the water and going on evenly. It is a mistake to apply it with great force, as is often done, as the object is not to knock off the insects, but merely to moisten them and thus consume them. If all fruit trees in any way affected with insects are treated thus after having been pruned and before they come into leaf, their improved condition throughout the next season will be apparent.—CAMBRIAN.

Vallota purpurea.—Have any readers of THE GARDEN had any experience in raising seedlings of the above, and with what success? It has seeded freely with me this year.—M. E.

Removal of Messrs. Barr & Son's nursery.—We are asked to state that this firm has removed its nursery from Tooting to Long Ditton.

Names of plants.—F. C.—1, *Euphorbia Lathyris*; 2, *Berberidopsis corallina*; 3, *Epidendrum tigrinum*; 4, *Adiantum Capillus-veneris*; 5, *Dendrobium Strobiliferum*; 6, *Chrysanthemum Gold Thread*.—R. B. Leech.—1, *Acacia dealbata*; 2, send when in flower; 3, *Acacia lineata*.—Anon.—*Odontoglossum Cordineii*. Fern too shrivelled to identify.

Name of Apple.—E. B. D.—Minchal Crab.

WOODS AND FORESTS.

HEDGES.

IN THE GARDEN, January 4 (p. 18), "R." seems not to approve of the inverted wedge shape of hedges. He says: "If strictly adhered to, it would hinder the progress of the hedge, as well as deprive it of body and strength." Everyone knows that if a hedge or Thorn bush is kept pruned it will neither produce flowers nor haws; it is only neglected hedges that are allowed to ramble about without pruning of any kind that we find producing both. "R." is equally wrong in his ideas about wedge-shaped hedges. For many years I have had the management of about 40 miles of hedges, of different shapes and sizes, and I have always found the plants in a wedge-shaped hedge to keep in a healthier condition than those of any other form under my care; and the reason is not far to seek. The wedge-shaped hedge presents more surface to the beneficial influence of the atmosphere than any other form, and receives the benefit of rain, light, and sunshine from top to bottom. All of these promote the healthy development of side branches, and render the fence close and efficient. On the other hand, the lower branches of upright hedges are apt to lose their vitality through confinement, gradually becoming bare and open at the bottom, many of the plants contracting disease and dying off, thus leaving unsightly blanks here and there in the fence. In speaking of wedge-shaped hedges, it might be as well to explain that it is not necessary to prune them up to a sharp thin top. The better plan is to round them off a little, which adds to their firmness and stability at the top without interfering with their uniformity below. This, however, is generally understood and acted upon by hedgers, and needs no further comment. J. W.

Tree planting on waste land.—If there is one county in England where tree planting ought to be extensively pushed on it is Hampshire, where thousands of acres of Crown land produce nothing but Gorse or Brambles. That it is not first-rate land for agricultural purposes need not hinder the operation, as trees of all kinds that are suitable for timber or firewood grow freely if once they get a start, and there can be little doubt but that if large breadths of forest trees were planted they would not only add value to the soil they are growing on, but also to the adjacent lands, as they would not only attract more rain in summer, but also effectually break the wind in winter. No better outlay could be undertaken either by the Government on their own land or by Local Boards on ground that comes under their rule than that of planting trees. I am well aware that a good many streets have been planted with trees. This, however, is not the sort of planting that is wanted, but out in the open country or as belts by roadsides. It would be well in selecting the varieties to use more judgment than is exercised over street trees as a rule, for in these the Poplar predominates over far more useful trees such as the Oak, the Elm, and the Fir. In planting it is always well to note what trees thrive best in the locality, and in this neighbourhood the Elm is by far the most plentiful of any of the forest trees that attain useful timber size, although in more inland parts of the county, such as in the New Forest, a great variety of trees grows with equal freedom. It is surely time to look to our home supply, as there is little planting done compared with the needs of the country, and much of the foreign supply is getting exhausted.—J. G., *Hants.*

A school of forestry.—At a meeting of the directors of the Highland and Agricultural Society, held at 3, George 4th Bridge, Edinburgh, on the 8th inst., a memorial was presented to the president on the subject of establishing a school of forestry in connection with the Board of Agri-

culture. If a school of forestry is to be established at all it could have no better connection than the Highland and Agricultural Society, and this has been advocated to a certain extent in the columns of THE GARDEN years ago by myself. It is a healthy sign of the times to know that proprietors and others are beginning to bestir themselves in the interests of forestry and tree culture, and if their efforts are conducted in a proper manner, it is to be hoped they will ultimately be crowned with success. I believe the Board of Forestry wished to be established is to be a department by itself under the Board of Agriculture.—J. B. WEBSTER.

TREES FOR AVENUES.

THE charm of a place often lies in its variety of treatment, and where there is scope enough for formal lines of trees they always give a certain dignity if rightly placed. But the trees should be selected to harmonise with the situation. Dense heavy-foliaged trees, such as the Beech and Horse Chestnut, are not suited to a confined space. The effect is too sombre and dark, and where the sun's rays cannot penetrate the ever-changing charm of the play of light and shade is absent. The heavy-foliaged trees are only suitable for the wide expanse of lawn or park scenery. Walnuts, Planes, and Limes are thinner of foliage and may be selected to fill a situation where the Horse Chestnut and the Beech would not be appropriate. To give variety, the Turkey Oak makes a grand avenue tree, and our own old English Oak when full of years has a picturesque grandeur about it which cannot be surpassed. The Huntingdon Elm is a noble tree for forming long lines, especially where the planter has grasped the situation and allowed space enough between the lines, and also between the trees in the lines. The Sweet or Spanish Chestnut is a noble park tree, but it must have room. The silver-barked Birch, the Lady of the Woods, is not heavy enough for forming avenues in the open park, but run a double or quadruple line through an open glade in an extensive wood and fill in beneath with Rhododendrons, or even the common Laurel, or, better still, plant the round-leaved Laurel (*Cerasus rotundifolia*), and a charming feature will be created, the interest of which will increase with years. The evergreen undergrowth must be kept dwarf by pruning if need be to show off the white stems of the Birches. The Douglas Fir is another tree to form an avenue up the hill-side, and its relative, the Spanish Silver Fir (*Picea Pinsapo*), is an exceedingly interesting tree for skirting a broad walk running through the dressed grounds. Everybody is acquainted with the merits of the Cedar of Lebanon as an avenue tree. Its hardiness and its adaptability to every soil and situation, as also its rapid growth, are well known. When once well established the Deodar Cedar is a very graceful tree, but it must have shelter from cold winds, and this detracts from its usefulness. The Mount Atlas Cedar is hardier and more useful than the Deodar, though lacking in the graceful growth and beauty of tint which has always made the Deodar so attractive. The Monkey Puzzle, or *Araucaria imbricata*, handsome though it may be, is too uncertain in its growth to be recommended for general planting. The same may be said of the Wellingtonia. I have seen some grand trees round the western coast, but inland it does not seem happy after it outgrows its shelter. The Holly is not often used as an avenue tree, but I have seen it effectively employed to outline woodland walks, the green and variegated varieties being planted alternately. For forming avenues in seaside gardens *Cupressus macrocarpa* is specially to be recommended.

E. H.

Scotch Fir (*Pinus sylvestris*).—This from its beautiful glaucous tint is more appreciated than any other of the Conifer family. We have here a small wood composed entirely of evergreen Firs, each kind being planted in blocks of about 400. The kinds comprise the Austrian, Corsican, and Scotch Pines, and a batch of the common Spruce. A narrow winding path runs around the wood, about 10 feet from the edge, from which a good

view can be obtained of all. The Austrian and Corsican are the tallest (7 feet), having made the most rapid growth, the Scotch 5 feet, the Spruce average 4 feet. There is no doubt but that evergreen Firs present a better appearance in blocks of one sort only than when mixed up together. Here on our strong soil the Scotch Fir is preferred to the Austrian Pine as a nurse or shelter to Larch, not only on account of cheapness, which is a great consideration where many are required, but because it grows more quickly when once established. I do not speak disparagingly of the Austrian Pine as a shelter plant in very exposed situations, but where the position is not too bleak nor near the sea-coast I think the Scotch Fir is the better, not only on the score of cost and quick growth, but also from the rich glaucous tint which it presents.—S. H.

THE BLACK WALNUT.

IN THE GARDEN, Dec. 28 (p. 612), the merits of the wild Black Cherry (*Prunus serotina*) and the Black Walnut as profitable timber trees are discussed, and in doing so the writer says: "Black Walnut trees will not all make saw-logs when planted 2 feet or 3 feet apart. The common-sense way would be to plant them at least 20 feet apart, and fill in with cheap rapid-growing trees that could be cut out in time, leaving the whole space to the Walnuts." The treatment here recommended for the Walnut is practical and commendable, but who ever saw or heard of the Black Cherry or any other timber tree in this country attaining the size and dimensions of saw logs when planted at 2 feet and 3 feet apart? And I have no hesitation in saying that should planters base their calculations on such teaching, they will find themselves grievously mistaken. When trees are planted at such a distance apart and not thinned out they attain the size of drawn-up poles and spars, but very few of them even reach the dimensions of half-tree sleeper-wood, not to speak of saw-log timber, which implies a much larger size of scantling. When cutting down plantations of this class I have always found the largest and best trees at places where some trees had died off in their immediate proximity in early life, thus clearly showing that to grow trees to a good size they must be allowed a reasonable amount of space for their profitable development. In places, however, where there is a demand for drawn up poles and spars, such a crop is very remunerative, and often gives a better return to the proprietor than where the trees have been thinned and a certain number left upon the ground to mature their growth and form timber trees of large size. This, however, depends a great deal on two things: first, locality; and second, the capabilities of the soil. With regard to the Walnut, it never has been planted in large quantities as a profitable timber tree in Great Britain or Ireland, this arising in a great measure from its growing so slowly, for although it attains a large size and is a tree of the first magnitude, yet the slowness of its growth has had a tendency to hamper its extension except for ornamental purposes. Some of the finest old Walnut trees in the north are at Otterstone, Fifeshire, where one tree is recorded to have a girth of 18 feet at 20 feet from the ground, and another girthed 16 feet at 12 feet from the ground. Both trees were sold at a little over £50 for cabinet work, the roots having been sold for gun-stocks and veneering. Notwithstanding these prices they have failed to induce proprietors to plant the Walnut in large quantities for profit. J. B. WEBSTER.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A THAW IN WINTER.

Few things are more delightful in the outdoor garden than a thaw after a hard frost. While the frost lasted all seemed so hopeless. In my own garden during the hard frost of December everything looked wretchedly dreary. The leaves of numerous Cyclamens, which are grouped round the roots of some tall Plane trees, were absolutely black and shrivelled. The leaves of the hardiest shrubs were limp and hanging down as if life were taken from them. In one night all was changed. Towards dusk the vanes on the pinnacles of the church tower veered round and pointed south-west. In the night a heavy fall of rain altered the whole aspect of things in the morning. Getting up, I noticed steam on the outside instead of the inside of the window panes, denoting that the temperature of the air was higher outside than indoors. Later on in the day the sun shone out with that yellow, slanting ray which is peculiarly characteristic of the midwinter sun. Then came the "voyage autour de mon jardin"—a tour of inspection—to see what damage "Jack Frost" had done. But lo, it seems as if that "grata vice veris et favoni," of which old Horace sang, had really come to pass. Though it is still December, somehow one feels something of spring in every gentle breeze which stirs those few withered leaves which have marvellously escaped the ruthless sweepings of the gardener's broom. The air is positively balmy. Instead of the dejection and the misery in plant life but two days ago, all things seem invigorated with new strength. Those poor mangled Cyclamen leaves are now expanded in all their beauty, and they are so beautiful with their varied markings. Crocuses and Snowdrops are pushing in all directions, and even Hyacinths seem to think they may venture now to push their flower-laden noses through the loosened earth; and a very respectable nosegay could be made up of hardy things actually in flower. There are red and white Christmas Roses in full beauty, and for scent the Chimonanthus fragrans and a good sprinkling of Violets. Cyclamen Atkinsi in the three colours, red, rose, and white, though so much smaller than their gigantic brethren of the greenhouse, are little gems of loveliness amongst their soft green leaves, and looking very fresh and much enjoying the thaw.

Snowdrops in another week with the bright yellow Aconites will add to the bunch of small things, and Primroses of various colours already in flower will make it gay.

All these things make the thaw very interesting and pleasant. Even the Palm, which is permitted a blanket in very hard weather in the shape of a mat tied round it, looks happy with its long green fingers released from bondage. It is a plant of Chamærops

humilis, which likes its out-of-door life immensely, and contrasts pleasantly with its neighbour, a huge Bamboo, in the winter, and with Castor-oil plants and Cannas in the summer time. How delicious is the thaw! I do not mind the portentous grumbles of would-be skaters, who declare that a green Christmas means all sorts of dreadful things. I hold with the old hunting squire that the weather is the right sort, at all events for a time; and I know very well that the old dame, who is always complaining under frosty skies of "that there wheezing, cranking cough which the doctors do call Brown Titus," will altogether bless this happy change to mild weather, though it may be unseasonable. If these hardy border plants which we do not now remorselessly throw away to make room for their gorgeous neighbours, summer bedders, could only speak, they would shout their praise of this delicious thaw.

A GLOUCESTERSHIRE PARSON.

FLOWER GARDEN.

EARLY SPRING FLOWERS IN CHESHIRE.

THE early development of spring flowers in my garden in West Cheshire deserves to be recorded, though I am afraid many of them must be utterly spoilt before they complete their flowering. On this cold clay soil early flowers are generally a fortnight later than they are in the neighbourhood of London. This year they are about a month earlier than usual. The warm and sunny weather of last May and June, which lasted till July 10, ripened spring bulbs better than they have been ripened for several years. But the wet weather, which began before the middle of July and lasted through summer, caused most of them to start into growth prematurely. Still I have never seen a stronger and healthier growth than is shown by most of them up to this date (Jan. 20). The first of them to flower were some of *Iris reticulata* section. *I. Bakeriana* flowered (all I mention are growing in the open ground without any protection) about Dec. 20, and stood the Christmas frosts pretty well. *I. sophonensis* came out about New Year's Day, and the flowers were eaten off by slugs at once. *I. Histrio* began about Jan. 6, and was unhurt by 10° of frost. A week later I had several flowers on *I. reticulata* var. *cærulea*. The type *reticulata*, which seldom flowers here till March, is in forward bud all over the garden, but none have opened a flower. *Crocus Imperati*, which is planted in nearly all my flower beds, never had a better time. Some were open before Christmas, but the greatest display was from Jan. 10 to Jan. 20, when many of the days were warm and sunny, and these Crocuses were a great delight to the early bees. I have tried protecting some of my finest bunches with a cloche, but if this is done the cloche ought never to remain on when the sun is out, otherwise the petals become reflexed and cannot recover themselves, withering prematurely.

The flowering of the scarlet *Anemone hortensis* is remarkable. Clumps which hardly produced a flower last year are now crowded with buds, and the tubers, owing to the baking they got last June, during which many of them were lying on the surface of the ground, having been dug up, as my habit is, to help the ripening. I regret that neither the flowers nor leaves of this plant can withstand severe

winter weather, and they are likely soon to be much damaged. *Anemone blanda* showed its first flowers about January 10. Many are now open, and they are not easily damaged. *Narcissus minimus*, which shows yellow almost as soon as its first green leaves break the soil, opened on Jan. 10, the first flowers being soon followed by others. All the Daffodils are forward, but no other kind will flower here this month, even if warm weather continues. The Snowdrops, which are out generally, began about New Year's Day, *Galanthus Imperati* being the earliest. Some new bulbs, bought as *G. umbricus*, but which seem to be *G. Imperati*, were two or three days before the others. I have never known the winter Aconites here break the surface before New Year's Day until this winter, when many little yellow buttons were seen before Christmas. I must not boast of my Christmas Roses, but the hybrid varieties of what are called Lent Roses are doing unusually well. About one-third of a hundred or more plants in sheltered corners and close against north walls, where they never see the sun, are now at their best, and they have never been better. The earliest are the mottled dark purple kinds of the abchasicus type. Next to these are the greenish white, favouring *H. olympicus* in the cross, whilst *orientalis* and *guttatus* are a little late, colchicus flowering last. These Hellebores are generally spoilt in exposed places, but if out of the wind and sun can stand many degrees of frost without damage. *Andromeda floribunda* and *Erica carnea* and *mediterranea* are gay on the American beds. The flowers I have mentioned, with a liberal show of Primroses and Hepaticas and a few good bulbs of the pink Cyclamen coum, or perhaps a hybrid of it, of which I wish I had more, have made a very gay January garden, a favour which we ought to acknowledge whatever may be in store for us in February and March.

Edge Hall, Malpas.

NOTES FROM FOTA.

WITH these notes I send you a few flowers gathered from shrubs in the open air to show the mildness of the season.

ACACIA DEALBATA.—The flowers sent were gathered from a tree over 20 feet high, a perfect pyramid furnished to the ground. The point of every twig is furnished with its golden cluster of flowers, as sent to you, with its pretty Fern-like leaves and flowers. It is now a pleasing object in the landscape.

CORREA VIRIDIS.—This, although not a very showy flower, is most interesting at this dull season of the year. It continues a long time in bloom and stands the wet and cold without any apparent injury.

HAKEA PUGIONIFORMIS.—This is an Australian slow-growing shrub, which is now full of its strange little flowers.

CLIANTHUS MAGNIFICUS has been in flower for some time, and if the weather continues mild it will flower for months, as many of last year's growths are 4 feet in length, and from the axil of every leaf hangs a long raceme of flower-buds. This moist climate suits this beautiful trailing shrub admirably.

CAMELLIAS on walls are also in full flower.

COLLETIA CRUCIATA (bicktonensis) has been in flower all winter. This strange-looking plant should be in all collections of hardy shrubs where it would grow. I mention this shrub because it is often stated that it is merely a sport from *C. horrida*. *C. horrida* flowers in spring and matures its seeds. It also blooms more freely and has coloured flowers. *Colletia cruciata* has white flowers and solitary.

EARLY FLOWERING RHODODENDRONS.—Flowers of these we could cut in any quantity, and we find them very useful for house decoration.

I might note many other plants that are now in flower, but I have mentioned enough to show the mildness of the season. The absence of berries on hardy shrubs has been very marked this winter. A

pleasing exception has been the *Benthamia fragifera*, the branches of which have been laden with the ornamental Strawberry-like fruit. In consequence, however, of the want of other berries, the birds have taken these much earlier than usual.

Fota, Cork.

W. O.

CYCLAMEN EUROPEUM.

I DOUBT if there is any cultivated plant the flowers of which exhale so powerful a perfume in proportion to their size as those of this little hardy *Cyclamen*. I could not help remarking this last summer when opening a frame occasionally in which there happened to be a plant with two or three expanded blooms on it. Judging from the volume of perfume that came out, one might easily have thought that the frame was full of bloom. It seems very strange that such a little flower should be so wonderfully fragrant, and the more so that the other members of the genus are not remarkable in this way. This species seems to have concentrated in itself the fragrance of the whole family, for although sweet-scented flowers are found in persicum, they are by no means plentiful. On account of its delicious perfume, I think that this *Cyclamen* is worth growing in pots, for a plant or two would suffice to fill a moderate-sized greenhouse with fragrance, and would also probably be appreciated in the dwelling. Although numbers of bulbs of this *Cyclamen* are yearly introduced into English gardens from their native habitat, they are not often seen in a thriving condition in this country, the reason undoubtedly being that they are torn out in a rough manner just at the wrong time of year. I am pleased to know that this destruction is likely to be put an end to. It is little short of wanton mischief to root up plants of this description when in full growth, and the perpetrators derive little or no benefit by such ruthless work, as the corms are so weakened that they generally die later on. Those who require a stock of this *Cyclamen* should not depend upon the cheap imported bulbs. It is far better to purchase home-grown plants, put them in a suitable position and save seeds, which are readily produced and that germinate with tolerable certainty. I think that this is one secret of success with all the hardy *Cyclamens*. I do not know if my experience is that of others, but somehow plants raised at home from seed of one's own saving always seem to go away more freely and are less liable to die out. In one respect *C. europæum* seems to differ from other hardy kinds, being in full leaf and bloom just when they are resting. It therefore does not appear to need the maturing influence of the sun that bulbous flowers at rest seem to be benefited by, but rather courts the moist shady nook that plants that fear the full force of the sun delight in. Exposed to the full summer sun, the foliage shows signs of distress and the blooms are very fugitive. The fact that plants grown in the shade seed freely is a pretty sure indication of the natural likings of this *Cyclamen*. Plants happily situated are now looking bright and fresh in leaf, and are full of seed-pods that will ripen off during the coming spring. The great point is to sow the seed not long after it ripens. The seed should be sown in nice light sandy soil, leaving room for a good covering of Moss, and putting a piece of glass on the pot. If plunged to the rim in a cold frame and covered up with a mat, very little more will be needed until the young plants appear. I have, however, had good success by sowing at the beginning of the winter, the seed germinating quite early in spring. The first year I think it much better to grow the young plants in a frame; indeed, they are safer there until the third year of their life. They may then be placed in their permanent positions with every chance of success. This *Cyclamen* and the stronger growing *hederifolium* are good things for naturalising on the borders of woods or under trees where the shade is not dense. Planted in colonies of from a dozen to fifty bulbs together, they have a pleasing appearance whether in or out of flower. When the trees are bare, the *Cyclamen* clothes the ground with pleasant verdure.

J. C. B.

Lilium auratum.—I advise amateurs who wish to grow *Lilium auratum* and other *Lilies* at

the side of shrubberies or near trees to sink casks with the bottoms out below the level of the soil, to fill these with good *Lily* soil, and to plant the bulbs about 6 inches deep. In *THE GARDEN* of Sept. 28, 1889 (p. 300), I mentioned having tried this with a paraffin cask. At the side of this were two *Lily* beds, for which the soil had been taken out about 5 feet deep and *Lily* soil filled in. On lately examining these beds, I found them, though the *Lilies* had only been planted nine months, filled with roots from the shrubs sufficient to impoverish and dry the soil. I have now sunk several more barrels, principally old linseed oil ones, and will report results. I think that gardeners are sometimes blamed for *Lilies* failing where it is the tree roots that are in fault. One of the oldest and highest of the hardy plant authorities, on seeing the cask plan, paid it the compliment of adopting it.—GEORGE F. WILSON.

PROPAGATING DAHLIAS.

In private gardens, where but comparatively few *Dahlias* are required, the work of propagating for the summer of the present year need not be proceeded with at present; but on the part of those nurserymen who make a leading speciality of the *Dahlia*, the preparations for propagation on a large scale have to be commenced early in the year. The ground roots, which have been preserved since they were lifted in October, are constantly being examined and prepared for the cutting season. Clear, drying, frosty weather—so long as frost can be kept from any contact with the roots—is the best weather to preserve *Dahlia* roots in safety through the winter. When the weather is close, mild, and damp, rot is apt to attack the roots.

Dahlia propagation is best done, on a large scale, early in the year, in a low, lean-to, span-roofed house, with a raised bed, heated by means of hot-water pipes. Slates are placed over the pipes, so as to form a hot-water chamber below, and on these a suitable bed is made up. The work commences about the first or second week in February, when the roots are placed upon the bed and partially covered with finely sifted soil, but leaving bare the dormant eyes round the base of the main stem of the previous year, as it is from these the cuttings spring. The propagator is not free from disappointments, even after he has brought his roots safely through the winter and placed them in the bed. At this stage speedy decay will set in, and rot destroy a valuable root in a short time, or for some reason a root will go blind and give no increase, which is a great disappointment. It is particularly vexing when the root of a promising seedling fails in this way.

The number of roots of a variety employed for obtaining cuttings depends upon the demand for plants. Of some sorts from 250 to 300 plants may be required by a nurseryman who makes a leading feature of *Dahlias*—a beautiful variety like *Mrs. Gladstone*, for instance, is always in demand. Cuttings are soon put forth, and when they are 3 inches or so in length, they are removed by means of a sharp knife, care being taken to leave a joint just below where the cut is made. The first cuttings are generally stout, soft, and hollow, and are thrown aside as practically worthless. The next batch are of a harder and more wiry character, and these make good cuttings, and the propagator goes on taking cuttings from a root until it is in danger of exhaustion. Cuttings taken off at the end of February require six weeks in which to root, but later on, say at the end of March and April, when the days have lengthened and there is more solar heat, they will root in three weeks. The cuttings are placed in rather small pots of light sandy soil, which is pressed firmly about them, and they are then plunged to their rims in a manure frame where there is a brisk moist bottom heat. They are kept close until they are rooted, when they are potted singly into 2½-inch pots, kept close for a time, and then gradually subjected to a lower temperature until they become fairly hardened off.

Pot roots of many varieties are employed for propagating when there is a scarcity of ground

roots. It may be asked what is meant by pot roots. The very large majority of the *Dahlias* sold in spring are in the form of young green plants either in 2½-inch or 3-inch pots. A goodly number of these are unsold, and these are stood aside in cold frames for the summer and well watered overhead. They form tuberous roots and sometimes burst the pots, and at the end of the summer when the foliage has died down, the roots are knocked out of the pots, dried, and put aside for the execution of winter orders. Time was when the wholesale seedsmen used to make a point of offering pot roots of *Dahlias* for sale during the winter, but the practice has died out. Pot roots come in very useful for sending abroad, and amateur growers are sometimes glad to obtain them for an increase of stock.

Where *Dahlias* are largely propagated the varieties are kept under number, and it is obvious a label must be placed in each pot. Up to a certain time the varieties are all mixed up together in the frames in which they are placed preparatory to the spring trade. During April advantage is taken of quiet balmy mornings to get all the varieties together, beginning with the lowest and going on to the highest; they are then returned to the frames in this order so as to facilitate the collection of orders. The plants, if gently sprinkled overhead and the frames kept close for a few hours, soon recover from any check received during exposure.

R. D.

Green fly on Christmas Roses.—Until last summer I was not aware that *Christmas Roses* are liable to suffer severely from the attacks of aphides. Through their unsuspected presence some good plants were nearly spoilt. Seeing that the leaves were turning yellow, I examined them and found the undersides covered with aphides, that had more resemblance to those which attack *Peas* than the ordinary kind. A good dusting with tobacco powder soon cleared them off, but the plants never fully recovered, many of the leaves dying, and I think this may be one of the causes of *Christmas Roses* failing.—J. C. B.

Arum Lilies in ponds.—It must have been fully forty years ago that my father filled some tubs with *Calla* roots and soil and sunk them into a pond in the pleasure grounds of a garden of which he had the charge. Every year these clumps came up and bloomed finely during the summer, presenting in the matter of foliage alone very attractive objects in the water. Why they should not be thus commonly treated and grown it is difficult to understand. Clumps of these associated with the common *Water Lily* and the yellow *Iris* would indeed be charming in any fairly shallow sheet of water which it was found desirable thus to ornament.—A. D.

Arum Lilies in the open air all the year.—The note of "*Dorset*" (p. 46) affords me an opportunity of saying that I believe the beautiful white *Arum Lily* might be much more extensively grown out of doors all the year round in the western and south-western counties of England. In very mild climates it does not seem to mind the wind at all. In East Cornwall, in Devonshire, and other southern counties, the *Arum* should be planted in a sheltered spot, which, however, should not be shady or badly drained. *Arums* cannot, so far as I have seen, be grown in too rich a soil, and the liquid manure can hardly be too strong. In West Cornwall I have seen them flowering out of doors very early in the year. I was therefore somewhat surprised to see some fine specimens flowering freely at St. Mary's, Scilly, in the latter part of last month.—W. ROBERTS.

Snowdrop names.—*Galanthus umbricus* (*THE GARDEN*, January 18, p. 47), so far as I know, was only offered this season by one Italian firm. I ordered a number of bulbs from the same people last season, including *G. Imperati*, *G. I. latifolius*, *G. Redoutei*, and *G. plicatus*. When these flowered they proved to be of two kinds only—common *nivalis* and a mixture of *G. Elwesii* and *Scilla bifolia*. A good many other things were similarly untrue to name. This kind of thing is really too bad,

their system of business ensuring that they get one's money into their hands long before it is possible to know whether you have got what you are paying for or not, and when you write to complain, they tell you that they do not entertain complaints unless made on receipt of goods, in such cases manifestly impossible. Being so far away, one has really no remedy. As a rule, Continental firms are anxious to rectify a mistake.—T. SMITH, *Nerry*.

Early growth of bulbous flowers.—Snowdrops are in bloom in sheltered gardens here in Surrey, which is unusually early and shows how precocious the growth of hardy bulbs is generally. In ordinary years they come into bloom the first week in February, and often it is a week or ten days later before they show flower. The earliest kinds of Daffodils seem to be on the point of showing bud; even later kinds, such as *Empress*, are above ground, and *Crocuses* are making leaf quite robustly. This is all the more surprising, as vegetation generally does not seem to be more than usually forward, and December was cold throughout. In September, however, just as hardy bulbs were beginning to move, we had a burst of hot sunshine, and November was mild, unmarked by the cold rains which at that time lower the temperature of the ground more than frost alone. Even up to the present time we have not had the ground in the saturated unworkable condition that is so often the case in winter. I have often remarked how frequently heavy rains appear to nullify the influence of mild weather by reason of a more or less torpid condition of the roots that over-much moisture brings on.—J. C. B.

Delphiniums from seed.—I grew a batch of these from seed, blooming them very finely in the stiff soil here during the past summer, and found them to be so truly varied and beautiful, that I should not trouble to grow named varieties. Without doubt a packet of seed from good sorts will produce plenty of others equally good, and some perhaps better. I sowed my seed some two years since on an open west border in April, and it grew very well—indeed, in fact, came up as well as ordinary perennials do. Last summer I saved seed, and sowed some at once in the open ground. That, too, came up very well, but, unhappily, in the autumn heavy rain set in, and being inundated with slugs every seedling was eaten off. I shall sow the next batch in a frame to have them secure from the ravages of pests. The tints or shades of blue which come in the *Delphinium* are indeed remarkable. There is in commerce a tint of a quaint and indescribable kind called electric blue. That peculiar tint is reproduced in abundance, as indeed are many others between the brilliant indigo blue of *formosum* and the lovely cerulean blue found in abundance in others. I particularly like the semi-double varieties, because these give pips, one within the other, of diverse shades borne on long spikes. A batch of seedlings from the very best flowers should be raised every year.—A. D.

Premature growth in *Gladiolus gandavensis*.—As frequently stated in THE GARDEN, when detailing my system of growing and storing the beautiful hybrids of *Gladiolus gandavensis*, my custom for years has been to lift the corms and allow the stems, when at all green, to remain attached, so that they can slowly mature and dry out; the corms are afterwards surrounded with sand, so that when the drying out has been completed they are as hard and clean as bullets. This has been a remarkable winter, at least in Ireland. I cannot remember another winter so uniformly mild. Fancy such tender flowers as *Geraniums* and *Petunias*, still healthy and green in my garden, quite unprotected. The fact is, not once during December and January here has the thermometer been below the freezing point. During this time the wind has generally been from the west, and, probably owing to the influence of the Gulf Stream, the temperature has been high and the atmosphere laden with moisture. The result has been that the sand around the corms of my *Gladioli* did not dry out so rapidly in the potting shed, and to-day when

I examined my stock of about 500, at least three score had already commenced active growth, some having roots $1\frac{1}{2}$ inches long. The remainder were in splendid condition and carefully put up in paper, so that the most warm atmosphere cannot further induce premature growth. The problem then presented itself, what to do with those already rooted? The orthodox time of planting will not be for two months, and if those already started were paped up, both roots and embryo stem, the whole of the corms would certainly be lost. I have, therefore, decided to plant them out and note the result. In this case I considered it more judicious to give no manure, as the ground is fairly rich, and the stems will reach the surface if anything too soon. The risk will be the destruction by the spring frosts, which in the ordinary course may be anticipated. Those frosts if they come severe must be more than usually destructive. My *Roses* have new growths an inch long.—W. J. MURPHY, *Clonmel*.

PRIMROSES AT CHRISTMAS.

IN THE GARDEN, January 11 (p. 24), "A. D." gives a suggestion for blooming Primroses at Christmas, so I send specimens of one which blossoms naturally in the open at that time, and which I have used for the last few years as a winter bedding plant with great success. It is a seedling raised by me about fourteen years ago, and finding its blooming quality constant I increased it, and had in 1885 a small bed of it, a larger one in 1886, two in 1887, seven in 1888, and ten in 1889.

The plants were separated in May into single crowns and placed in a reserve garden till the end of October, when they were planted in masses in beds to replace the summer bedding plants. The end of September is better, but this year the summer bedders continued in such good condition that we left them a month later than usual. This Primrose generally begins to bloom in October, and is in perfection through the winter and early spring till about April. This year there was a fair show of bloom as early as August, as in that month I sent a good 15-inch basketful to a neighbour who was holding a Primrose League meeting.

Last year four of the beds were thickly planted with blue and three with rose-coloured *Hyacinths*. When the *Hyacinths* first came out and for about a fortnight the effect was extremely pretty, the sheet of white Primroses below showing off the blue and rose above. Later the Primrose leaves grew up and hid the white blossoms.

This year the Primroses are planted alone, and will be succeeded early in April by a very stiff-growing, many-spiked, creamy-white *Polyanthus*. These if properly planted do not suffer at all from the move, even when in blossom. I cannot send you a specimen, as although it sends up occasional spikes through the winter, it is spoilt at once by bad weather, and from several hundred plants I cannot now find one fit.

The Primrose I call *Sabrina*, after the river which for several miles forms the south-east boundary of this parish, in which the Primrose and I were raised. I send also a rose-lilac sport, of which I have only one plant with about half-a-dozen crowns. It appears to have the same winter-blossoming property that the white has. Its name is *Virnovia*, after the river which for a mile and a half forms the north-west boundary of the same parish. This river is pretty generally known now, as Liverpool is preparing to take its water supply from one of the branches of it. I send a dark crimson Primrose, which stands the weather well. It is very dwarf and slow growing. I have only eight small plants, which were in a mixed bed and not moved since the autumn of 1888, so I have not proved whether its growth is sufficient to enable it to be moved twice a year.

I do not know that we have any particular advantages of climate, as we are 450 feet above the sea level, 50 miles from the sea, lat. 52° , $40'$ N. long., $3^{\circ}10'$ W. The garden faces south-east, and has a house as a backing to a portion of it, but three of the beds are clear of this backing, and I can-

not see any difference between them and the rest. The plants moved twice a year blossom much better than the original one, which has been a fixture for the last dozen years. I have scattered plants to eighteen different places in the last two months, so I shall have a good chance of seeing whether they succeed as well elsewhere as here. I would have sent a photograph, but as there are mixed beds between some of the mass beds it would be difficult to get a good view from any one spot. Thirty-two is the greatest number of blooms on any plant. I could take off scores of bunches such as I send you. J. H. HEYWARD.

Crosswood, Welshpool.

NOTES OF THE WEEK.

The spring Snowflake is now in flower. We have lately seen beds filled with this and *Scilla bifolia*, and as both flower at the same time they make a very lovely picture.—K.

***Iris chinensis* (Morsæ fimbriata).**—In our Orchid house is a plant of this, and people hurry past the Orchids to look at its dainty lilac flowers opening at the rate of twelve to twenty daily. It is an old greenhouse species rarely seen at its best.—F. W. B.

Apple Bramley's Seedling.—I am sure too much praise cannot be given this Apple. My employer considers it the finest cooking Apple, preferring it to *Dumelow's Seedling*. *Bramley's Seedling* can be used from the beginning of November until the end of March. Why is it we so rarely see this variety recommended for planting?—J. L.

***Ramondia pyrenaica alba*.**—This did not originate with me, as stated by "D. K." (GARDEN, Jan. 11, p. 31), but was introduced from the Pyrenees by Messrs. Froebel, of Zurich. By the kindness of these gentlemen, I received one of the first plants distributed. Kindly correct this and add that the original drawing was made by Miss Ebba Kayser, of Vienna.—O. FORSTER.

***Dendrobium crassinode*.**—A very brightly coloured form of this plant, almost equalling the variety known as *Barberianum*, is now flowering in Mrs. Studd's collection at Bath. It is a welcome plant, coming so early in the new year, and its growth is also peculiar from its thickened joints. It is one of the many discoveries of the Rev. W. Parish in Burmah, where it appears to be widely distributed.

***Sophronitis violacea*.**—This is now flowering in many gardens round London, and it is quite a charming little species, the colour being exceptional. It is gratifying to see this little species, which was first found on the Organ Mountains, in Brazil, by Gardner upwards of fifty years ago, becoming well established in our gardens. It used to be one of the most difficult plants to manage.

Pilumna nobilis is a beautiful species that no collection should be without, and just now it is in full bloom with Messrs. Low, of Clapton. The flower-scapes are erect and bear about five blooms, which are of the purest white, save for the yellow colouring in the throat of the broad lip, and of the sweetest fragrance. It comes from Peru, and is also known as *Trichopilia fragrans nobilis*.

Angræcum hyaloides at Messrs. Low and Co.'s nursery, Upper Clapton, is one of the prettiest and most interesting Orchids in bloom now. There is a large number of plants in full flower, and though they rise but a few inches in height, they are crowded with the close spikes of sparkling white flowers. On one specimen we counted as many as thirteen. This *Angræcum* is grown in small baskets and kept near the glass.

Late Pears.—Now would be a good time for growers of late Pears to settle the vexed question as to the best late kinds. We have hitherto had a high opinion of *L'Inconnue Van Mons*, but our crops of this and other late kinds last year were almost nil. Moreover, Pears of all kinds have ripened earlier this year than common, hence the greater scarcity.—W. CRUMP, *Madresfield Court*.

Royal Horticultural Society and a hall for horticulture.—We are authorised to say with regard to the suggested hall that the matter has been before the Council for the greater part of the past year. A Committee of Council was appointed in the autumn for the purpose of elaborating a scheme, and they hope soon to be able to bring something tangible before the Fellows and the general public. It will then alto-

gether depend on the amount of financial support which the Council receive whether the project be carried to a successful issue or not.

Lælia anceps Stella.—This charming form of *Lælia anceps* is now blooming in the gardens of Mrs. Studd, of Bath. It is pleasant to note that Mr. Cypher, who has charge of her plants, has so far overcome the difficulties of the white forms as to flower *anceps* well. The variety *Stella* is a charming flower, being large and pure white, saving the inner portion of the side lobes which is streaked with bright magenta, and the raised crest deep yellow.

Crocus Imperati is just now lovely in the greenhouse at Kew. It appears to have been imported recently, as it varies in intensity of colour and markings much as we see batches from the cultivated grounds in Italy. It proves to be a most useful *Crocus* for this kind of work, requiring much less forcing to get it early, and the flowers last just as long, if not longer than those of the varieties of *C. vernus*. The corolla, too, will be available for the same purpose next season, and if not forced too hard, for many years.

White Hoop Petticoat Narciss (*Narcissus monophyllus*) is one of the loveliest hardy flowers of winter, and in the fullest beauty just now with Mr. T. S. Ware, of Tottenham. There are two or three ordinary cold frames filled with a light sandy soil, and in this the bulbs were planted thickly in the month of September. They are now giving a free display of flowers, which may also be had as early as November if the bulbs are gently forced. Although this winter gem is known well by name, it is not grown so freely as one might expect.

Vanda Amesiana, now the atmosphere in the neighbourhood is free from fogs, is flowering with remarkable freedom in Messrs. Hugh Low and Co.'s nursery at Upper Clapton, and the more we see of this lovely introduction the more its rich beauty impresses us. The strong spikes of bloom and vigorous leafage show this to be one of the finest Orchids in cultivation, and as the sun gains in power the colours are brighter. The lips of some of the newly-opened flowers are bright crimson, a pretty colour against the waxy white sepals and petals. Its winter-flowering character adds to its value.

Chrysanthemum Golden Gem.—I send you some sprays of this variety cut from a naturally-grown plant—that is to say, the cutting was not stopped, but was grown on strongly, staked upright, and allowed to branch naturally. It is the most beautiful late *Chrysanthemum* in cultivation. It is worthy of note that the naturally-grown plants are the latest, those stopped once or twice not being nearly so fresh and good.—W. IGGULDEN, *Marston Gardens, Frome*.

* * A most beautiful variety and one that ought to be grown largely, seeing it is so valuable for late flowering.—ED.

Goodyera discolor.—Either for the sake of its rich foliage, or for its erect spikes of flowers, this little Orchid is well worth growing. Few plants of its size make a prettier show than *Goodyera discolor* does at this season. It is most effective when five or six plants are grown together in a rather shallow pan. They will thrive quite well in an ordinary stove, potted in peat and silver sand. The leaves are broadly ovate and of the richest velvety green, with a white line down the centre marking the mid-rib. The spike is 8 inches to 10 inches high, and bears upwards of a score of flowers, these being entirely white with the exception of the yellow column. It is flowering at Kew.—W. B.

Angræcum fragrans.—It is but rarely that this species is, or indeed ever has been, seen flowering under cultivation. It is a native of the Mauritius, and besides being known under the above name has borne those of *Aeranthus* and *Mystacidium*. It is especially interesting as one of the few Orchids that are of economic use. The leaves when dried are known and imported into Europe as *Fahon* or *Faham*. According to *Reichenbach*, in "*Walper's Annalen*," a decoction obtained from them is used in France for affections of the respiratory organs. They have a pleasant Vanilla-like fragrance, which, he says, is so strong that the hands are impregnated with it for a long time by simply touching them. In this dried state they are used also for perfuming ordinary tea. Several plants growing on a block are now flowering in the warm Orchid house at Kew. They have slender stems with strap-shaped, distichous leaves, 3 inches long and bilobed at the apex. The flowers are

2 inches across, and are of the pure, sparkling white so characteristic of the genus. The sepals and petals are narrow, the latter curiously twisted at the base, so as to make them assume a flat, horizontal position. The spur is $1\frac{1}{2}$ inches long and pale green. The flowers have a most agreeable perfume.—W. B.

Camellias at Windsor.—I have to-day cut a fine red *Camellia* bloom from a bush growing in the open air without any protection whatever during the winter months. It generally blossoms about March, but is now full of buds already showing colour. It stands about 200 feet above the level of the Thames, and is sheltered by the house from north winds and partially from the east.—F. BARRY, *St. Leonard's Hill, Windsor*.

Cattleya amethystoglossa.—Enclosed you will find two flowers of *Cattleya amethystoglossa* which I have in my small collection. Would you give me your opinion? I have several, but none so fine as the one sent last season; it had thirteen blooms on one spike; this year it has fifteen.—C. G. BROADWOOD, *Shelley, Holgate, York*.

* * A very good form of this distinct *Cattleya*, the lip rich purple-crimson, the sepals and petals bright rose-purple enriched with large deep-coloured blotches.—ED.

Galanthus umbricus.—I had this early Snowdrop direct from Messrs. Dammann and Co., and do not at all agree with "K.," who at p. 47 finds it to be the common Snowdrop. His stock may not be true. In leafage and in flower it resembles *G. Imperati*, but it blooms even earlier, and our specimens are very bold and handsome. Of course all the Snowdrops, and there are now twenty or thirty distinct forms, are simply phases of one wild species, and *G. umbricus* is quite as distinct as four-fifths of the kinds known. Even *G. plicatus*, *G. Elwesi*, *G. Fosteri*, &c., are mere geographical forms. *Iris Rosenbachiana* and *I. Bornmülleri* are now lovely in the open air.—F. W. B.

The netted *Iris* and its varieties were in full beauty recently in the Tottenham nursery of Mr. Ware. After the type, the finest is the variety *cyanea*, which has flowers of a lovely blue colour, and the bulbs increase rapidly in ordinary soil, unlike the dull-coloured *Krelagei* or *purpurea*, whose flowers lack the strong violet fragrance of the type. Also in bloom was the lovely *I. Rosenbachiana*, whose flowers vary considerably in colour, but the darkest forms are the richest and most striking. *I. stylosa* and the white variety, *alba*, were flowering under glass in a cold house that gave protection to the frail flowers. Both continue sending up a succession of bloom throughout the winter, and they grow freely in ordinary light soil.

Daffodils from Long Ditton.—Accompanying I send you a few small *Daffodil* flowers gathered from the open ground, to show you how advanced the season is compared with any I can recollect in my experience. Amongst the *N. minimus* you will observe *Corbularia citrina* opened on the 20th. My earliest *Corbularia* in 1889 was on February 1, a yellow species I collected in 1888 in the north of Spain. I have quite a set of these early flowering *Corbularias*, of which later on I may have something to say; they are quite a study. Some have orange-yellow flowers, some full yellow, and others clear pale yellow; while the leaves of some are very slender and lie prostrate on the ground, while others are strong and erect. Some, again, have the foliage elegantly arched, each with a character of its own in flower or foliage.—P. BARR.

Winter flowers at Tottenham.—The abnormally mild weather of the present January has tempted out the flowers of many hardy plants, and there is a good series of Snowdrops and Crocuses in bloom with Mr. Ware, of Tottenham. Amongst the *Galanthuses* are broad masses of the now common *G. Elwesi*, *caucasicus*, a near ally of the broad-leaved *latifolius*, and *umbricus*, which seems nothing but *Imperati*. Crocuses in variety, the delicate blue *Hyacinthus* (*Muscari*) *azureus*, of

which a coloured plate was given in *THE GARDEN*, Aug. 10, 1889, and varieties of *Iris reticulata*, besides Christmas Roses of all the best kinds make up a charming group of hardy flowers. *Saxifraga Burseriana* major was opening its white flowers on the rockery, and the lovely *Anemone blanda*, the blue winter *Windflower*, was full of buds. *Hepaticas* were also flowering freely.

Large Filbert bushes.—On January 11 I was near to the Worcester Waterworks, when my attention was directed to some of the largest bushes of Filberts and Cob Nuts that I had ever seen. Several of them were upwards of 25 feet and 30 feet each in height and fully as much in diameter, and growing in a piece of market garden on the banks of the Severn. They were evidently uncared for in the way of pruning. Notwithstanding this, they were one profuse mass of catkins and female flowers well intermixed. The date of their flowering seems to me to be extra early, and I shall be curious to notice the effects of climatic influences on these precocious monsters growing so near the frost line.—W. CRUMP, *Madresfield Court*.

Lenten Roses—the name given to the *Hellebore* section, including *H. orientalis*, *H. colchicus*, &c.—have flowered very much out of season this year. Nearly all of them are in full bloom now, and most beautiful they are in the open beds and borders. The danger now, however, is severe frost, and thin mats should be kept in readiness to cover them in case of need. A very thin covering suffices to protect them from frost; indeed, we have noticed in former years that the cutting east winds do much more harm, and we have always advised planting them in the most sheltered spots available. We noticed the other day a fine group, planted beneath a deciduous tree, in the wild garden at Kew. There they are doing excellently, so well indeed as to warrant us in recommending their being planted in this way largely. *Hellebores* are so easily raised from seed and grow so quickly, that good flowering specimens may be had the second year.

The silvery *Hairbell* (*Edraianthus*), of which there are now many species in cultivation, have of late years become almost indispensable for the rockery. They are very nearly allied to the dwarf Campanulas, and flower with great freedom. *E. dalmaticus*, *Pumilio*, *pumiliorum*, *tenuifolius*, *graminifolius*, &c., are all available and sufficiently distinct to be included in a list of choice alpine. They are very easily managed, and when to be had in sufficient quantity to make a large group, will form a striking feature all through the summer. It seems almost impossible to increase them by division; at any rate it is a very dangerous proceeding. Two years ago we were lucky enough to procure a quantity of seed, and the seedlings are now very strong, and have formed quite a sheet of the most lovely green.—K.

Orchids at Studley House.—This choice collection contained many species and varieties in flower the other day, and a rich promise of bloom on the series of *Cologyne cristata*, from the common type to the pure white *hololeuca*. *Cypripediums* of some kind or other are always in bloom, and in full beauty with Mr. Tautz were *C. Boxalli* and its variety *superbum*; the distinct *calophyllum*, *callosum*, and its variety *superbum*, a valuable variety; *Sedeni candidulum*, a dainty flower of bright colour; *concolor*, *Sallieri*, the old *villosum*, and *macropterum*, a beautiful hybrid between *C. Lowi* and *superbiens*, the flowers large, the dorsal sepal pale green, with veins of a deeper shade and tinged with brown at the base, being also tipped with white; the petals are broad and long and tipped with purple, the basal half enriched by black wart-like dots. The old *C. insigne* was past its best; but a variety named *Studleyanum* was in bloom, this having much larger spots on the dorsal sepal. *Lælia anceps Gouldiana*, *Dendrobium Leechianum*, the curious *Gomezia planifolia*, and *Lycaste plana Measuresiana*, a prettier flower than the type, the petals more thickly and richly coloured were also in full beauty. Of course *Odonoglossum Rossi majus* was in bloom, and there were strong spikes of *Pescatorei*, besides a rich variety of forms of *Lycaste Skinneri*.

ROSE GARDEN.

ROSES IN AUTUMN.

THE brilliant September of 1889 will not quickly fade from the memory of the rosarian who realised then the full beauty of our most delicate Teas and Hybrid Perpetuals, as the buds under the influence of the soft and cool air expanded in their fullest beauty of colour and form to the autumn sun. Many varieties that were thought to give out as soon as July had passed were at

were making clouds of colour, the plants healthy, vigorous and carrying a profusion of buds in various degrees of expansion. Marie Van Houtte, with its flowers of various and charming shades, from the richest rose to the most delicate tints, was in beauty, also many of the newer Tea varieties, and it is when the plants are grown as bushes in a good soil and left to fight the trials of weather that we get hardy, robust, and healthy plants that give flowers in mild seasons until the eve of Christmas. Amongst the older varieties, Souvenir de la Mal-

cately coloured La France, Eugénie Verdier, Beauty of Waltham, Marie Finger, and Louise Van Houtte. The deep-coloured Hybrid Perpetuals, especially those of crimson and velvety-purple shades, have their tender petals burnt and disfigured by a hot July sun that spoils the outer petals of the Tea Roses, and deprives them of that delicate and refreshing fragrance and exquisite form that constitute their chief and enduring charm. Boule de Neige and the old Mme. Plantier, a Rose that can scarcely have too much praise, and the two good kinds Annie

Wood and Mme. Victor Verdier were strikingly beautiful in many gardens last September; also the old Gloire de Dijon, that surmounts the gables of many old-fashioned mansions, covering them with a canopy of flowers matchless in their delicate colour and sweet fragrance. Mme. Lambard, a variable and lovely Rose, gave a free display of flower, also such comparatively recent additions as Reine Olga de Wurtemberg, Ulrich Brunner, a variety that never fails, whether the season is good, bad, or indifferent; Sunset, a deeply coloured sport from Perle des Jardins; Dr. Grill, the variety of which a coloured plate was given in THE GARDEN for Jan. 18; Sappho, a very delicately coloured Rose, buds fawn coloured, flushed with rose, the expanded blooms shaded with buff and yellow; and Grace Darling, Francisca Kruger, Caroline Kuster, and Souvenir d'un Ami. Grace Darling is a splendid autumnal; it was producing many good flowers as late as the middle of October in the Royal Gardens, Kew, where there is a bed of bush plants near the pond facing the Palm house. The flowers are large, full, bright peach in colour, shaded creamy white, and borne in clusters of three or more. The foliage is of the richest green, and the plant of robust constitution.

There is another feature of interest in the Roses besides the beauty of the flowers, and that is the richly shaded tints the leaves of many varieties, as *Rosa lucida*, assume when late autumn approaches. With the increasing desire to bring to light the old-forgotten climbers, single varieties, and species, we find in good gardens such types as *Rosa lucida*. This is a picture of beauty in autumn, especially when planted on the rockery, so that its stems can fall over the stones and display to the full the rich brown and crimson-coloured leaves made more intense by the sprinkling of rich crimson

heps. It produces a unique piece of colouring that should be repeated in other good gardens, which might also be enriched by the golden colour of the decaying leaves of the Japanese Roses.

One reason for a common belief that Roses are for July only is that the exhibitions are crammed into a few weeks in July. The shows follow as thickly one on another as those of the Chrysanthemum, which has both an early and a late show in its interest. Not so the Rose, however. Why not institute a Rose exhibition in September or late in August? Roses are often



A group of autumn Roses.

their best in September, a few remaining right through the following month to give handfuls of delicate blooms for the house. The Rose is so often thought of simply as a summer flower whose season lasts for a few brief weeks, that its autumnal character is overlooked, and in the eagerness to have exhibition flowers, big, full, dense, and too often lumpy, which necessitate severe pruning and rich feeding, the merits of the queen of flowers as a garden plant solely for decoration is lost. In a Sussex garden the Roses were delightful in the autumn, just when the starry flowers of the Michaelmas Daisies

maison is fit to rank amongst the finest of autumnals. It is a Bourbon and lacks perfume, a sad failing in a Rose, in which fragrance is as dear to us as colour or form, but there is an indescribable beauty in the opening and expanded buds. The old variety Baroness Rothschild is again beautiful in the autumn, at a season when we often have the full richness of colour, unscorched by a hot summer sun, of such old favourites as Charles Lefebvre, Dupuy Jamain, Auguste Rigotard, Alfred Colomb, Le Havre, General Jacqueminot, a universal Rose, Ferdinand de Lesseps, A. K. Williams, the deli-

as plentiful then as in the summer, very little inferior in form and size, and generally more tenderly coloured and unblemished. It would give a new interest to Rose culture to hold an annual show in autumn, and stimulate the praiseworthy endeavour to have a succession of flowers from June until rains and frosts bid them cease to expand. E.

THE ORCHARD.

APPLE CULTURE IN ORCHARDS.

THE GARDEN for January 11 contains much valuable information about this, the most generally useful of all fruits grown in Britain. In my own remarks at p. 20 I intended to have inserted some remarks about Gravenstein, but omitted to do so. I grew it in pots in the orchard house twenty years ago, and found it to be a most excellent early sort grown in that way, but when it was planted out it was a failure, even in our light soil with a warm gravel bottom. With Mr. Iggulden, I can recall to mind not only impoverished orchards, but badly planted, badly cultivated, and, as a result, cankered and diseased trees. Let no would-be cultivator of fruit trees, Apples or any other, think that success can be obtained by acting on the advice of the old Scotch laird Dumbiedykes, and merely "sticking in" the trees. Most of us have seen picturesque orchards, the trees beautiful with an elegant drapery of Lichens, enough to hide the canker that was eating away the life and substance of the trees.

What causes the Lichens to grow on the trees and whence comes the canker? Neither is to be found in orchards where the soil is well prepared by being deeply cultivated and the trees well managed afterwards. The insect theory as the cause of canker I do not believe in. I know that some men believe that canker is caused by insects, but all my experience goes to prove that this is not so, and that the sole cause of canker is the want of reciprocal action between the roots and leaves of the trees. If the roots find their way into unsuitable soil, that is, cold wet soil or some shallow soils over gravel, canker will appear. I recommended lifting and replanting the variety Ribston Pippin every second year, in order that the roots might be kept near the surface until the trees were well established. When Lindley wrote his "Theory of Horticulture," he included a chapter of some importance on the "Application of principles of bottom-heat." At the first glance one may well inquire what has this to do with the cultivation of an Apple orchard. It has everything to do with it, as the sequel will show. About that time, fifty years ago, Mr. Reid, a gardener at Balcarres, in Fifeshire, had to manage an orchard in which the trees were cankered, and wisely assumed that the canker was caused by sluggish root action. He found that the roots of the trees had gone down to the depth of 3 feet, and ascertained by the use of the thermometer that during the summer months the average heat of the soil at 6 inches below the surface was 61°; at 9 inches, 57°; at 18 inches, 50°; and at 3 feet, 44°. Here was an orchard with the trees cankered and the fruit never ripening well, with the roots, or at least the principal roots, deep down in a temperature of 44°. Dr. Lindley relates that Mr. Reid "took measures to confine the roots to the soil near the surface, and the consequence was the disappearance of canker and ripening of the fruit." I had treated Apple trees in the very same way many years before I observed this passage in Dr. Lindley's book, and with the same results. I found the Ribston cankered, worked on the Paradise stock, amongst a large number of the most popular varieties of Apples, but on its first appearance I cut the cankered portion out, dug out the trees and replanted them, adding some fresh turfy loam round the roots; the canker disappeared and the trees bore good fruit.

I do not care further to discuss the merits of this or that variety. Information on this point is being freely tendered. What I most earnestly impress

upon cultivators is the importance of not only choosing good soil and a good situation, but also preparing the soil well, so that the trees may be established on a good foundation. The late Mr. Thomas Rivers urged on cultivators the importance of keeping the roots near the surface by frequently lifting the trees, but this may be done in other ways. It is not stated that the trees at Balcarres were lifted; the surface of the ground might have been dressed with manure to entice the roots upwards, or they may have been root-pruned. A most important point is draining. Digging out drains to a depth of 3 feet, with an outfall into one 6 inches deeper, would raise the temperature of the soil to that depth considerably, that is if it had been over-wet previously. Stirring up the ground, as advised with a steam cultivator at p. 21, is quite as important as draining, and I would not insist on giving a dressing of manure if the soil was moderately rich. It is a much better plan to give a mulching of good farmyard manure round the roots of the trees as soon as they are planted. An impoverished orchard, where the trees are covered with Lichens, may need draining, and I would have no hesitation in doing this as a preliminary to scraping off the parasites with a bit of old iron hoop, and dressing the worst plants with a lime wash. The roots might be further encouraged to come to the surface by forking over the ground under the trees and dressing with manure.

It was, I fancy, the neglect of fruit culture years ago that led the late Mr. Knight to the belief that many of the best sorts of Apples in their time were in a state of degeneration, and that this would continue even if young trees were propagated from them. Knight observed of the most popular trees in the Worcestershire orchards that "the Moil and its successful rival, the Red-streak, the Musts, and Golden Pippins were in the last stage of decay, and the Styre and Fox-whelp were hastening rapidly after them"; and was justified in the conclusion "that all plants of this species, however, propagated from the same stock partake in some degree of the same life, and will attend the progress of that life in the habits of its youth, its maturity, and decay." He thought it necessary to add, "though they will not be in any way affected by any incidental injuries the parent tree may sustain after they are detached from it." We know now that some of these old Apple trees can be as well and healthily grown as ever they were in their youth, the old Golden Pippin as well as others mentioned by Knight. What they all require is the right sort of stocks and good treatment afterwards.

J. DOUGLAS.

FRUIT TREES FOR UNSUITABLE SOILS.

WHILE orchards are engaging considerable attention in the pages of THE GARDEN and elsewhere, a few notes on varieties that will succeed in soils not congenial to the growth of all sorts, and upon those that will not flourish in such conditions, may not be out of place—not that they can be very generally acted upon this season, as I know the main part of the planting is past, or ought to be, but still there are doubtless some who still purpose to plant Apple and Pear trees, and who perhaps cannot be blamed for putting it off till so late in the season. If not useful to those, these notes may set those persons thinking who contemplate work of this kind next autumn.

For the last ten years I have had experience with a heavy, cold, retentive soil, which is of such a nature as not to absolutely require draining, through the presence of great numbers of flints mixed with the soil. In such a soil, although the water does not lie on the top, if the ground at the outset be trenched 2 feet deep, retaining the top spit of, say, 1 foot depth of fairly good soil in the same place. The soil at the depth of a foot is a kind of mixture of clay and stones, of a very close binding nature, through which the water is a long time in percolating. Near the surface the stones are much smaller, in consequence of the larger ones having been removed in cultivating the land. For this reason the water does not lie on the surface in pools

at any time, no matter the quantity which may fall in a short time. But soil of this character has this fault that it is only in dry weather that it can be worked, thus proving its retentive capacity, and rendering it uncongenial to the root-growth of trees and other subjects of weaker constitution.

When the piece of land was prepared for an orchard, drains were laid 18 feet apart, each one being 4 feet deep, the whole connected with a tank by a main drain (4 inches), the service drains having pipes 2½ inches in diameter. On the top of the pipes was laid a thickness of several inches of coarse leafless hedge trimmings, and on the top of this from 18 inches to 2 feet of stones was laid; yet I do not think that up to the present date water of any consequence has found its way through the drains. At a depth varying from 4 feet to 6 feet is a bed of chalk, from which at a depth of 250 feet the water supply of this neighbourhood is obtained. Having planted at that time many varieties of Apples and a good many Pears, I have had ample opportunity to note the success or otherwise of individual kinds. Most of the varieties of Apples were planted, both as standards and bushes, and in all cases where one variety failed as a standard it did likewise as a bush, proving that that particular sort is not suitable for soil of this description. Those that do well make clean vigorous shoots and bear abundantly almost every year fruits of capital quality. Those that have not succeeded suffer very much from canker, whole branches dying off suddenly. Although one year they may make fairly good growth and look as though a change for the better had set in, yet the next winter utterly disproves any such fancy. It may be said that the fault lies in having the roots of the trees at too great a depth from the surface in such a soil, but that is not the case, because on the first signs of canker and retrogression, say four years after they were planted, all those affected were lifted, planted on the surface, the lightest soil obtainable being used to cover their roots, which were carefully mulched with light stable manure. This work was carried out early in October, with the result that for the next four or five years a better prospect appeared, but now the last two years, since the roots have again got into the natural soil, many of the trees are again suffering from canker. The position—395 feet above sea level—is a high one and much exposed to the east and north-east, although the trees are not absolutely so, being sheltered on the first-named side by the garden wall, and on the latter by a tall hedge and Fir trees.

Amongst Pears Glou Morceau is the worst. I do not think the trees (pyramids) are any larger now than they were when planted, except that the stem has thickened, and this in spite of the trees having been replanted twice, each time under different conditions as to soil, &c. The one season's growth, which is pretty good, cankers the following winter without exception. The same may be said of Jargonelle in the open, while cordons on the wall succeed fairly well. The other varieties which must be placed on the black list as pyramids are Louise Bonne of Jersey, which produces fruit enough in most seasons, but it is invariably small and cracks considerably; neither do the trees make much progress, being weak and delicate looking. Now as a cordon and espalier trained on the wall with a southern aspect capital results are obtained, the Pears being of fine quality. Beurré Diel is another sort affected in exactly the same manner as Louise Bonne of Jersey. We have four pyramid trees, and from all I do not think half a bushel of good fruit has been gathered during the whole time. Duchesse d'Angoulême bears exceptionally heavy crops as a pyramid. The fruits attain a good size, are clean, but the less said about the flavour the better. Comte de Lamy as a pyramid does very well, the flavour being excellent. Doyenné du Comice is capital grown in any way. Marie Louise as a pyramid is useless, while on the wall it is fairly good. In this latter position Pitmaston Duchess produces fruit of 22 ozs. weight, about as good in flavour as it is possible to have this sort. Williams' Bon Chrétien, as also Conseiller de la

Cour, Beurré Clairgeau, Brockworth Park do well in any way. Capital crops of Catillac are annually produced, while the fruit of Uvedale's St. Germain is conspicuous by its absence. Those that do well on the wall only are Easter Beurré, Chaumontel, Thompson's, Winter Nelis, Doyenné d'Ete, Ne Plus Meuris, Napoleon, and Passe Colmar.

Apples which succeed really well, making clean growth, and giving abundance of large well-coloured fruit, are Warner's King, Ecklinville, Nelson's Glory, Mère de Ménage, Worcester Pearmain, King of the Pippins, Yorkshire Greening, Golden Noble, Ashmead's Kernel Improved, Cox's Orange Pippin, Devonshire Quarrenden, Keswick Codlin, D. T. Fish, Hambledon Deux Ans, Irish Peach, Tower of Glamis. Those which succeed moderately well are Ribston Pippin, Blenheim Orange, New Hawthornden, Emperor Alexander, Alfriston, Pine-apple Russet, and Lord Suffield. Those which may be classed as failures are Cellini, Beauty of Kent, Golden Pippin, Lord Burghley, Scarlet Nonpareil, Wormsley Pippin, Domeslow's Seedling, Hawthornden, and Kentish Fillbasket. E. M.

PRUNING ORCHARD TREES.

SPECIMENS of properly pruned orchard trees are extremely rare, and a good handy labourer outside a private or market garden who understands the pruning of trees can rarely be found. Such men are, however, in constant demand in fruit-growing districts, and doubtless it is partly owing to this scarcity of skilled labour that so many of our orchard trees are found so mop-headed and choked up with useless spray, whilst few possessors of orchards care to place the pruning of their trees in the hands of novices.

Pruning properly can only be learned by long experience coupled with close observation of the different varieties of fruit trees operated upon, and no description how to do it, however elaborately penned, is equivalent thereto. Pruning could possibly be better understood as an object lesson, and it is possible that the education code may some day include this in its curriculum. Meanwhile, how can the amateur, cottager, and others manage? Their only plan is to endeavour to grasp the outlines as laid down by those who are practical men as well as writers and to proceed cautiously. Pruning does not consist in shortening or cutting off nearly every shoot made, but rather in the judicious thinning out of the shoots, the mind being an active agent in carrying forward the probable result. There are those who object to pruning of any kind almost; certainly this may do for a time, but against this absurd theory I would point out the crowded mop-headed trees of nine-tenths of our orchards and the quality of the fruit produced. The question is, which system produces the best fruit and consequent returns? I can only admit sound, clean, handsome fruit into competition; of inferior fruit there is already far too much, to our own disgrace, and it will only be when we can abundantly supply our markets with as good fruit as the foreigner that we shall be able to beat him, for quality is the test of cheapness, and good articles recommend themselves. After planting a young orchard of standard trees there is some diversity of opinion as to whether the trees should be then cut back hard or not cut back at all. I have tried both plans with pretty equal results. One of the largest growers in this county always cuts back hard, and his trees show good results. Doubtless both ways have their respective merits, but I rather hold to a moderate shortening back. There are others who do not shorten at all the first year, but cut hard back nearly to the stem the second year. This is to me the most objectionable form. Whichever plan is pursued the trees should be thinned, and shoots that are intended to become the permanent limbs regulated accordingly year by year.

In dealing with old trees that have been for years neglected, different tactics must be adopted and the saw brought into requisition. If the thinning out is judiciously done, the roots right, the land not waterlogged, and the branches free from

canker and Lichens, the trees certainly and also the produce may be improved, but they seldom become really profitable. I should rather recommend them to be left alone, and a young orchard on a new site established.

It is considered probable by many planters that good cider Apples, that is, sorts that are useless for other purposes, will be in great demand. This may be so, and, vile though much of the cider be that is made, it is often more the maker's fault. Of course there is cider made which is a refreshing beverage, and doubtless preferable to much of the cheap unwholesome wine imported from abroad.

Madresfield Court.

W. CRUMP.

IMPOVERISHED ORCHARD TREES.

MR. IGGULDEN's timely article (see page 19) ought to arouse the owners of such orchards as he describes to vigorous action, for now that pruning and cleansing ought to be well advanced, all will be in readiness for the application of manure. But of this commodity many of the existing orchards have had but very little, and there can be no doubt that we do not get a quarter of the produce according to the acreage planted that we ought to do, simply because the trees are too exhausted to bear it. It is all very well to talk of spring frosts, insect pests, &c., but the fact remains that the best seasons we ever get fail to coax trees to produce a crop when there is nothing within reach of the roots for the tree to feed on. I should like those who are interested in this matter to note the difference in seasons like the past, when as a rule the crops of Apples and Pears in orchards were miserable. But in gardens where the trees were well cared for there was not much to complain of. I think I never have seen finer Apples than those produced in 1889 on young vigorous trees, and if we are to ever annually get a full supply of fruit, then must a corresponding annual, or, at the least, biennial supply of manure to the roots be given, for no tree can go on bearing fruit without showing signs of exhaustion if the loss is not made good. Mr. Iggulden alludes to the fact of many orchards having been planted in positions far removed from large towns, where it is difficult to sell the fruit to advantage or get manure, except at a very high rate. Growers must choose between very high rates for land near towns and very high rates for their fruit and manure to and from the towns. I have chosen the high-rented land as the less of the two evils, because I think that more fruit may be grown on one acre well manured than can be had from three on the starvation system. The advantage of being near a market cannot be over-rated, for if a grower cannot then sell direct to the consumer, he can at least sell direct to the retailer, and get what the fruit is worth in market.

Of all the drawbacks to home-grown fruit culture I look on that as the greatest, viz., that those who merely sell the fruit by auction get more profit out of the transaction than those who have had twelve months' labour to produce it. One of your correspondents refers to the Gravenstein Apples from Kent realising 3s. per bushel, and 1s. 6d. of that going for carriage and market expenses. We hear a good deal about Railway Rates Bills, but we do not find railway rates come down, for only last week I had some Potatoes from the neighbouring county of Wiltshire, and although the market price is only £2 10s. per ton, the carriage alone for that short journey came to £1 per ton. How then can heavy goods be cheap in towns, or how can cultivators get anything like the full price for their goods when railway charges, to begin with, come to more than one half the value of the goods?

The manure question must be faced, and in the neighbourhood of large towns there is little difficulty in the matter, as some of our largest market growers get their supplies very cheaply. Nothing is better than good stable manure for fruit trees. Now that many who have hitherto been solely vegetable growers are turning their attention more to fruit, the trees get the benefit, for no land in the kingdom is manured so well as market gardens devoted to vegetables. If anyone is sceptical of the

power of manure to rejuvenate apparently worn-out trees, I would advise him to try a few by way of experiment, taking out a trench all round at some distance from the stem and laying the roots bare, lifting the roots nearer the surface, and filling around them with manure and fresh soil, and noting the results for a year or two. If the trees do not grow out of their ailments and become fruitful, his experience will be different to mine.

Much may also be done by top-dressing only and keeping the soil free from constant disturbance by spade or fork. I have lately had a practical lesson in how the roots may be kept close to the surface by top-dressing, for in lifting some beds of Lily of the Valley that were located between rows of bush fruit trees, I found the soil so full of the fruit tree roots that it was difficult to get the flower roots out. The Lilies had been planted six years and every winter after the surface weeds were forked out, the Lilies had a top dressing of rotten manure, potting soil, &c., and it was to get at this that the roots of the fruit trees travelled nearly on the surface. I need hardly say that the trees were not only healthy, but also very fruitful, for it is the surface roots that do the work of fruit-producing, and no effort should be spared to preserve them and keep them well supplied with food. Some people say that these dwarf trees will never supply enough fruit to make it cheap for the toiling millions of our large towns. But if they are grown as much as they ought to be there would still be room for plenty of fruitful orchards with their wide-spreading standard trees.

Happily, there are signs of a change on every side, and although many are in doubt as to what to grow, how to grow it, and last, but not least, how to dispose of it when grown, I believe that the horticultural press, having now fairly embarked on the crusade, will not slacken their efforts until our markets are as well supplied with home-grown fruits as they already are with vegetables.

Gosport.

JAMES GROOM.

KITCHEN GARDEN.

FORCING LETTUCE.

As far as my experience goes Endive is keeping badly this season, too much moisture in the atmosphere and extremes of heat and cold evidently being most conducive to rapid decay. In the course of about a month, perhaps less, there will be little else than rather small and comparatively poor Endive and Chicory to form the basis of a salad, and as far, therefore, as we are concerned, the sooner we start forcing Lettuce the better. Ten years ago most gardeners would have ridiculed the idea of forcing Lettuces, and prior to the introduction of Early Paris Market and the small brown-leaved Forcing Cabbage varieties it would have been a waste of heat to attempt the process, that is to say, if hearts were desired, but with the aid of the aforesaid sorts it is quite an easy matter. Last season we succeeded in wintering a considerable number of plants of the Early Paris Market in the open air, but this winter Lettuces generally have been cut up badly, and we shall have to rely principally on early raised plants. If the seed of either of the varieties named is sown rather thinly in pans and placed on a hot-bed in a pit near to the glass, fairly sturdy little plants will be had in the course of a month. In the meantime a gentle hotbed ought to be formed, on this being placed a good-sized frame, this to be partially filled with the shortest of the heating material, and this latter covered with about 8 inches of fairly good loamy soil. When the soil has become well warmed through and there is no likelihood of the bed becoming dangerously hot, the Lettuces may be pricked out direct from the seed-pans. An early supply of Lettuce being needed, it is advisable to prick out the plants about 5 inches

apart each way, every other plant being cut out and used before they spoil the rest by overcrowding. A high forcing temperature does not suit Lettuces, but being well up to the glass and the frames ventilated in much the same way as those containing Carrots and Potatoes, the plants being also kept well supplied with moisture, their growth is rapid and fine heads result. So very tender are these forced Lettuces that they require the most careful packing when sent to a distance, and we hear nothing but praise of their merits when used.

All may not be in a position to devote a frame or frames exclusively to the culture of early Lettuce, but that is no reason why none at all should be grown. If a few old plants have been kept through the winter, these and any of the forcing varieties raised early this year may well be placed in boxes of rich loamy soil and grown in a light house or pit. We have cut many fine Lettuces from boxes set on the inside border of a span-roofed vinery, and also along the glazed fronts of Peach houses, some being forced, others only brought on more slowly. If they fail under this treatment it will most probably be due to overcrowding the plants, as if good Lettuces are required, they ought to have as much room as they receive when put in the open, the forcing Cabbage varieties requiring to be at least 8 inches apart each way. The least that can be done is to sow seed at once of the Paris Market, the plants being placed on a cool shelf in a greenhouse or in a cold frame near the glass soon after they have formed rough leaves. Thus treated, they become sturdy and strong and may be pricked out during favourable weather along the foot of a sunny wall, a small raised border formed with fairly rich soil being desirable. Given some kind of light protection and duly preserved from slugs, the chances are these early raised plants will eventually surpass any autumn-raised Lettuces other than the forcing varieties, that have been wintered either under glass or in the open. So convinced am I of this fact, that I rarely take any trouble in wintering small plants unless it be of the Cos varieties, and which form a good succession to the Paris Market.

W. IGGULDEN.

Forcing Seakale.—I may be allowed to corroborate "S. D.'s" remarks on forcing this in pots, having this season to force the major portion of our supply in this way. I had to obtain my supply for forcing from the nursery. When the crowns reached me early in December I put them into large pots as described by "S. D.," placing them at first in the Mushroom house; at the end of three weeks I placed the pots in the coldest part of the stove, keeping them air-tight. At the end of five weeks some excellent dishes of Kale were obtained. —J. C. F.

Vegetables for exhibition.—Now is the time growers must set about thinking in earnest regarding what they are going to do during the coming season. Already some of the most noted growers will have their Onions, Leeks, Parsnips and Parsley sown. But there is time enough yet. I have been busy making some sashes to be ready for use about the 20th of this month. Then I make up a nice hotbed and sow on it patches of Leeks, Onions, and Parsley during the last week of January, and about the middle of February, on a portion reserved for that purpose, I sow my Celery for exhibition. I have always found that the plants mentioned do very much better in a hot-bed frame than in a greenhouse or vinery. They may be allowed to grow on in the frame until the time comes for planting out, but if one has the time and the facilities necessary I would strongly advise the potting of Leeks, Onions, Celery and Parsley. This should be done in the end of March, and a good compost used in which there is a large proportion of old turf. At planting out, the plants, if carefully taken from the pots, will start off at once. Great care must be taken that they are not allowed to

get too dry when in the pots, as a check then is very damaging, especially to Celery, making it almost certain to bolt. —JUAREZI.

SEED POTATOES.

We always store our seed Potatoes in pits, as they are called, in the reserve ground among the rubbish and soil heaps, as I find no place better for them during the winter. They always keep well, are never frozen, take up no room inside the sheds, which are limited, and never suffer from sprouting. To those persons who are short of shed room in the autumn I can recommend this plan, but the tubers must be properly prepared for "pitting," or I will not answer for the result. That detail we carry out thus. We choose a dry day for lifting the tubers, which are sorted into three sizes when picked up to save future handling. The size of the Potatoes I prefer for seed are about the size of hen's eggs, varying, of course, a little, according to variety. Anything less than walnuts I discard; those larger are put by for use according to the season of each variety. The Potatoes are placed upon the stages in the Mushroom house, which is not then in its regular use. Previous to carrying them into the house the tubers are allowed to lie on the ground two or three hours to dry, being handled carefully to prevent their being bruised. In the Mushroom house they are thinly covered with dry mats to prevent their greening, those for use and seed also going together, except that they are not mixed. I have tried both plans, greening the seed Potatoes and not doing so. I think the verdict is in favour of the latter plan. All the available ventilation is given to the house to thoroughly dry the tubers after sweating, which they are sure to do after being placed in heaps. In about a month's time the pit is formed, the site of which in our case is on the north side of the garden wall. On the top of the ordinary soil is laid a coating of coal ashes 4 inches thick, on this 2 inches or 3 inches of clean straw, forming the base according to the size the heap is likely to be; we build ours say 3 feet high in ridge fashion. At one end we place one sort, separating it from the next sort by a thin layer of straw, and so on until all are in. Over the whole lay some straw, then 6 inches thickness of litter, thatching the whole to keep out rain. If the weather is very severe more litter is thrown over the whole. Once during the winter the pit is opened (ours was examined last week), the Potatoes are turned over, and the few sprouts which have grown are removed, a dry sunny day being chosen for the work. Towards the end of January or the early part of February the Potatoes are removed from the pit and laid thinly on the stages in the fruit room which by that time are available. The first wet day afterwards the tubers are stood up on their end, eyes upward, where they remain until planting time, the growths by that time being from a quarter to three-quarters of an inch long. Abundance of air should be admitted to the fruit room to prevent a too rapid growth of the sprouts. —S.

— This important matter is once more ably and opportunely discussed on page 603, last volume, by "A. D." There are one or two points suggested on which few, perhaps no writer is better qualified to afford further instruction or information. One of these is as to how the sprouting of seed Potatoes before planting can enable us to weed out rogues. I am aware that there are great diversities of foliage and habit among Potatoes, but doubt their being sufficiently developed in green or sprouted seed tubers to enable anyone with certainty to weed out the rogues. Possibly "A. D.," with his well-known and special Potato lore and practical knowledge, might manage it, but could the rank and file of amateur or practical growers? The answer, I fear, must be in the negative. The system of sprouting before planting also affords unusual facilities for thinning the number of shoots before planting. How many shoots or stems would "A. D." advise being left—one, three, five, seven, or more?

Great success has been obtained in early forcing from concentrating the force of the sets into single stems. Neither need there be much loss of space under this system, as the sets may be placed so much closer together. Again, three shoots find great favour with many. For early work especially "A. D.'s" opinion of the desirability or otherwise of exceeding three shoots on seed Potatoes would have a special value. Even for main crops, some have doubted whether three is not the most profitable number of stems or shows to a set.

Of course, mere gross yield is not the only, perhaps hardly, the chief factor in determining such matters, the quality of the sample determining the profit far more so than mere gross yield.

Another argument advanced by "A. D." in favour of sprouting Potato seed before planting will be favoured by every practical cultivator, viz., the facility afforded by the practice for securing evenness and regularity of crop alike in quality and time of ripening. By planting sprouted sets of equal length and strength under similar conditions, there can be few or no blanks, and crops of uniform quality may be lifted at any required time. —CALEDONICUS.

EARLY CUCUMBERS.

In my younger days, or when the bulk of Cucumbers were forced in frames on hotbeds, it was often a neck-and-neck race among neighbouring gardeners as to who should be the first to cut fruit. Now-a-days, or since the more extended use of forcing houses and fire-heat for the production of early Cucumbers, there is little or none of this rivalry going on, and in any case there is no very great demand for them, say, much before April, and if they are available by the end of that month, that is often quite as early as they are wanted. This being so, I hold it to be most unwise to raise the plants very early in the year, only to keep them starving in small pots much longer than is good for them. When the seed is sown about the first week in February, it will, if given the benefit of a brisk bottom-heat, germinate quickly and strongly, and subsequent growth will also be equally satisfactory. We prefer to sow seed singly in 3-inch pots, and from these the seedlings are shifted before becoming root-bound into 6-inch pots, and well-warmed light loamy soil being used, they experience no check and quickly develop into strong healthy plants. From the first the seedlings are lightly supported with stakes, and while the plants are being thus prepared the sites are also made ready for them.

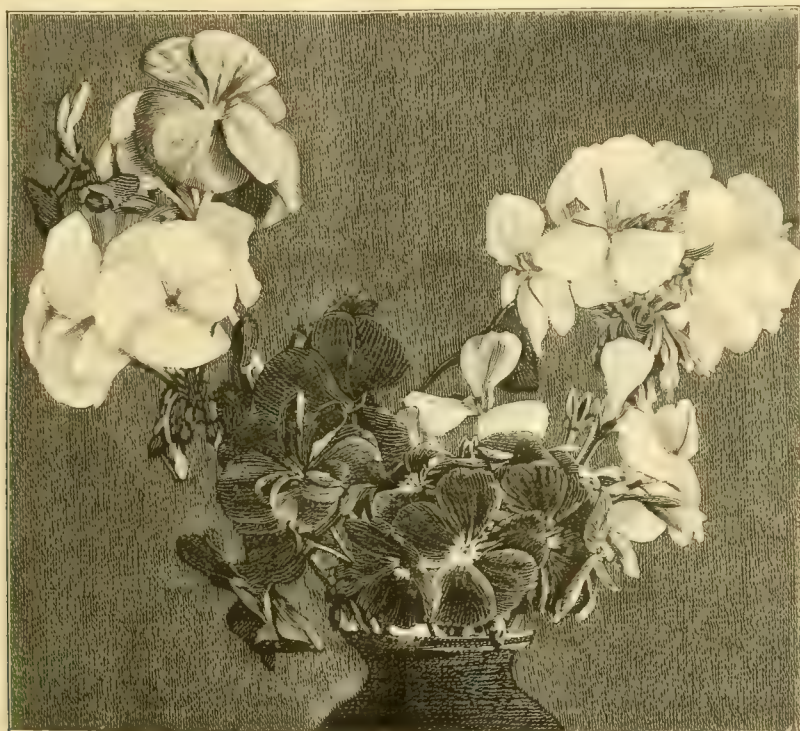
Whether the plants are put out on ridges or are placed in either tubs or large pots, the soil used ought always to be in position long enough to become well warmed through before the Cucumbers are planted, and it is also desirable that a brisk bottom-heat be afforded. For a short and quick supply I prefer to put out the plants on small ridges of soil placed on a fairly brisk hotbed formed of well prepared stable-yard manure and leaves, or else to partially plunge large pots in the same. The plants are not stopped when the trellis is reached, but the leader of each is trained up the roof, the side shoots laid in right and left, stopped when their limit is reached and fruited to their full extent. A surprisingly heavy crop of fine, straight Cucumbers can be cut in a comparatively short space of time from plants treated much as just described, but as a rule it is a waste of space to retain these plants for affording later supplies, and they ought, therefore, to be cleared out in order to make room either for younger plants or else some other crop. We have frequently tried our plants on hotbeds with the intention of keeping them in full bearing during the greater part of the season, but in most instances with very unsatisfactory results. They do well for several weeks, but eventually the manure becomes little better than a mass of humus, a condition of affairs most conducive to unhealthy root-action and a correspondingly sickly top-growth.

The worst enemy we have to contend with is the small worms, which cause the roots to become covered with warts, this soon completely

paralysing the growth of the plants generally. There would appear to be no remedy when once the pest is established among the roots, and preventive measures ought in all cases where necessary to be adopted at the outset. They are most liable to be troublesome when manure is used either in forming a hotbed or mixed with the compost, and the less of this employed, therefore, the greater the likelihood of immunity from attacks. As a matter of fact, Cucumbers do not require an unlimited mass of soil and manure to root in, but, on the contrary, the most profitable plants are not unfrequently to be seen rooting in quite a small mound or bed of soil. If good turfy loam is available, little beside this need be used, all that is necessary in this case being to frequently top-dress with more of the same material. When these ridges of porous material are not unduly exposed to either much sunshine or strong fire-heat, and are also kept uniformly moist, the Cucumber plants soon crowd them with roots and

WINTER-FLOWERING ZONAL PELARGONIUMS.

ZONAL PELARGONIUM blossoms in winter are now looked upon as a necessity in most gardens ; in fact, we get a colour in the zonal Pelargonium which no other winter-flowering plant gives us, and when arranged in a cut state, in a free and natural manner, as shown in the annexed illustration, they are most effective. The first important matter is to select varieties which are short-jointed and sturdy. The colour is optional. Many prefer scarlet varieties to all other colours, possibly because the latter can be found in plants of other kinds. With regard to the culture required, which is very simple, I have found the plants to succeed best when the cuttings are struck at the end of August or early in September, and I prefer to put the cuttings singly into very small pots in sandy soil, placing them



Cut flowers of zonal Pelargoniums in a vase.

thrive admirably, especially if given moderately strong, yet clear liquid manure rather frequently. Unfortunately, the majority of Cucumber growers are unable to procure the requisite supplies of light fibrous loam, but they can yet prepare a fairly good compost without the addition of any solid manure. To the best light loam procurable should be added plenty of charred garden rubbish, charcoal, and even brick ends, all of which will serve to maintain the compost in a fairly open condition. Soot may be added to any kind of soil with advantage, but not in very large quantities, or say more than an 8-inch potful to two bushels of soil. Soot is also admirably suited for applying in the form of liquid manure, but it must be in a comparatively clear state or strained through a canvas bag, or otherwise it quickly clogs the surface. So also does farmyard liquid manure, and for this reason I much prefer to use some kind of special manure in moderation, as the latter does not clog the surface, and thereby exclude the air from the roots. I like to see Cucumber roots in an active state on the surface, and where they are not so found, the plants are not often in a healthy productive state.

I. M. H.

in a pit or frame, and by keeping a little close and slightly shaded for a week or two they soon root. When the little pots are well filled with roots in October I shift them on into 3-inch pots, using a compost consisting of two parts loam and one of leaf-mould and decayed stable manure from a spent hot-bed, and a liberal sprinkling of silver sand. After potting, do not give much water, only just sufficient to keep the soil moderately moist. This rule should be followed throughout the winter. When growth commences again after this potting, pinch out the points of the little plants, and this will induce them to form bushy little specimens. The best place to winter them in is on a shelf or stage in a dry, light, and comfortably warm greenhouse, the object being to keep the plants growing very steadily on through the winter. In the end of May or early in June give the plants their final shift into 6-inch or 7-inch pots, using the compost as previously recommended, drain the pots well, and ram the soil in very firmly around the roots. All that is necessary after the

plants are in their flowering pots is to set them on a bed of coal ashes in a sunny spot in the open air, and attend well to watering and stopping the shoots, and nipping off all flower-buds that show themselves till the end of August, when the two latter practices should be discontinued. House the plants as soon as the nights begin to feel chilly, and continue giving them plenty of air as long as the weather is favourable. When dull and cold increase the temperature, which should range from 50° at night to 55° to 60° by day, with a little air on the house at the top and sides also unless it is windy. The house in which zonal Pelargoniums are placed for winter flowering should be a light, well-heated, and ventilated structure. In watering, care must be taken not to wet the foliage more than is possible, and a little weak, clear guano water occasionally given will be very beneficial. Under this treatment, there will be no scarcity of bloom throughout the winter. As regards varieties, amongst the many now in cultivation, and which are all more or less good, the following well-tried kinds may be selected with perfect confidence : Vesuvius, F. V. Raspail, Wonderful, and Silvio in the scarlet section ; Olivia Carr, Lady Sheffield, and Rose Rendatler are good pinks ; Joan of Arc and Eureka are among the best of the whites ; and President Thiers and Sophie Birkin are good salmons. Other very desirable varieties are : Henri Jacoby (a splendid kind), John Gibbons, Colonel Seely. H.

TREES AND SHRUBS.

PLANTS FOR WALLS.

IF the saying, often quoted, respecting the herbaceous border, "that its great attraction is in the fact that there are very few days in the year when something may not be found in flower," is true, it might also apply to walls that are covered with climbing plants in variety. In old-fashioned gardens there are generally some odd corners and bits of wall sometimes of considerable length that are not required for fruit growing, and a judicious planting of climbers in variety will give not only a nice show of flower for many months in the year, but furnish in many instances abundance of material for cutting. There is something very homely and natural about these old climber-clad walls at any rate where the plants are allowed to have their own way to a considerable extent, and are not cut and nailed in symmetrical lines hard to the wall. The old Chimonanthus is very full of flower this year, and has furnished us with an abundant supply of bloom since the beginning of December, the weather not having been of sufficient severity to seriously damage the flowers. There may, no doubt, be many larger plants than ours, but I think its dimensions worth noting, covering as it does a space of wall 25 feet long and 15 feet high. Intending planters of this old favourite should try and get the variety known as grandiflorus when it can possibly be obtained, as it is considerably larger, of a much deeper colour, and I fancy even more fragrant than the old variety. The buds of Cydonia japonica and the white and rose varieties of this well-known plant are swelling fast, and with a continuation of the present mild weather will soon open into flower. The white variety does not seem very well known at present ; it is, however, a very handsome wall plant, and a large specimen is a very attractive object when the flowers are fully expanded. This particular sort grows very fast with us, and would quickly cover a large space of wall. Other very old wall plants here are

Cercis canadensis, *Benthamia fragifera*, and *Forsythia suspensa*, but the two first-named are hardly adapted for the purpose, and in no case must they be planted close to any walk where tolerably hard pruning is necessary, for flowering as they do on the young wood, there is a consequent removal of bloom with all spurring in. What is the experience of readers of THE GARDEN with respect to the newer varieties of *Ceanothus*? The flowers are finer, but I have not found the plants so hardy as those of *C. azureus*, nor can they boast of the semi-evergreen feature which is a welcome characteristic of the old variety. The Honeysuckles cannot be left out, as if there is plenty of wall room they make a pleasing display and shed a delightful perfume. I have a large plant of *brachypoda* and one of *Clematis Jackmani* in close proximity, and they have a pretty effect when clothed with flowers. I would not advise the planting of either *Deutzias* or *Spiraeas* against walls, except perhaps one or two of the small wiry-like varieties of the last named that seem naturally to require support, as *S. prunifolia* fl.-pl.; with very few exceptions they are more at home in the open shrubbery. No wall devoted to climbing plants would be complete without its *Roses*, and there is no doubt that *Gloire de Dijon* is the best all round variety for the purpose. It does wonderfully well here in West Surrey, many cottage walls in the immediate vicinity being completely covered with it. In addition to *Gloire de Dijon* we have *Maréchal Niel*, *Lamarque*, *Solfaterre*, *Safrano*, *Aimée Vibert*, and *Ophirie*; these all do fairly well, the last three being the most satisfactory. *Ophirie* especially is a useful *Rose* and furnished us with occasional button-hole buds until shortly before Christmas in the season of 1889. *Safrano* flowers with great freedom, but I find it very susceptible to mildew. The white and yellow *Banksians* are very useful for covering an objectionable building quickly, making wonderful annual growth if they are fairly well suited in the matter of soil, and they are all the better for this particular purpose from their semi-evergreen character. True Evergreens should not enter too largely into the planting of walls, as they are apt to give a heavy appearance, and as few of them flower with any great profusion they usurp the place of brighter plants. *Magnolia grandiflora*, the *Escallonias*, and the variegated *Buckthorns* are useful for the purpose, and one of each may be used with advantage, especially in a considerable length of wall, as they relieve the naked aspect that comes with the leaf-shedding of most of the flowering shrubs.

Claremont.

E. BURRELL.

Chimonanthus fragrans.—This deliciously scented, winter-flowering shrub, referred to by Mr. Crump, succeeds very well in the mixed shrubbery, in the south of England, at any rate. At the present time we have two plants, one in the mixed shrubbery, the other occupying a portion of the kitchen garden wall facing east. Both are freely covered with buds and blooms, but I have observed that the one in the shrubbery does not so quickly recover from the effects of a sharp frost as that on the wall, on which, at the end of two or three fine days succeeding a frost of 10° or 12° severity, the buds again burst into full bloom, evidently no worse for the temporary check received. The plant in the shrubbery takes a longer time to recover, thus showing the advantage in planting this shrub against a wall.—S.

Poisoning by Box.—Dr. White, of Harvard University, reports in the *Boston Medical Journal* an interesting case of poisoning from *Box*. The patient was a young woman suffering from an attack of acute inflammation of the face, which was uniformly and greatly swollen, presenting

generally the appearance of *Rhus* or *Ivy* poisoning. She had, it appeared, made a decoction of garden *Box*, and applied it to her scalp for the purpose of preventing her hair from falling out, and the liquid had run down over the face, which she had subsequently washed with the rag used in applying the liquid to the scalp. The inflammation, in spite of local treatment, had not disappeared at the end of six or seven days from the time of the application. Dr. White remarks that this is the first case of poisoning by *Box* which has come under his observation, although the poisonous properties of the plant have been suspected for many centuries, as it belongs to a family containing violent and cutaneous irritants.

CHOICE FLOWERING SHRUBS FOR HANTS.

FOR the information of "D. H. G." (GARDEN, Jan. 11, p. 43), I cannot do better than furnish him with a list of shrubs and trees of which I have had experience here during the last ten years. At the outset I would say that the garden here is situated on the top of a hill 395 feet above sea level, and fully exposed on the south-west, south, and eastern aspects. Fairly good protection is afforded on the north side where the greater number of the shrubs is growing. Although in a chalk district the part where the garden is situated is not absolutely a chalk soil, but it is highly impregnated with chalk, much having been mixed with the soil for many years, so much so that *Rhododendrons* will not grow at all unless special preparation has been made for them.

In planting the various subjects we endeavour to obtain the best results by substituting leaf-mould, wood ashes, vegetable refuse mixed with wood ashes, old potting soil, horse manure, silver and common yellow sand, and lastly, peat, which is the scarcest article of any. This has to be brought many miles; therefore what we do get has to be made the most of. It would be utterly useless to plant many trees, and especially *Conifers*, without the aid of some of the materials named. Even after three or four years we find it necessary to add more of such soils around that already given at planting time, for as soon as the roots reach the outside of that which is artificial they refuse to go any further. Take the *Hemlock Spruce*, for instance. This after having been planted two years in the natural soil almost died, but with some of the compost mentioned above applied round the roots the same trees now flourish. Many more instances might be quoted to show the uselessness of planting trees and shrubs that are known to dislike chalk unless some soil is added to give the trees a start.

The following evergreen and deciduous shrubs succeed well here:—

<i>Akebia quinata</i>	<i>Forsythia viridissima</i>
<i>Amelanchier florida</i>	<i>Garrya elliptica</i>
<i>Botrychium</i>	<i>Hypericum patulum</i>
<i>Amygdalus communis</i>	<i>Jasmines</i> of sorts
<i>Arbutus Unedo</i>	<i>Kerria japonica</i>
<i>Aristolochia Siphio</i>	<i>Laburnum</i>
<i>Berberis Beali</i>	<i>Lycasteria formosa</i>
<i>Darwini</i>	<i>Lilacs</i>
<i>Broom, lemon and white</i>	<i>Lonicera</i> of sorts
<i>vars.</i>	<i>Magnolia conspicua</i>
<i>Buddleia globosa</i>	<i>Myrtus communis</i>
<i>Calophaea Wolgarica</i>	<i>Paeony Moutan</i>
<i>Catalpa syriacifolia</i>	<i>Philadelphus coronarius</i>
<i>Ceanothus</i> in variety	<i>Pyrus Malus floribunda</i>
<i>Cherry, double white</i>	<i>spectabilis rosea plena</i>
<i>Chimonanthus fragrans</i>	<i>Pyracantha</i>
<i>Choisya ternata</i>	<i>Rhus Cotinus</i>
<i>Clematis</i> of sorts	<i>Ribes sanguinea</i>
<i>Coronilla glauca</i>	<i>Robinia hispida</i>
<i>Cotoneaster microphylla</i>	<i>Spiraea arifolia</i>
<i>Simmonsii</i>	<i>callosa</i>
<i>Deutzia crenata fl.-pl.</i>	<i>Reevesi</i>
<i>gracilis</i>	<i>Tamarisk</i>
<i>scabra</i>	<i>Viburnum plicatum</i>
<i>Escallonia macrantha</i>	<i>Weigela rosea</i>
<i>montevicensis</i>	<i>Wistaria sinensis</i>
<i>Ecochorda grandiflora</i>	

I do not think it would be labour absolutely lost to import peat for the bog garden, as the chalk stream would not injure the plants unless in actual contact with them. Many subjects could be planted in the peat close to the

stream without any injury whatever. We grow here many American plants, such as *Kalmias*, *Azaleas*, *Andromedas*, *Heaths*, and *Rhododendrons*, and all succeed well. When the beds were first made here we thought to utilise some rotted turf that was on the site by mixing it with the peat, but we found it to be a great mistake, as the *Rhododendrons* refused to grow in it at all; in two years' time we had to take them up, turn over the whole mass of soil, and add a considerable quantity of fresh peat and sand. Since the plants have been in the fresh soil they have done well.

EDWIN MOLYNEUX.

THE ZELKOWA.

(ZELKOVA CRENATA.)

THIS is usually considered a rare tree, but my opinion now is that from its great resemblance to the *Elm* it is often overlooked and confounded with it. That it is a tree of great beauty, and one that is peculiarly well suited for planting in this country, a visit to the fine old specimens at Kew, Syon, and Holme Lacy (near Hereford) should convince even the most sceptical. The *Holme Lacy* tree is a noble specimen, with a clean straight bole and a plentiful supply of regularly distributed branches, the foliage, too, being perfect in every respect. Near the herbarium at Kew many a visitor has stood and admired the fine old *Zelkova*, for in truth it is a noble tree, although not equal to that at Hereford, being, I should say, about 60 feet high, and with a stem 3 yards in girth at breast high. The largest of the *Zelkows* at Syon beats the *Kew* specimen, but is inferior to that at Hereford, at least in height and regularity of outline. Some of the finest trees in this country are fully a century and a quarter old, they having been sent home about 1760, and it is not unreasonable to suppose that the three above-named specimens are part of the first consignment.

In general contour the *Zelkova* is neither excessively pyramidal nor yet far-spreading of branch, approaching more nearly in outline the *Cornish Elm* (*Ulmus cornubiensis*) than any other tree I can call to mind.

This semi-fastigiate habit of growth renders it especially suitable for planting as an avenue tree, or for placing in the angle formed by the junction of two roads and where space is somewhat confined. Young specimens of, say, twenty years' growth have a most distinct and peculiar appearance from the upright course taken by all the branches, and as the stem, the result of grafting, is usually destitute of branches, the appearance given is more that of an inverted broom than anything else I can think of.

Thick and twiggy describes well the head of the tree, while the stem is furrowed deeply longitudinally, and is in most cases straight and well formed. To the leaves of the *Elm* those of the *Zelkova* have a striking resemblance, but they are smoother and more glossy of surface, and more evenly and closely dentated. Altogether this is a handsome, free-growing, and easily-managed tree, and it adds quite a charm to the scene when placed near some of our more spreading and flat-headed park or lawn specimens. It delights in a rather moist alluvial soil, but in this respect it is certainly far from particular, as there are not a few trees of the *Zelkova* in the midland English counties, and trees, too, of no mean proportions, that have been planted in anything but a rich loam. Few trees in my experience take ill to a rich alluvial deposit, whether they are coniferous or hard-wooded, and the *Zelkova* is certainly no exception to the rule, for that the finest specimens in this country are planted in such a soil a visit to Syon will show.

Generally, the *Zelkova* is grafted on a stock of the *Elm*, and it is not at all unusual to find throughout certain specimens leaves of both the *Beech* and *Hornbeam* on the same tree. This is a peculiarity that has been unnoticed by most writers, but in several specimens of my acquaintance the diversity of leafage is somewhat remarkable, and has caused no little comment in the neighbourhood where they are growing.

Extremes meet, and of this upright-growing tree

there is a pendent or weeping variety, but it is of no particular use nor beauty. As usual, I would recommend lovers of distinct and rare hardy trees to make a note of the *Zelkova*, for that it is worth a chosen spot few who have seen any of the larger English specimens will care to deny.

A. D. WEBSTER.

THE COMMON AND OTHER PRIVETS.

I AM at a loss to understand how anyone can fail to appreciate the beauty of this when in bloom. I should not be surprised at exception being taken to its perfume, for I think that there is something very sickly in the odour that large bushes give off, and I have heard people, especially ladies, complain that it gives them the headache. For this reason I do not advise its being planted near the dwelling, that is, if it is to be allowed to grow in the way of other flowering shrubs. The Privet, however, grows so strongly and blooms with such regularity and profusion, that it is not at all necessary to give it a front place. Neither do I recommend it for small gardens, as where space is limited there is a natural desire to have something more choice than such a common thing as Privet, however ornamental it may be. But where there is a large extent of ground to be occupied in some way, there are always positions where large bushes of the Privet may form a pleasing feature. It would certainly be better to plant Privet than many things now commonly used to help fill large shrubberies and plantations, and these have little but their vigorous nature to recommend them for such a purpose. I must admit that I would much rather see Privet used as an ornamental shrub than in the way in which it is so commonly employed. Privet hedges look neat when well kept, but their beauty is obtained at the expense of whatever may be cultivated near them. I have seen kitchen gardens bordered with Privet, and have wondered that so great a mistake could be made, for a space of quite 4 feet from a Privet hedge is never fit to grow anything on. The thick mat of fibrous roots robs the soil near them of nourishment and moisture to a greater extent than those of any Evergreen I know, and being made near the surface their evil effects are more apparent. I should never think of enclosing cultivated ground with Privet hedges unless the paths were made alongside them, as then there would not be the loss of space for growing crops. The Chinese Privet is far too little planted. It blooms at a time when there is little to be seen in flower in shrubberies. It is of rather a loose habit, but this is no drawback to its use where shrubs and trees of various heights and vigour are intermingled. The Japan Privet is a handsome compact-growing shrub that is suited to gardens of even moderate extent. It is not frequently seen in small villa gardens, for which it is well fitted.

J. C. B.

Berberis Beali.—Has anyone noticed the delightful perfume of the flowers of this *Berberis* which blooms freely just now when other flowering subjects in the shrubbery are scarce? The scent reminds one very much of that of *Boronia megastigma*. Apart from this quality this *Berberis* is a capital plant for the shrubbery or as a specimen on the Grass. When established thoroughly the growth is free, the leaves being long and heavily covered with sharp spines. The flowers are borne in clusters at the points of the shoots. This *Berberis* objects to removal, often showing its dislike to this treatment by partial loss of the lower leaves, and in some cases nearly all.—S.

Hedgerows.—Utilitarian as gardeners must of necessity be in thought, yet I doubt whether there are many who would willingly see sacrificed the singular beauty, rugged and picturesque, yet so very pleasing, found in the unkempt hedgerows of our country roads and fields. To have all these, hard trimmed like Dutch Yews, presenting an eternal monotony in outline, would render country life almost unendurable. No Blackberries, no Traveller's Joy, no Dog Roses, no Hips and Hawes, no delightful Holly bushes, and little of cover for our myriads

of small birds would be to rob rural life of its greatest charm. Those who have ridden many miles in trains over a flat country where the only feature in the foreground was a low hard-trimmed Quick-set hedge cannot fail to have unpleasant presentiment in their minds of what our rural roads and lanes would be like were all field hedges of the same formal style. In a kept garden a restricted hedgerow is a necessity, or otherwise far too much of space would be occupied. Still so far as hedges of Holly, Portugal Laurel, or other Evergreens are concerned, neither shears nor trimming hook should be employed, but the knife, and if the time occupied in trimming was considerable, the resultant beauty of the hedge would be great. Holly is the finest of all Evergreens for fencing. Yew or Cupressus Lawsoniana and Portugal Laurel are the best for inside hedges, but for all ordinary field purposes nothing seems to excel White Thorn.—A. D.

THE POISON IVY.

(RHUS TOXICODENDRON.)

THE poisonous properties of *Rhus toxicodendron*, the Poison Ivy, or, as some authors style it, the Poison Oak, have long been recognised, and a drug known by the name of *Rhus* in the homœopathic pharmacopœia is extracted from it. But I think few persons are aware what a dangerous plant it is to cultivate in the garden. Some friends of mine who live near Dublin have suffered considerably from acute eczema for the last five summers. The family consists of father, mother, and three children, all of whom suffered from the complaint more or less and at various times. Visitors staying in the house were also attacked. As the disease did not give way to the remedies employed, the drains, &c., were thoroughly overhauled and put into perfect order, but to no purpose; the eczema was just as bad as before, and no one suspected that the real cause was a plant of *Rhus toxicodendron* which was growing in the garden. My friends changed their house and unfortunately took a plant of the *Rhus* with them; the eczema, of course, went too. It was then noticed that persons were worse when in or after having been in the garden, and at last the cause of all the illness and discomfort which the household had experienced was traced to its source. A medical man, a relative of the family, writing to the *British Medical Journal*, says—

The attack begins either on the hands or eyelids, the latter no doubt being inoculated by poison carried to them by the fingers, and forms large pimples, which soon begin to exude serum and form crusts, causing a general swelling of the parts attacked. The inside of the thighs and neighbouring parts, face, ears, and neck are also attacked and swollen as with erysipelas—great debility, depression of spirits and prostration accompanying each attack. Contact with the plant does not seem necessary, but merely standing in its neighbourhood may be followed by an attack which lasts from ten to fourteen days. The poison is more powerful in the summer than in the winter.

No doubt some persons are much more liable to be affected by certain things than others, and many may be able to be near and even handle this plant with impunity, but it does not appear to be a desirable plant to have in one's garden. *Rhus toxicodendron* belongs to the same genus as the Sumach (*Rhus Cotinus*), which is so frequently grown in shrubberies and which is not known to have any hurtful properties. Certain species of this genus are used for dyeing, and the leaves of the Poison Ivy are said to give a brown stain. G. S. S.

Wych Hazel (*Hamamelis arborea*).—This Japanese Wych Hazel is one of the earliest in bloom among hardy shrubs, and this year, owing to the absence of frost for the last fortnight, it is more than usually beautiful, the entire specimen being one mass of its quaint, but showy blossoms. *H. arborea* is of a somewhat erect, twiggy growth, and clothed with simple, Hazel-like leaves. It is during the summer by no means conspicuous, and it is not at all remarkable for its autumnal tints; but during the first two months of the year it is, should the weather be mild, very beautiful out of doors.

The flowers are of a rich golden yellow, while the centre is bright red. So numerous are the flowers, that the long, twisted petals appear like a cloud of gold. Another Wych Hazel is *Hamamelis japonica*, somewhat in the way of the last, but it is a smaller growing plant, and the flowers, instead of the rich golden yellow of *H. arborea*, are more of a lemon tint. They are also somewhat later in expanding. The flowers of the *Hamamelis* resist a certain amount of frost, but should it be very severe they are greatly injured, that is if the blooms are fully expanded, for in the bud state they seem proof against our most severe winters. The oldest species of *Hamamelis* is the Wych Hazel of the United States (*H. virginica*), introduced into this country about a century and a half ago. It usually commences to flower about the end of November, and often lasts for a month or more in this stage, but at no time is it so showy as its Japanese relatives. These last are also wonderfully pretty under glass, and I have had cut sprays of *H. arborea* retain their beauty for weeks indoors.—T.

SHRUBBERY BORDERS.

THE borders and margins of shrubberies generally are often but poorly filled with a mixed and unsuited assortment of various hardy and other plants huddled together without any system of arrangement or chance of flourishing. They are either totally neglected or roughly and rudely disturbed by the orthodox annual, but quite unnecessary digging. This is a good time for making suggestions as to the permanent improvement and beautifying of the margin of the shrubbery, which is usually in a conspicuous position, and, consequently, merits bold treatment that it may be a feature of interest instead of an eyesore, as is frequently the case.

First of all, it must be decided to give up the annual digging, and instead thoroughly prepare the soil before anything is planted in it, and a well prepared soil will need no renovation for several years, by which time it may be desirable to change the arrangement when the soil can be renewed; moreover, much can be done by top-dressing, this being far preferable to digging. In the well-arranged shrubbery the taller shrubs are kept in the background, and things generally are naturally graded as to height, but still there is much room for improvement by selecting and planting in informal groups upon the margin things that will make it more tasteful and relieve the hard line where Grass ends and shrubbery begins.

With dwarf and other shrubs of prostrate habit much interesting work might be done. The dwarf or creeping Junipers, such as the Savin and others, and the creeping *Cotoneasters*, might be planted in broad informal masses, and their shoots would creep out upon the Grass and back among the taller shrubs. They would make a verdant carpet of vegetation, cheerful to look upon in winter or summer, and carrying the eye up gradually from their foreground of Grass to the taller forms of tree and shrub life behind. Roses of the more vigorous types might be extensively planted, kinds that make long annual shoots which should be pegged down. The margin of the shrubbery offers one of the finest opportunities for carrying out this charming idea, and surely nothing could be prettier than a carpet of Roses, contrasting with fresh green Grass and hiding the bare brown earth.

There is hardly any position or soil but that something might be selected suitable for it. There is a wealth of dwarf shrubs that could be used in a variety of ways similar to that advised for the *Cotoneasters*, &c.

Leaving the shrubs, we come to hardy plants. Where shrubs are thin we do not need to dig and hoe the ground to keep it clean, because such things as Lily of the Valley, Solomon's Seal, Wood-ruff, &c., will carpet the ground so densely as to exclude weeds or objectionable vegetation, whilst in the more open spaces upon the margin most of our best hardy plants can be as well grown as anywhere else, provided the soil is first well prepared. Preference should be given to hardy plants of an

evergreen character, growing the most suitable things extensively in bold informal groups. Here and there, however, it may be possible to work in little colonies of Lillies, or other bulbs that would thrive satisfactorily. The Saxifrages, Sedums, Iberises, Aubrietias, and a host of similar things are most suitable for extensive planting, as they always hide the ground with a beautiful, verdant, and many-hued carpet.

We might adapt the shrubby margin to a variety of the different phases of hardy plant culture, and this would give a greater variety in our gardens, with a corresponding increase in interest and beauty. A. H.

Growth of trees.—I think it may be two years ago that I sent you an account of the growth of some trees here which I measure every January. I now send you the measurements, of girth at 4 feet from the ground as first taken in 1878 and again in the present month, giving the growth of twelve years:—

	Measure- ment in 1878.		Measure- ment in 1890.		Increase in twelve years.	
	ft.	in.	ft.	in.	ft.	in.
A Sycamore in garden ...	7	0½	7	9	8½	
An Oak in garden ...	10	0	10	9½	9½	
A cut-leaved Alder in garden ...	8	6	9	3	9	
A Cryptomeria in garden ...	2	3½	4	5½	2	1½
A Spanish Chestnut on lawn. This tree has been pollarded ...	13	10	15	11	2	1
A Spanish Chestnut in park	12	7	14	½	1	5½
Ditto ditto	8	8	9	8½	1	0½

—WM. WICKHAM, *Binsted Wyck, Alton, Hants.*

THE PLEASURE GROUND.

THE present season seems likely to prove favourable for special pleasure ground work, now that the last of the autumn leaves are cleared away. Where large breaks of old Laurel are occupying prominent positions they may be partially cleared away as time permits, and the ground thus cleared planted with flowering shrubs in variety, intervening spaces being devoted to banks of green furnished by seedling Rhododendron ponticum (where these are at home), the latter being kept sufficiently low to allow the deciduous plants to show well above them when they are in flower. It is, of course, advisable in some cases to have large banks of Laurel, but they are objectionable if used too freely, and the common Rhododendron is preferable, as, in addition to more compact growth, it will furnish a nice annual display of flower if the pruning is carefully done and there is none of the hedge clipping business. It is, unfortunately, not easy to get the average garden labourer to understand this, and I have had more than once a season's flower destroyed where directions had been given to take away only all the long growths, all the points having been nipped off as by shears, and my expostulations greeted by the information that the operator thought the plants ought to be uniform. In our case the Laurels in course of removal are contemporary with a number of old Silver Firs and Pinaster Pines, and the said removal is a work of time; but the result is a rather pleasing combination, as opportunity has been taken to remove, at the same time, the worst of the Firs and Pines that are dead or dying, and to work in among the big breaks of seedling Rhododendrons a few of the best of the Conifers that are thoroughly at home in our West Surrey soil. These latter are nobilis, grandis, Douglasi, glauca, concolor, violacea, and brachyphylla among the varieties of Abies, and Laricio, austriaca, Cembra, Pinea, Lambertiana, and excelsa among the Pines. These are all adapted for planting where a bold effect is needed, as they are of free habit and striking appearance, and are much better for the purpose than Conifers of a stiff and formal growth. Perhaps I ought to have included Cryptomeria japonica, which grows quickly and

forms a very handsome tree. The Cedars are also thoroughly at home and a few will be added, preference being given to Libani and atlantica.

Claremont.

E. BURRELL.

FERNS.

GYMNOGRAMMAS.

AMONG Ferns the most remarkable are those species and varieties usually known as Gold and Silver Ferns, the former having the fronds more or less covered with a yellow, and the latter with a silvery white powdery substance. In most cases this powder, or farina as it is generally called, is confined to the under surface of the fronds. There are a few instances, however, where the upper surface is also covered. These beautiful Ferns are easily cultivated, the only drawback being that they are rather tender and require a stove temperature. Most of the sorts may be grown into large specimens, but with age the plants get dense and form a number of crowns. Young plants are far more elegant, and as they may be obtained with little trouble there should be no difficulty in keeping up a young stock. The present is a good time for sowing the spores. The Gymnogrammas germinate more quickly than most Ferns. The spores should be sown thinly, and even then the seedlings will come up so thickly, that if they are not pricked off in an early stage, they will be lost through being too much crowded. In the first instance the seedlings may be taken out and pricked off in little patches, and later on they should be divided singly. During the operation of pricking off, care should be taken that the seedlings are not exposed long enough for the tiny little fronds to get withered, for when this occurs damping is more troublesome, the Gymnogrammas being particularly tender when young. Gymnogrammas like rather a light peaty compost and good drainage, a raised position where the moisture does not settle on the fronds, and the plants must be watered carefully to avoid wetting the fronds. After the pots are well filled with roots a little manure water will be beneficial. In making a selection of the most useful sorts it must be remembered that the Gymnogrammas vary so considerably, that it is only by careful selection of the different forms that their true characters can be maintained. The following are among the best and more distinct:—

G. LAUCHEANA.—Fronds nearly triangular in outline, bright green on the upper surface, and densely covered with golden-yellow powder beneath.

G. ALSTONI.—This is similar to the above, differing only in having the ultimate pinnules curled inwards, thus showing off the golden under-surface to advantage.

G. MASSONI is another slightly different form; it is more erect in habit and has broader pinnules.

G. CHRYSOPHYLLA.—This is one of the best known Gold Ferns. Considerable variation will be found in plants under this name. In its best form it is very pretty, the fronds being long and rather narrow, and drooping over a little towards the apex.

G. PARSONSI, the Crested Gold Fern, is a beautiful variety; the fronds grow erect and terminate in a dense crest of multifid growths.

G. SCHIZOPHYLLA GLORIOSA is a very elegant form, with long, drooping, finely-cut fronds, slightly covered with silvery-grey powder beneath and a bright green surface. This variety produces young plants at the apex of the fronds, by which means it may be propagated.

G. PEARCEI ROBUSTA has rather large, erect-growing fronds, finely cut, and lightly sprinkled with pale sulphur powder.

G. PERUVIANA ARGYROPHYLLA is the most distinct of the Silver Ferns. It forms a very pretty plant, and both surfaces are covered with silvery-white powder.

G. SULPHEREA.—A small-growing form, the fronds erect, and covered with pale yellow powder.

G. WETTENHALLIANA is a very prettily crested variety of the above.

G. TARTAREA.—A free-growing form, with rather long fronds, deep shiny green on the upper surface and very white beneath.

There are many other varieties, but the above include the most distinct, and among seedlings very distinct forms may be selected; in fact, these Gymnogrammas vary more than any other genus that I am acquainted with. F. H.

Polypodium vulgare var. trichomanoides.

—I have grown this Fern, figured in THE GARDEN, Jan. 18 (p. 53), since the year I first saw it exhibited before one of the floral meetings of the Royal Horticultural Society, where it obtained a first-class certificate. It flourished fairly well in pots or pans, but I found after a time it made the best growth and finest fronds out of doors, and planted in the rock garden where it is shaded a good deal from hot sunshine it grows well. I find that fronds identical with those of the common Polypody are frequently produced, some of them partly one thing and partly the other. These are all removed, and the finely divided fronds only encouraged to develop. I saw this plant growing with great vigour in the garden of Mr. Phineas Riall, Old Conna Hill, County Wicklow. It was running over the kitchen garden borders, and at a distance I thought it must be Parsley. The garden referred to is a highly favoured one as regards position and climate, for such things as the Bottle-brush shrub (Metrosideros floribunda), the Peruvian Desfontainea spinosa, and other fine things grow into great bushes on the lawn. Cordyline australis was 15 feet high and Eugenia apiculata formed a bush 12 feet high and as much through. Even Mandevilla suaveolens had grown freely and flowered on the walls.—J. DOUGLAS.

GARDEN FLORA.

PLATE 737.

A HARDY CRINUM.

(CRINUM POWELLI.*)

THE man who crossed Crinum capense and C. Mooreanum, and thus produced the hybrid above named, added quite a new charm to the hardy flower garden, for Crinum Powellii is to all intents and purposes a hardy plant. It is undoubtedly a great gain to see such a lovely flower, of tropical aspect and luxuriance, blooming freely out in the open air. All the species of the great genus Crinum are very beautiful as seen at their best, and in warmer countries than ours they are often seen beside water, growing and blossoming in the utmost luxuriance. In English gardens Crinums are not unfrequently grown as pot plants in hothouses, but so restricted they give one but a poor idea of their natural capabilities; hence it is encouraging to know that in the south of England and in Ireland we can grow the subject of our plate to great perfection in the open air.

The history of this splendid plant is as follows: Mr. C. B. Powell, of the Old Hall, Southborough, Tunbridge Wells, is the raiser. About fifteen or more years ago he crossed the rosy and white forms of Crinum capense (Amaryllis longifolia) with pollen of C. Mooreanum, and the result was about a

* Drawn for THE GARDEN by H. G. Moon, at Gravetye Manor, Sussex, from plants several years in the open air, September 17, 1889. Lithographed and printed by Guillaume Severeys.



CRINUM POWELLI

hundred seedlings of the plant now known as *C. Powellii*, but varying in colour from deep rose-crimson in the bud to pure white. Practically speaking, there are three distinct garden forms of this hybrid, viz., a dark rosy flower, a light rose or flesh-coloured variety, and the pure white form which is greenish in the bud. Each scape is from 2 feet to 4 feet in height, and bears from seven to fifteen flowers, each bud opening in succession, so that a single spike continues in flower for several weeks. Very luxuriant clumps throw up from five to twenty spikes each season, and are very attractive.

A row of this plant in its raiser's garden at Southborough bore thirty or forty spikes, and my friend Mr. J. O'Brien told me of the delight he experienced when the late firm of E. G. Henderson and Son received the plant for distribution, the great long-necked bulbs, coming, as he informed me, in enormous sugar barrels, having been so well cultivated that nothing less would accommodate them. In vol. iv. of the "Dictionary of Gardening," p. 521, the bulbs are stated to be "globose with a short neck." In future editions this should be amended, as but few species of *Crinum* possess longer-necked bulbs than *Crinum Powellii*. My friend, Mr. Fred. Moore, of Glasnevin, who cultivates hardy *Crinums* in a way few people in England have any idea of, lately sent me a bulb of *C. Powellii* album quite 3 feet long, the bulbous portion being only 6 inches in length. In order to plant such a bulb a little preparation is necessary. Once well planted, *C. Powellii* is all right for ten years at least, so that it is worth while making a good start. A sheltered spot is necessary, as the 6 feet long leaves get twisted about, and often broken or torn in exposed places. A deep rich border between the buttresses of a sunny wall suits it perfectly, or a warm corner near a heated greenhouse or plant stove. One should dig a very large hole and then fill it full of good rich compost made up of turfy loam, coarse gravel or pit sand, peat fibre and leaf mould. Crude manure should not be used, but a bushel of bones will prove an enduring and nutritious addition to the soil. Bury the bulb up to the leaves and surround it with clean sand. If the locality is low or wet, the border wherein it is planted should be well drained with a foot or 18 inches of lime rubbish, stones, or brick rubble. So treated, a most luxuriant growth is pretty certain to follow, and then copious waterings during hot, dry weather are essential and add much to the leafage and vigour of the flowers. *Crinum Powellii* ought to have a special corner devoted to it in every garden wherein noble hardy flowers are appreciated as they deserve.

Even in cold localities a very slight protection of ashes or dry peat earth, and tree branches, such as those of Spruce Firs or Evergreen Oak, will carry it through the winter. It is rather remarkable that of all the numerous hybrids reared by the late Dean Herbert (see "*Amaryllidaceæ*") and his con-

temporaries none of them appear to exist as hardy plants to-day (Baker's "*Amaryllidaceæ*," p. 95).

In conclusion, I may observe that the plate, faithful as it is in all essential features, does not convey a fair idea of the vigour and free-flowering character of the plant as seen at its best. The pure white variety is by far the most perfect in shape, and the spikes of all the forms if cut as their first flowers expand and arranged with their own leaves in glasses of fresh water will open



Crinum Powellii in the open border.

every bloom as freely, or more so than if left on the parent stem.

F. W. BURBIDGE.

Ipomœa Horsfalliæ, of which a coloured plate was given in *THE GARDEN*, Aug. 20, 1887, is flowering freely in the stove at Kew, and though by no means a new plant, having been introduced more than fifty years, it is a novelty to many gardeners. The *Ipomœa* genus abounds in handsome species, and *Horsfalliæ* is one of the finest, its comparative rarity, perhaps, arising from its difficult propagation. It is a charming plant for wreathing pillars and rafters, the strong shoots soon covering a trellis or post with luxuriant growth, brightened in winter by the rich crimson flowers, produced in succession throughout the dark days. In its cultivation it is important to give the plant plenty of root room, good drainage, and therefore, if possible, a border instead of a pot, so that its roots may not suffer from restricted space. The soil should consist of a mixture of loam, leaf-mould, peat and

sand in about equal proportions, all being well mixed together. When once established it grows away freely, and if the plant cannot be planted out in a border, then it should be put in a large tub or box.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—COLEUS.—These plants are now so much used when small, for decoration, that it is necessary to provide a sufficient stock that will be in the right condition when the summer is far enough advanced for them to stand in cool quarters. In most cases, plants of the size required will be best confined to a single stem without stopping. Cuttings should now be put into small pots half filled with a mixture of sand and loam, with a little sifted rotten manure and leaf mould, using sand alone at the top. In the ordinary temperature of a striking frame they will root in about a fortnight. The plants should afterwards be grown on in a cool stove, and kept close to the glass to save the leaves' colour. Where larger examples are wanted, the points must be pinched out as soon as they have made a little growth.

CYPERUS ALTERNIFOLIUS.—This plant is the most effective when the leaves and their stems have about an equal portion of white and of green in them. To secure this, only plants that are in the condition described should be used for propagating, as stock raised from plants that are too green often fail to colour well. Small examples in 5-inch or 6-inch pots are most useful. To favour quick growth it is necessary in dividing the old plants not to cut them up into small pieces; plants that have been during the past summer in 6-inch pots should not be divided into more than three or four. See that each piece has a fair amount of roots attached to it. Four-inch pots will be large enough at first. Loam with a little leaf-mould and some sand may be used. Moderate stove heat is better than a high temperature. Keep the soil fairly moist and raise the plants well up to the glass as soon as they begin to grow.

C. LAXUS VARIEGATUS.—This kind has not yet become plentiful. In habit it is more compact than *C. alternifolius*, and it is altogether one of the best of the small-growing variegated subjects. Where the stock is limited it may be divided into single crowns. To avoid injury to the roots it will be best to shake all the soil away, so that they may be disentangled before using the knife. Use material of a like description to that advised for *C. alternifolius*, and treat similarly in other respects.

FUCHSIAS.—As soon as the sun becomes powerful and the weather hot, Fuchsias, either large or small, have such a disposition to flower that there is some difficulty in getting them to make much growth. It is necessary, therefore, to propagate early in the year. The old plants that have for some time been kept cool should now be moved into heat, where they will soon make shoots that will furnish suitable cuttings. The cuttings may either be put singly into small pots or several together into larger ones. When the shoots have been grown quickly in heat they will strike readily under the ordinary conditions of heat and moisture in a confined atmosphere. As soon as they are well rooted pot them off in soil consisting of loam, with some rotten manure, leaf-mould, and sand. The young plants must be pushed on during the spring months in genial heat; if kept well up to the light they will bear more warmth than is often used without the growth being drawn. When the sun gets much power the plants must be shaded. When the cuttings required have been taken off, the old plants should be turned out of the pots and have most of the soil removed. Where the pots they have already occupied are large enough the plants may be replaced in them; if the object is to grow large specimens, a greater amount of room is necessary. They must be kept in an intermediate temperature until the roots have begun to move freely and the top growth has made some progress.

Directly the shoots have extended a little pinch out the points; this will require repeating once or twice during the spring, otherwise the plants will not be properly furnished.

FUCHSIAS.—LATE SUMMER-STRUCK CUTTINGS.—Cuttings that are struck about the end of summer and kept gently moving in an intermediate temperature make much the finest and best furnished plants, and where shapely specimens of considerable size are wanted for conservatory decoration early in the spring this is the best system to grow them under. Plants that are now in 6-inch or 7-inch pots and have been kept growing through the winter will require moving into others two or three sizes larger. Drain well and make the soil moderately firm. The shoots will already have been stopped once or twice; this will require to be again done once or twice according to the time the plants are wanted to bloom. As a matter of course, the later the shoots are stopped the later the flowering will be.

PETUNIAS.—Where plants for growing in pots or for putting into hanging baskets are required, it is well to have them forward so that they may be effective early in summer. By sowing now, and not pushing the plants on in more heat than is necessary to keep them moving freely, they will be less likely to acquire the straggling, untidy appearance which Petunias, the single varieties in particular, often present before the end of summer. Sow the seed thinly so that the plants may not be crowded and drawn up before they have attained sufficient size to be potted off singly. A temperature of 50° to 60° will be sufficient, with a like amount of heat after the seedlings are up until further on when the weather gets warmer. They will begin to flower nicely by the end of May.

TUBEROSES.—As white flowers for bouquets, button-holes, and sprays, Tuberoses are equal to anything that is ever used. To keep up a long succession of bloom, it is necessary to pot the roots at intervals. Tuberoses suffer less through being kept out of the soil for a length of time after they want to commence growing than most things. Some bulbs should now be potted. Nothing is gained by giving them large pots, as the flowering depends on the amount of strength that is stored up in the roots and on the way they are treated more than upon anything that can be done to strengthen them after they come to hand. Neither is it any use attempting to do anything that would make them available for flowering a second time, as they are of little use in this country after they have once bloomed. Six inch pots are large enough for the largest bulbs. Do not put them too deeply into the pots. Make the soil moderately firm, so that it will not hold over-much water, which must be used with great caution until the new roots have begun to grow. Bulbs that were potted some time back and have made some top-growth may be put in heat, after which they will bear watering freely. If, without their being stood too far away from the glass, they can have a moderate bottom-heat, this will help to keep the roots well in advance of the top-growth, a condition that should always be secured with most kinds of bulbs more than other plants. T. B.

FRUIT HOUSES.

PINES.

Early Queens.—If the plants selected some three weeks ago have been well top-dressed with turfy loam and properly moistened with water at a temperature of 80°, the bottom heat may now range from 80° to 85°, the minimum air temperature 68° to 70° in mild weather, and 80° at noon when gleams of sun brighten the atmosphere. At other times it will be well to err on the safe side, as too much top heat may induce leaf growth in advance of the fruit, and thus upset the most careful winter management. If the beds are of recent formation the bottom heat must be closely watched, and although 85° is quite safe, the plants should be slightly rocked in the event of its touching 90°. When thoroughly moistened quite down to the crotch roots the plants will take very little water for some time to come, especially if the plunging

bed is composed of moist leaves, but this little must not be given in a dribbling fashion. Damp the walls, paths, and other surfaces once or twice a day to maintain a sweet growing atmosphere, but on no account syringe overhead until the fruit is up clear of the foliage and days are longer and brighter.

General stock.—As the time is approaching for setting these plants in motion, the leaves or tan previously worked should now be ready for introduction. If fire heat alone will produce the proper degree of bottom heat so much the better, as the wary Pine grower is always cautious in the use of large quantities of tan or leaves at this critical period. Moist bottom heat, nevertheless, must be secured, and this often can be raised by watering the old material prior to levelling and treading and spreading a moderate layer of the new on the surface after the plants are placed in position. As the whole of these plants are expected to make a growth before they throw up, the excitement of the roots and tops must be steady, and tepid water be given at short intervals until every part of the compost is properly moistened. A bottom heat of 80° will soon excite the roots into activity, and when these are on the move, leaf growth will follow if the air temperature is allowed to range 65° to 68° on mild nights, 75° at mid-day, and 80° after closing with sun and moisture.

Successions must be kept quiet in a temperature ranging from 60° at night and 70° by day until the sun gains more power and incessant firing can be moderated. When danger of a long spell of wintry weather has passed away the usual arrangements for the final shift must be proceeded with. Clean and dry crocks and pots, compost, also dry and warm, must be ready for use, but of two evils it is better to be a little late than early, as the balls must be properly moistened and the roots moving before potting is attempted.

Autumn suckers.—Preparations for potting on, shaking out, and a general overhaul may now be made, as it is a well-known fact that compost is greatly improved by lying for some weeks in a warm potting shed. The pits, notwithstanding, need not exceed 50° to 56° by night and a few degrees higher by day, with a little air when the sun is shining. If bottom-heat is obtained from hot-water pipes and the latter are very near the pots, these must be looked to occasionally, and if found on the dry side the plunging material may be watered pretty freely; the balls of those plants immediately over the pipes, too, may be the better for being fairly moistened, first, to secure root action; and second, to prevent them from bolting immediately after they are potted and placed under growing conditions.

THE ORCHARD HOUSE.

By this time Peaches and Nectarines in the forcing department will have been fumigated for the last time, at least for the present, and the flowers will be expanding. When this stage is reached raise the temperature to 50° to 55° by night, 60° to 65° by day, always with front air, and just enough fire-heat to prevent sudden depressions. Keep the roots of the trees well supplied with warm water and damp all available spaces with the syringe once on dull days, twice when fine, as no greater mistake can be made than keeping the house dry and arid when the fruit is setting. Those who prefer setting with the syringe will dew the trees over at noon on fine days, but, having fermenting material in the pit, the delicate organs will stand fresh, and pollen will best answer its purpose if plied with a camel's-hair brush when the temperature reaches the maximum.

The general orchard house.—Having recently written upon the housing of pot trees and space being limited, but little need be added for the present. The work, nevertheless, must be pushed forward, and a good summer being quite equal to the ripening of the latest varieties, the most important points will be careful watering and abundant ventilation. If Strawberries are grown upon the shelves, they must not be introduced just yet,

especially if they are snugly plunged in the open air or cold pits where the roots will not feel the want of water, as so often ruinously happens when perched on dry shelves for some weeks before they are started into growth.

PEACH HOUSES.

Early trees approaching the flowering stage must be moderately fumigated once or perhaps twice during the week preceding the opening of the first petal, for if this preventive is not adopted, green fly may gain the upper hand and ruin the crop. When the flowers commence opening, raise the temperature to 60° or 65° by increasing the hot-water circulation through the day, but reduce in the afternoon, as Peaches will set well in a mean of 50° or a few degrees lower through the night. Also increase ventilation, especially along the front, as wide openings at the top let out the warm air, when the trees become subject to cutting draughts. The direct syringing of the most forward trees, as a matter of course, will be discontinued, but the walls and paths must be regularly moistened with tepid water when days are bright and the weather mild. By adopting this plan and bringing the trees on slowly, the flowers, aided by fresh air, will open bold and strong, pollen will be abundant, and the roots being right, there will be plenty of fruit.

Fertilisation here, as in the early orchard house, as a matter of course, will receive attention when the pollen is ripe and quite fit for its office, but, seeing how easily and, I believe, frequently the tender organs are injured by incessant interference, the brush, well charged from free varieties like Royal George Peach or Elruge Nectarine must be plied with a very light hand when the temperature reaches the maximum on bright days. When the petals begin to drop, the trees may be refreshed by a light dewing over with the syringe and the turning of the fermenting material may be resumed.

Succession houses started early in the month must be regularly syringed with tepid water, care being taken that the flower-buds become dry before night. If fermenting material is well managed, firing will be extremely light, especially if the weather is mild, as it has been of late, and 50° can be maintained without its aid. Let all forcing be carried on through the day, that is, by opening the valves from 9 a.m. until 4 p.m., and admitting plenty of front air, and when the buds have got past the dropping stage, maintain an average of 45° through the night. W. C.

KITCHEN GARDEN.

RAISING CAULIFLOWER PLANTS.—There is now much less need to keep Cauliflower plants through the winter than formerly, owing to the introduction of superior and very late Broccoli, and the small, but very early Snowball or Early Forcing Cauliflower. Plants of the latter, obtained by sowing seed at the present time, may without much difficulty be made to form excellent hearts late in May or early in June, this being about the time when Broccoli usually fail. A stock of either Dwarf Erfurt Mammoth, Early London, and Magnum Bonum being raised with the Snowball, a good succession would be afforded. Sow the seed thinly in pans, placing these in gentle heat till the seedlings are well up, but they must not be in the way of a syringe or be carelessly watered, or they will break down and damp off wholesale. Before they are much drawn transfer to a greenhouse shelf, and when they have formed a rough leaf pot off in pairs in 4-inch pots and return to the shelf. Attend well to the watering, prepare them for and plant out in handlights, or in sheltered positions where they can be protected with mats before they become root-bound. Not unfrequently Cauliflowers are pricked out from the seed-pan into boxes, but they do not transplant well out of these with a trowel, and any serious check either from starvation in small pots or a loss of many roots at planting time is apt to cause premature bolting.

CAULIFLOWERS UNDER GLASS.—The mildness of the weather is far from being good for Cauliflowers, the plants under glass, notably those planted rather

thickly in handlights, being disposed to grow tall and spindly. The only way to check this—and it is advisable to do so, as we may have much severe weather later on—is to keep the lights off the plants as much as possible, leaving them partly open in the night-time also, unless severe frosts are imminent. In some instances the roots of the plants had to be lightly cut round, this effectually checking their too rapid growth. The surface soil about the plants may well be stirred, plenty of fine ashes or some soot and lime being also distributed about them the better to keep slugs away. If by any chance the late Broccoli should be destroyed by frosts—and it is none too hardy this season—it may become necessary to see what can be done in the way of forcing or gently forwarding Cauliflowers under glass, or even in rough unglazed pits. With the aid of the latter and before the forcing varieties were introduced we have cut very good Cauliflowers, or suitable for the exhibition table early in May, and have no doubt of being able to cut the Early Forcing in April. What is needed is a shallow hot-bed of stable manure or leaves and manure, on this being spread a thin layer of partially decayed manure prior to covering the bed with about 9 inches of good loamy soil. Strong plants should be put out from pots into this bed about 15 inches apart each way and firmly fixed into the soil, and also given tepid water if the latter is at all dry. For a time the lights should be kept on rather closely, more air being given as the plants advance in growth. Later on the lights may be dispensed with, and protection afforded during the night in cold weather in the shape of a covering of mats or other protective material. From the first the plants must not suffer for want of water, and liquid manure should be freely given when once they give signs of forming hearts. If no lights are available for temporarily covering the Cauliflowers, other heavier coverings being put on in the night time, the start is naturally rather slow, but the plants come on rapidly after they are once established.

A FRAME OF PEAS.—Several small yet good dishes of early Peas can be had with the aid of a good sized frame or rough pit, and that, too, without very much trouble. Only the very dwarf varieties are adapted to the purpose, and of these the best are Chelsea Gem and William Hurst. Should the frame or pit be in use at the present time, it is advisable to raise a sufficient number of plants ready for transplanting as soon as the site for them can be got ready. We sow about one pint of seed in shallow boxes filled with light soil and place these in an early Peach house till the seedlings are about 3 inches high, when they are slightly hardened off prior to being planted in the frames in which they are grown. A slight hot-bed is prepared and soiled over much as advised in the case of forcing Cauliflowers, and when the soil is well warmed through, rather deep trenches are opened with the spade about 15 inches apart. The Peas are carefully shaken out from the soil, the aim being to preserve as many roots as possible, the latter being dropped into the trenches to their full depth and lightly fixed. It is advisable to plant rather thickly, as a quick crop is most needed. The plants ought to be lightly staked, and this admits of a good row of Paris Market Cabbage Lettuce being grown between the Peas, these alone more than compensating for the trouble taken. They ought to be kept rather close for a time and be covered up every night. Later on they will need no further protection, but should be kept well supplied with water.

FORCING POTATOES.—Where there are plenty of pits and frames at command, the earliest Potatoes ought already to be well advanced in growth, but in the majority of cases conveniences for forcing are rather limited, and it is unwise, therefore, to start very early, as it will be impossible to maintain the supply of young Potatoes. Whether pits or frames are used, it is a good plan to form a gentle hotbed of leaves and manure, some of the shortest being on the top, this bringing the 9 inches or more of light loamy soil placed on it well up to the glass. The sets ought already to be well advanced in growth, each having one, or at the most

two stout sprouts attached. If there is no danger of the bed over-heating, the planting may well be done directly the soil is warmed through. Open drills with the hand from 12 inches to 15 inches apart and about 5 inches deep, the former distances being regulated somewhat according to the width of the lights. Arrange the sets not less than 6 inches apart, and carefully mould over with the hand. The frames or pits should be matted over every night, and given a little air in mild weather directly the shoots appear through the soil. Later on air must be given freely, or otherwise the haulm will become spindly and the crops be correspondingly poor. Potatoes in frames and pits do not require very much water, but the soil ought not to be allowed to get very dry at any time. Any of the short-topped extra early varieties are suitable for forcing.

LETTUCE.—If the stock of autumn-raised plants is small, then seed ought to be sown at once, otherwise it may be delayed another month. Any of the Cabbage and Cos varieties may be sown now thinly in pans or boxes of fine soil, but it is not advisable to set these in a very brisk heat, or otherwise the seedlings will be puny, and will in addition very probably damp off badly. In any case the pans or boxes containing the plants ought soon to be placed on a shelf or in a frame near to the glass, this keeping them sturdy and preparing them for pricking off. Being first pricked out into boxes or a bed of soil in a frame, the plants will soon be fit for sheltered borders and the open ground, all transplanting readily with a trowel.

LETTUCE FOR CUTTING.—If there is any likelihood of salading being scarce between the time Endive has failed and the earliest Lettuces have hearted in, it is advisable to sow Lettuce seed rather thickly, though by no means so thickly as Mustard and Cress, in shallow boxes filled with fairly rich soil. Place them in gentle heat till the plants are well up, then transfer to a moderately warm greenhouse shelf. Being well attended to, the plants will make good progress, and may be cut cleanly over whenever required for use. Being grown rather thickly, the leaves will be partially blanched and also crisp and sweet, only needing the addition of a bunch of Chicory and the usual other ingredients to make a good salad. The Paris White Cos is the best variety for the purpose.

W. I.

ORCHIDS.

PHALÆNOPSIS CASTA.

This plant is a supposed natural hybrid between the beautiful *P. Schilleriana* and *P. Aphrodite*. It still appears to be rare, and a flower now before me is said to have been produced by an imported plant. The leaves are deep green above and of a rich vinous-red colour beneath. This is the aspect of the leaf when mature, but in the young state it is more or less spotted and streaked with silvery-grey, as in *P. Schilleriana*. This, however, passes away with age and leaves the plant a veritable *P. Aphrodite*. The spike of bloom makes its appearance in mid-winter, and my informant tells me that it is now carrying nine flowers of exquisite beauty. The specimen before me measures 3 inches across and is of fine shape, and an ordinary observer would pronounce it to be that of *P. Aphrodite*, but a careful inspection will lead to the discovery that it is quite distinct; the sepals and petals are of the purest white, saving the lower ones, which are more or less spotted at the base; lip large for a *Phalænopsis*, the side lobes rounded and erect, with small oblong bars of crimson at the base, between which is a yellow callus spotted with crimson, the front edge being marked with yellow. The anterior lobe is white, with a line of crimson in the centre, and the hinder part is also deep red, whilst the apex is furnished with a pair of reflexed, slender tendrils, which are

white, the whole forming a wax-like flower of great beauty. All that can be said for it is that it is one of the many forms which research has given us, whether hybrids or species. This kind was, I believe, imported from the Philippine Islands, but I certainly do not recollect by whom it was introduced.

These plants have ever since their discovery been the pride of the orchidist, and they have usually been found difficult to grow. This, I imagine, arose more from starving them than anything else. There cannot be any doubt but that they enjoy heat, and Mr. Searing, who until recently had charge of the collection at Heaton House, Cheshunt, had the finest lot of these plants which has ever been seen in cultivation. I hope his plants, now they are distributed, will continue to maintain their vigour, but such cannot be expected in all cases. His plan of cultivating them was in pots, but baskets would suit them equally well, and he used but the merest scrap of Sphagnum about them. The plants were subjected to a fair amount of air, a temperature of about 70° or 80° during the growing season, and they were supplied with nutriment just in the form in which they could use it. There was little or no soil about their roots to retain moisture and become sour, but the ground was composed of shingle, which was kept thoroughly moist with salt and water and with liquid cow manure, so that a gentle moisture was constantly rising in an imperceptible manner, and from which the plants derived their sustenance. Many growers by adopting the above plan are succeeding with these plants where they previously have failed, and I hope to see them abound again. Amongst the various places in which I find *Phalænopsis* doing well I may note Cheam Park, the residence of Mr. Jacomb. *Phalænopsis* are one of the greatest features to be seen in an Orchid house, and the grandest lot of them I have ever seen used to be in the houses of Mr. Robert Warner, of Bloomfield, near Chelmsford. The Heaton House collection was doubtless very fine, but I never saw the flowers in great profusion, as Mr. Partington used to cut the spikes in large numbers and send them into the house, this no doubt also assisting the plants. That *Phalænopsis* enjoy heat and light is an established fact, but I am under the impression that the great heat which is frequently given is more injurious than beneficial. I have seen isolated examples of large plants thriving and flowering well in the temperature of the intermediate house, and if this is maintained with a steady supply of fresh air success will follow.

W. H. GOWER.

Odontoglossums (A. B.).—These are a series of richly-coloured and bold flowers, the first being a form of *Pescatorei*, in which the sepals and petals are broad, and the whole flower well filled out and heavily spotted on all the segments with rich purple. It is not so heavily spotted as the variety *Veitchi*. We should like to see this when it flowers again. Another is a magnificent form of *O. Oerstedii majus*; flowers very large, pure white saving the yellow crest, spotted with orange at the base. It is a beautiful flower, and an excellent form of *O. nebulosum* of the *pardinum* type, in which the greater part of the sepals and petals is thickly covered with reddish brown, and the apical portions pure white. These are three very fine varieties, which certainly deserve care and attention to preserve them.

Dendrobium Hilli.—The portion of the spike received from J. McDougall is not *D. speciosum*, but *D. Hilli*, which was flowered by me for the first time in England in the spring of 1861. Although somewhat similar to it, it is very distinct from *speciosum*, and in nothing so much as its growth,

which is long, and might be called slender, beside that plant. The racemes are very distinct, being much longer, with the flowers upon longer foot-stalks, and thus they appear to be more lax; whilst the sepals and petals are much longer and narrower than in *speciosum*, although it undoubtedly does belong to the same group. It is, moreover, a much freer blooming plant than the older and better-known species, which would indicate that the plant comes from a warmer locality. We do not say that *D. speciosum* is not free-flowering if kept quite dry and stood in the open air during the summer after growth is completed, but Hilli flowers freely when kept in the house and given a good resting after having made its growth. We are very apt to come to a wrong conclusion as to the requirements of a plant by saying it is Australian, quite unmindful of the fact that some North Australian plants are thoroughly tropical. Your plant, with twenty-two spikes upon it, must be a strikingly beautiful example.

Saccolabium bellinum.—This charming Burmese Orchid is blooming well in a basket suspended close to the glass in the collection of Mr. Tautz at Shepherd's Bush. The more we see of this little gem the more its beauty becomes apparent, as the flowers are of exquisite beauty and richly coloured. They vary little in colour, which is pale yellow, barred and spotted with the deepest brown, in the sepals and petals, the lip cup-shaped, pure white, coated with a cushion of short hairs and enriched by a yellow blotch in the centre, around which are a few deep purple spots. The peduncle is very short, and the plant itself of dwarf habit, so that a shallow basket is requisite, this to be well drained, as plenty of water is required during the season of growth, and even when at rest the plant must not be kept quite dry. When this species becomes commoner we shall doubtless find it in all collections of any value. A coloured plate was given of it in THE GARDEN for May 11, 1889.

Varieties of Lycaste Skinneri.—The delightful variety of colours in a good series of forms of *L. Skinneri* is one of the great charms of this fine Orchid. There are several varieties of it in full beauty in Mr. Tautz's collection at Studley House, and none is prettier than *L. S. Lucyana*, which is delicately coloured with pink, especially towards the margin of the petals and on the lip, the sepals showing a faint flush of the same colour. The labellum is the seat of colour. Sometimes it is rich crimson, as in the type; in other varieties this bold colour gives way to the softest pink shade, margined with white, and then, again, it is finely spotted. A variety called *Imperator* is richly coloured, one of the deepest of all, quite a contrast to delicatissima, which, as its name suggests, is shaded with soft tints. Mr. Tautz has also several specimens of the variety *alba*, a noble Orchid of great purity and freedom. There can be nothing more interesting at this season in the Orchid house than a collection of *Lycaste Skinneri* in its various forms, and we were pleased to find such a rich series at Studley House.

Lælia peduncularis alba.—This is a very fine variety of a somewhat ignored plant, and is now flowering in the gardens of Mr. Studd, the Royal Crescent, Bath. The petals are very broad, measuring upwards of 2½ inches across, and with the dorsal sepal are pure white, the lateral sepals also white with a central streak of purple, which extends from the base for half their length; lip three-lobed, the large oblong-ovate middle lobe white with a tinge of sulphur-yellow at the base, side lobes white on the exterior, the interior heavily marked with a blotch of deep maroon-purple. This, the *Flor de Jesus* of the natives in its wild state, is said to be found in Southern Mexico and Guatemala, and although discovered about fifty years ago, it is still and always has been a rare plant.

Vanda lamellata Boxalli.—This pretty plant is now flowering. It is named after Boxall, one of the most successful of modern collectors, and is one of the best of the small-growing Vandas, although it cannot compete with *V. Kimballiana*. The leaves are long and narrow, distichously arranged,

and unequally bi-lobed at the ends. The flower-spikes are freely produced, erect, bearing at times upwards of twenty blooms; the upper sepal and the petals reflexed, creamy yellow, the lower sepals being the largest and parti-coloured, the outer portion being of the same colour as the petals, the inner portion reddish brown; lip yellowish streaked with reddish brown and shaded with purple, and ornamented with streaks of yellow. It is valuable on account of its being a winter bloomer, and is a native of the Philippine Islands.—G.

Odontoglossum Youngi.—This appears to me quite a distinct species. A flower was sent me by Mr. Young, Linnet Lane, Liverpool; the plant I have not seen, but the flower somewhat resembles that of *O. Oerstedii*, and it is of about the same size, measuring 1½ inches across; sepals oblong-acute, the yellow ground being heavily spotted with transverse bars of chocolate; petals ovate, much broader than the sepals, but like them heavily spotted with chocolate, all incurved; lip white tinged with yellow, having a pair of chocolate spots in the centre; crest fleshy, yellow, streaked with short lines of reddish brown; column short and stout. It is a very beautiful little species. I am not aware of its habitat.—W. H. G.

Cœlogyne lactea.—Flowers of this *Cœlogyne* come to me, and I am asked if the plant is new. I can scarcely say. That I have seen it before I have a note to prove, and in this I mention it belongs to the flaccida group; the sepals and petals are creamy-white and the lip is stained with yellow in front, the side lobes streaked with radiating lines of crimson. It is a very pretty thing, but I cannot say much about it at present; I should require to see the plant, and to observe its style of flowering.—W. H. G.

Saccolabium giganteum album.—This rare and beautiful variety of *S. giganteum* is in bloom with Mr. Tautz, Studley House, Shepherd's Bush. It is entirely distinct from the type, which has deliciously sweet flowers brightly spotted with amethyst on the sepals and petals and coloured with a mauve-purple shade on the lip. The variety *album* has a more massive raceme of larger flowers, which are pure ivory white, except for the green column, and have the same strong scent as in the type. The plant is in a basket suspended near the light.

SHORT NOTES.—ORCHIDS.

Lælia elegans Blenheimensis.—This is a very elegant dark form of this species, which first flowered with Mr. Whillans, gardener to his Grace the Duke of Marlborough.

Dendrobium Ainsworthi.—A distinct form of this plant comes from Mr. Osborne, gardener to Mr. Howard, The Grove, Teddington. It is very beautiful, but less so than the forms received in the autumn. No doubt amongst a lot of seedlings there will be various forms.

Lælia monophylla.—This is a curious small-flowered species, with just the colour of *Sophranitis grandiflora*. It is an outlying species, being the only example which has yet been found off the continent of America. It is found on St. Andrew's Mountain, in Jamaica, and first flowered in this country in 1882. It was discovered some fifty years ago by the late Dr. Bancroft.

Odontoglossum crispum.—"J. B., Dumbarton," sends a flower of what he bought as *O. c. Lehmani*, but which, in fact, is the old *crispum*; indeed about the same form that was figured by Mr. Bateman in his work on the *Odontoglossums* for *O. Alexandrae*, the sepals and petals being narrow and white, without spot of any kind, and the lip narrow, with a faint trace of a spot.

Pescatorea cerina.—This is a fine bold-flowered plant of a genus which was at one time named *Huntleya*, and which has become scarce. There are many fine kinds, however, well deserving attention. The flowers last a long time in full beauty. This species is one of the discoveries of Warszewicz, who found it growing upon trees on the volcanic mountain of Chiriqui at about 8000 feet elevation.

Gongora truncata.—This distinct and handsome species of *Gongora*, a genus poorly represented in col-

lections, is in bloom with Mr. Tautz. It is like the other *Gongoras* as regards habit; the plant in the Studley House collection being in a basket hung up near the glass, and bearing one of its pendent spikes of light-coloured flowers. The flowers are straw-coloured, freckled with brownish-purple, the lip clear yellow. It comes from Mexico.

Ansellia africana.—This species is still in full beauty at The Woodlands, and also in several other collections, thus showing what a valuable plant it is for decoration at this season. It is a most remarkable plant, but is no better grown now than it was thirty years ago.

STOVE AND GREENHOUSE.

CULTIVATION OF DRACÆNAS.

DRACÆNAS are not particular as to the soil in which they are grown provided it is not sour and destitute of fibre. Turfy loam and good peat are the best, two-thirds of the former to one of the latter. If the peat is not good, then it is better to choose well-decomposed leaf soil. For young plants at their first potting I should prefer to use leaf soil liberally, as it is well calculated to encourage quick root-action. For plants that are being grown on into larger specimens, a few crushed bones would be an advantage; in fact, a few may at any time be placed over the drainage with considerable benefit. *Dracænas* have at all times a disposition to send their roots downwards amongst the drainage, the bones thus placed affording them considerable help. Sand should be added, of course, to assist in keeping the soil open and in a healthy state. The chief addition to the soil for *Dracænas*, however, is pure soot. About as much may be safely used as can be traced in the soil when it is well mixed together. I found this out quite by accident a few years ago through taking some loam for potting from a heap that had been prepared for a Vine border, but not all used at the time. I have always included soot ever since, and believe it to be one of, if not the very best manurial agents to employ for the successful cultivation of *Dracænas*. Those who have not so far used any are strongly advised to give it a trial, but not to go beyond the quantity just advised, at least until experience has been gained in its use. The extra vigour imparted to our *Dracænas* the first time any soot was used was somewhat remarkable, and this was well maintained all through the season, extra fine plants fit almost for any purpose having been grown in 6-inch pots, the foliage assuming that brilliant colour peculiar to many kinds. With the increased root-action thus set up more water was of course needed, and this was supplied without stint. I might add that in potting it is best to press the soil down as firmly as possible. Reducing the old ball at such times should be done with caution, if done at all, for at times when the plant is not in active growth the roots may appear to be dead, but this is not often the case. On close examination it will be found that it is only the outer covering of the roots that is changed, having assumed a more woody character, from out of which fresh rootlets will again issue when more active growth is set up. Where, therefore, there is diminution in the ball of the plant, it will, as a matter of necessity, follow that there will be a corresponding action in the foliage, a quantity of which will probably turn yellow and drop off, causing the plant to become leggy before its time.

VARIETIES.

There is now an abundant choice in this respect to suit various kinds of decoration. Those with narrow and medium-sized foliage are the best for using in a small state, with a few

exceptions, in which the colour is early developed. The broad and long-leaved kinds make noble objects for single specimens in vases when they are well clothed with foliage, especially for such as are not high, so that the beauty of the plant can be better seen. The best of the narrow-leaved varieties are *D. superba*, *D. elegantissima*, *D. Guilfoylei*, *D. gracilis*, *D. roseo-picta*. Amongst those of medium growth, the best are *D. terminalis* (not yet beaten), *D. terminalis alba*, *D. Cooperi*, *D. Elizabethæ*, *D. hybrida*, *D. Lindeni*, *D. rubra*, and *D. ignea*. Those of more massive growth, when of good size, are *D. amabilis*, *D. Baptisti*, *D. stricta* (an old, but fine kind), *D. Thompsoni* (very distinct and

stock for as many more cuttings as it will yield. This is a better plan than the usual method of propagation from eyes. *D. gracilis*, included in the foregoing list, should be propagated in a similar manner, and if taken off when small will produce plants with narrower foliage and a more elegant habit of growth, which is retained for a longer period than if the plants are kept confined at the roots.

J. H.

MARANTAS OR CALATHEAS.

THESE inmates of our warm houses are, when well grown (and their culture is very easy), most attractive on account of the rich and varied markings of the foliage. Of late years

namental and effective in a collection of fine-foliaged plants. The most suitable soil for Marantas, and in which I have found them to succeed best, should consist of good fibrous peat and turfy loam, in about equal proportions, with a good addition of silver sand, and, if obtainable, a little good leaf-soil. For the finer or smaller-growing kinds, with more delicate roots, I would recommend the addition of some small pieces of charcoal and broken crocks. In mixing, and also in using the soil, avoid all the finer particles, employing only the fibrous portions. A close, inert soil is very prejudicial to the growth of this class of plants, for if it becomes sour and sodden, a loss of roots will take place, and if allowed to occur during the winter months would probably kill all the more tender kinds. Marantas, when grown in a good open soil, such as that just described, will need an abundant supply of water—in fact, when in a healthy state at the roots they ought not to be allowed to become dry at any time, except in the case of the deciduous kinds, such as *M. tubispatha* and a few others, which, when at rest, should be kept somewhat dry at the root, but not placed in too dry an atmosphere. All the varieties when growing vigorously, and becoming pot-bound, would be benefited by an occasional supply of weak liquid manure. They all succeed best, and produce their foliage in the greatest perfection when grown in shade during the summer months, being in that respect unlike the Crotons, which require full sunlight to perfect their colours.

The partial shade produced by Palms and other plants, with the addition of artificial shading on the roof in very bright summer weather, suits them admirably. I have grown and exhibited *M. fasciata* over 4 feet across. This plant for want of space was grown under the shade of a large *Cyathea*, the glass over which was also shaded by means of a blind. The temperature most suitable to these plants is one of from 60° to 70° in winter, and from 75° to 85° in the summer, with plenty of moisture in the air, and they should be syringed daily in summer, a fair amount of air being admitted on all favourable occasions at that season. With regard to insects, Marantas are most liable to the attacks of white scale, thrips, and red spider. Any of these, if allowed free action for a while, will soon disfigure the foliage. The best remedy I have found is sponging the leaves with soft soap and water, using a soft sponge for the purpose, as the leaves, if not carefully handled, are easily marked. The stronger kinds of insecticides are not to be commended for the tender foliage of most of the varieties. As regards propagation, the plants are easily increased by division of the crowns early in spring.

H.

Cyrtanthus lutescens and other species.

—“H. P.” (p. 28) writes intelligently of these charming cool-house bulbous plants, and to those he mentions I should like to add a few others which thrive admirably with me in a cold house and also in a Messenger's plant protector with no other protection in winter than a covering of garden mats. Besides those “H. P.” mentions I have *C. angustifolius*, bright red; *C. Macowani*, scarlet; *C. spiralis*, red; *C. uniflorus* and *C. helictus*, two white species of the *Gastronema* section with Vallota-like flowers, and several others which have not yet bloomed. *C. sanguineus* I have, but not in the cold frame. I have a number of bulbous plants which I am trying in an unheated frame, and which so far I find succeed admirably. In spring I will enumerate those which grew well, and state which failed, if any.—JAS. O'BRIEN, *Harrow-on-the-Hill*.

Gesneria cinnabarina.—This may be considered one of the finest winter-flowering kinds,



A fine specimen of *Maranta zebrina* and other fine-leaved plants.

effective), *D. Leopoldi* (a fine kind); while *D. Youngi*, now omitted from some catalogues, yet quite distinct in its rich bronzy appearance, is also well suited for a cool stove. *D. Goldieana* is quite unique, but hardly needs any recommendation, being now so well known. It is useful in any size, and when once well established the smallest of its leaves partake of its distinctive markings. The top strikes readily, after which the old stool should be allowed to break afresh and the young shoot removed when large enough for a 2½-inch pot, reserving the old

great additions have been made to this class of plants; therefore the cultivator has no lack of kinds from which to make a selection according to his taste and accommodation. Some sorts, being dwarf and compact in habit, can be grown well in a very limited space—such, for instance, as *M. fasciata*, *Makoyana*, *Massangeana*, *albo-lineata*, *rosea picta*, and *tubispatha*. Where more space is at the grower's disposal, other kinds may be chosen, such as *M. Veitchi*, *Warszewiczii*, and the old, but still very beautiful *M. zebrina* (here figured), all of which are highly or-

and I was agreeably surprised to come across a fair specimen a short time since in great beauty. This is a plant which I used to have in great profusion when at Kew some years ago, and it was used for mixing with the large collection of winter-flowering Begonias which then existed there, and the white flowers of which this *Gesneria* brightened up considerably. It is surprising that so many fine plants that used to be effective in this manner have been allowed to drop out of cultivation, and little or nothing substituted in their place.—G.

STATICE FLORIBUNDA.

A FEW years ago, when specimen stove and greenhouse plants were more popular than they are now, the introduction of a new indoor *Statice* so distinct and beautiful as *S. floribunda* would have gained much attention. Instead of that, for some reason or other, it is but little known, though in many respects far finer than both *S. profusa* and *S. Holfordi*. It is more nearly related to *S. profusa*, but differs from it in many particulars, especially in the size of the flowers and their rich bluish-purple colour, while, besides this, they are borne in more compact heads. The free and robust character of the newer plant is also a great point in its favour, especially as it is equally as free-flowering as any of the others, for even little plants in 4-inch pots will yield quite a wealth of blossoms. It is essentially a greenhouse plant and does well in a cold frame during the summer, this being the treatment given it at Messrs. Lee's nursery at Isleworth. It is of seedling origin, having been raised by the Messrs. Lee. It is easily propagated by cuttings, which may be taken at almost any time of the year, and if put in now would make nice little flowering plants for the coming season. A very good plan is to take the cuttings and insert them singly into small, well-drained pots, using soil consisting of peat, loam, and silver sand in equal parts. The cutting should be put in at such a depth that the base of the bottom leaves just touches the soil, as if inserted deeper, decay is very liable to set in. Should it be difficult to obtain the cutting of sufficient length to keep its place without burying any of the foliage, it should be tied to a little stick, which will hold it secure till it is rooted. After insertion and the first watering is given, the cutting pots should be plunged in a gentle bottom-heat in a propagating case, when, if care is taken not to over-water the cuttings and to give air whenever necessary to prevent decay, they will soon root. Where appliances for propagating these plants are not at hand they can, especially if old and somewhat leggy specimens are available, be increased by a modification of layering, such as is often carried out in the case of double-flowered *Primulas*, viz., make two or three incisions with a sharp knife in the exposed portion of the stem, and surround it with Moss, into which, if it is kept fairly moist, plenty of roots will soon be produced, and when sufficiently advanced the rooted portion can be taken off and potted. The soil used by the Messrs. Lee, who succeed so well with this *Statice*, is two parts good turfy loam to one each of peat and sand.

H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

The climbing Gentian.—A gentleman writes asking where he can obtain this plant, and I suppose by this question he is referring to the genus *Crawfordia*, but I am not sure whether he will find any species in cultivation. I have a recollection that one species was flowered by the Messrs. Veitch many years ago, but I do not think they maintained it in cultivation.—W. H. G.

Jasminum pubescens is not so extensively grown as it should be. Occasionally it may be seen thriving luxuriantly in a stove in old-fashioned gardens, but this is an exception. As a winter-blooming *Jasminum*, the beautiful *J. gracillimum* appears to be more popular, for being of stronger growth, it yields a greater quantity of flowers which are excellent for cutting at this time of year. *Jasminum pubescens*, however, is worthy of a place in every stove, and gardeners will do well to reinstate it.—C. L.

Violets at Cricket St. Thomas.—When looking through these gardens at the end of November, one

thing that attracted my attention was the Violets. Mr. Lyon had them growing in some pits that had been used for Melons during the summer. They were close to the glass and placed wide enough apart so that the leaves did not touch each other. All these plants, Mr. Lyon told me, were grown in the open garden in full sun during the summer. They were all raised from cuttings, and the plants kept to the single crown.—J. C. F.

FREESIA CULTURE.

OF the many species of Cape bulbous plants, there are none more charming than the lovely, sweet-scented *Freesia*. Only two species, viz., *F. refracta* and *F. Leichtlini*, are recognised, and these are often difficult to distinguish. *F. refracta* is, however, decidedly the better of the two, having larger and much finer flowers, but the one more generally grown is a variety of this called *F. refracta alba*, which is certainly the most charming of all. Its flowers are almost pure white, but occasionally have a blotch on each of the lower sepals of a deep orange colour. For cutting I know of nothing to surpass the flowers of the *Freesia*, as they last in good condition so long in water, and when the slender spikes are arranged with sprays of Maiden-hair Fern there are few other flowers that will compare favourably with them. But good as these lovely flowers are for cutting, they are equally as well adapted for pot culture for conservatory decoration, and where well managed, they might easily be had in bloom for many months. To obtain this it is necessary to have several batches of plants, which should be potted at intervals, say about three weeks apart, during autumn. Various modes of culture are practised and all with satisfactory results. The plan generally adopted is to select bulbs of nearly the same size, so as to have the plants of about equal strength, putting five or six bulbs into a 5-inch pot about the beginning of August, growing them in a cold frame, and keeping them on the dry side till they are fairly started into growth, when they need a liberal supply of water. If all goes well, the flower-spikes will begin to show early in December, and by placing a few in a temperature of 55° the bloom will expand by Christmas without fear of doing any damage to the bulb. As there is always an extra demand for choice, sweet-scented flowers at that season, they are sure to be appreciated. Another simple mode of growing these charming flowers is never to dry the bulbs off at all, but as soon as the flower-stems die down, to give them a shift into a larger pot. If they are in 5-inch size, as I mentioned above, shift them bodily into a size or two larger, say 7-inch or 8-inch, and keep them watered. The foliage naturally ripens off, but the bulbs will increase in size and soon start into active growth again. These will produce much stronger plants than when the bulbs are allowed to go thoroughly to rest, the flower-spikes also producing flowers more abundantly. I have grown them in this way and had upwards of 200 flowers open at once. Grown on in this manner they come into bloom three weeks or a month earlier than those potted in August. Treated as an annual, the *Freesia* can be brought into bloom in a few months, but the flower-spike is weak and the individual flowers are necessarily small. The seed should be sown as soon as ripe in July, and the seedlings pricked off into 4-inch or 5-inch pots, about five or six plants in each as soon as they are large enough to handle; if well attended to, many of them will flower the following spring, and the remainder will make nice bulbs for the next year's supply. I have found them to thrive in almost any rich porous compost, but a mixture of two parts loam, one each of leaf-mould and good rotten horse manure, with an abundance of coarse sand suits them admirably.

F. G.

Ruellia macrantha.—This is an exceptionally fine *Acanthad*, which was figured in THE GARDEN, July 2, 1887. It was grown extensively by Messrs. Seeger and Tropp in their nursery in Lordship Lane, Dulwich, but it appears to require to be grown into good-sized plants to become effective. Its flowers are very large, but not produced in abundance upon

one shoot, so that unless there are many shoots the plant is not showy. It is a very fine plant and well deserves cultivation for winter flowering.—W. H. G.

Parrotia persica.—This tree used to be very fine upon a wall in Kew Gardens, but it does equally well when planted in the open. It is some 10 feet or 20 feet high, having alternate leaves, which are deep green, becoming in the autumn rich orange, changing to yellow and brilliant scarlet. The flowers appear before the leaves, and are showy from the numerous stamens which have scarlet anthers. Planters should use this tree more if it can be obtained, and it is not too late to plant now.—W. H. G.

Alloplectus peltatus.—This is a Veitchian introduction from Costa Rica some twelve years ago or perhaps a little more. It makes a woody stem and bears somewhat fleshy leaves, which are oblong, tapering to a point, and rounded at the base. One leaf on each side is reduced to a stipule, this and the peculiar peltate insertion of the petiole giving the plant a very curious appearance. The flowers are produced from the axils of the leaves, the calyx is enlarged and very richly coloured, being of a deep blood red or reddish purple; flowers tubular, with a spreading limb, and pale yellowish white, the throat bearing several raised lines of rich orange; the flowers last long in perfection.—W. H. G.

Clianthus Dampieri in New Jersey.—This flowers with me abundantly in the open ground and produces seed-pods in quantity; one of these I enclose. The *Clianthus* does not readily bear being transplanted, so it is well to sow the seeds where the plants are wanted; but they may be forwarded with advantage in a cold frame in early spring, and if transferred to the open ground with a ball of soil attached, they hardly feel the removal. In our climate the latter part of May is soon enough to put out the plants, the warm weather usually setting in about that time, and they push along vigorously. A position shaded for two or three hours in the middle of the day suits the *Clianthus* better than where the broiling sun of July and August pours down strongly at noon. Too much dry heat brings red spider. In this part of the country light frosts are expected about the 1st of October, at which time the *Clianthus* should be covered with brilliant clusters of quaintly-shaped, crimson-scarlet flowers, each one oddly marked with a large blotch of absolute black, and the whole flower shining with a silky lustre. When the night is so chilly that frost is expected, a sheet thrown over the plant will partially protect it from the cold, and the blooming may thus be prolonged for two or three weeks. I almost forgot to say that my soil ranges from pure sand to a light loam, and the *Clianthus* does well in either of these. What the result might be if it were planted in heavy clay soil I cannot say.—GEORGE SUCH, South Amboy, New Jersey.

Siphocampylus Humboldtianus.—This is a species which I recently noted very finely treated as a basket plant. It is an old and much neglected plant, and perhaps one of the best of the family to which it belongs, although the genus does abound in showy species. It was introduced by Mr. Wm. Bull about twenty-five years ago, I believe, and as I saw it recently was growing in a hanging basket, the points of all the shoots being covered with long tubular bright scarlet flowers; the throat is yellow, and the exerted anthers conspicuous, being of a bright violet tinge. The plant has rich green leaves, which are serrated on the edges, and bright green on the upper side, and the stems are tinged with violet-purple. It is very easily grown into a good specimen, and should be potted in a mixture of peat, loam, and leaf-mould in equal parts. The whole must be made sandy, and the pots be well drained. It is, I believe, a native of Peru, and after flowering should be kept quite cool and cut back hard in the spring in order to keep it bushy, and grown in the intermediate stove. It will not require stopping much if it is cut back sufficiently at first, but if any shoots show any inclination to

outgrow the others and to thus rob the plant of its symmetry, they must, of course, be restrained. I hope to see this plant more frequently, and there are also numerous other gay-flowered kinds which I used to see in many gardens in my young days, but which now are never seen.—W. H. G.

FRUIT GARDEN.

NEW HYBRID GRAPES.

THE three seedling Grapes raised by Mr. Myles, gardener to Sir W. Hutt, Appley Towers, Isle of Wight, will form a most valuable acquisition to our late bottling varieties, of which we have none too many of first-rate quality. The three seedlings, two black and one white, were placed before the fruit committee of the Royal Horticultural Society on Tuesday, the 17th inst., when the first-class certificate awarded to one named Appley Towers a short time ago was confirmed. No. 1 was not considered quite so tender as the certificated hybrid, but it possesses all the merits of a first-class winter and late spring Grape, and is sure to come to the front when shown again another season. The white seedling, which Mr. Myles has named Lady Hutt, was not in condition, having been grown on a very bad stock known as the Currant Grape, and it is to be regretted that Mr. Myles placed it before the committee, especially as he has been so fortunate as to raise three front rank hybrids from a single berry.

The seed-bearing parent of these hybrids is Gros Colman crossed with Black Damascus, better known as Meredith's Alicante, and the fact that one of them is white, and all three differ in shape and texture, prove that a true cross has been secured by Mr. Myles, who deserves something more substantial than the best thanks of all winter Grape growers. Some years ago a Mr. Foster astonished the fraternity by raising from one berry our best late black winter Grape Lady Downe's and our best early white Grape Foster's Seedling, but Mr. Myles beats the record, as he has a trio of good ones which will enrich our Grape rooms in the future.

As very few gardeners were present, a few remarks upon these hybrids may be interesting, especially as all three of them are infinitely superior to their parents.

Appley Towers forms a shapely conical bunch well furnished with roundish berries set on short stout stalks, reminding one of Gros Colman. The skin is not tough, but stout enough to ensure keeping for a long time after the bunches are cut and bottled. Colour and bloom good, flesh tender and very sweet, and minus the disagreeable earthy taste which characterises Gros Colman. The Vine is a strong grower, shows profusely, and sets freely. Seedling No. 1, shown on Tuesday for the first time, is the exact counterpart of an old friend known as Black Morocco or Kempsey Alicante, a superb winter Grape when well done, but a bad setter, and rarely perfect in colour. No. 1, although not quite so black as the certificated hybrid, was well coloured; bunch a good shape, berries oval on stout foot-stalks, flesh more tender and sweeter than that of Kempsey Alicante, skin thick enough to ensure keeping, and not given to cracking or spotting at the apex. The Vine is a strong grower, and shows an abundance of clusters which set as freely as the Hamburg. Although several of the leading Grape growers were in favour of a first-class certificate they were outvoted, their opponents being unanimous in the request that No. 1 might be sent up again later in the season.

Lady Hutt, the white hybrid, as I have just

observed, was shown under most decided disadvantages, the stock being perhaps the worst that could have been selected for a seedling from Gros Colman. The bunch was hardly large enough to enable one to form a correct opinion of its future contour, but the berries, slightly flattened, gave evidence of large size and shape similar to that of the seed parent. The flesh of this Grape is tender, very sweet, and the seeds showing through the skin recalled the well-known early variety Buckland Sweetwater. Mr. Myles assured me that this, like the preceding, is making excellent wood, and, being a good setter, he hopes to show it in good condition another season. "But why another white variety," I heard someone say, "when we have the king of Grapes in Muscat of Alexandria?" Well, why indeed, when we have the queen of late white Grapes in Mrs. Pearson. No Grape yet raised, or to be raised, can beat these two; but how many growers since Tilyard and William Meads passed away have Muscats in quantity or quality after the Christmas holidays? About that time Mrs. Pearson comes to the front, hangs quite as well as Lady Downe's, and beats the third-rate Trebbiano out of reckoning. Mrs. Pearson, then, should have a worthy companion, and this, I think, will be found in Lady Hutt, as it is tender in the flesh and skin, and likely to become invaluable to those who do not care for fleshy Grapes. Moreover, it will supply a want long felt by invalids. W. C.

APPLE LORD SUFFIELD.

I FIRST became acquainted with this Apple some thirty-five years ago in the neighbourhood of Manchester, where it was raised, and I have grown it in various parts of the country, and on soils as different as they well could be, varying from a light sandy loam to the heaviest of clay. The district where I have always understood that it originated, Ashton, is on the eastern side of Manchester. The soil is naturally wet with, in most places, a heavy tenacious clay subsoil, and the atmosphere is begrimed with smoke, which, in addition to that made in the immediate neighbourhood, is increased tenfold by that of Manchester, from which direction the wind carries it for more than half the year. Yet here, where the collective conditions are such that few Apples do much good, it used to bear well, and for anything I know continues to do so.

I have seldom seen it grown as a standard, to which form it is not by nature adapted, as under ordinary treatment the tree is not long-lived. It begins to bear early and, as anyone who has seen much of it is aware, heavily. The weight of the crops it carries regularly, even in seasons when most other kinds fail, checks the growth, so that no root pruning is required, nor the transplanting which some consider necessary on cold soils. The weight of the crops it bears when the fruits are not thinned has most likely something to do with its being shorter-lived than many kinds.

I have seen trees that had the appearance of being prematurely worn out with excessive bearing that were cankered to some extent, but I cannot agree with those who give it the character of being much subject to that disease. The varieties that are most affected with canker, such as the old Hawthornden, suffer from its attacks when quite young and otherwise in full vigour. This I have never seen Lord Suffield do. The character of the fruit and its freedom in bearing caused it to be planted by most people in Lancashire and Cheshire some time before it was known further south.

From my experience I am satisfied that the tree has less staying power in it than its parent, Keswick Codlin, from which variety there is little doubt it has sprung. But this would not prevent me planting it either in a private garden or for market, as by the time the trees are a score of years old they will have given three or four times the weight and also value of fruit that many of the

longer-lived varieties that are slower in giving any return will yield. On account of the size the fruit attains early in the season it is ready for use sooner than that of any other sort with which I am acquainted. This makes it as valuable both to those who grow Apples for their own use as it is to those who grow for sale, and who by sending half the crop to market as soon as the fruit is usable can relieve the trees, and in this way lengthen their life. The fruit when cooked is almost identical with that of Keswick Codlin, becoming pulpy like Damelow's Seedling and other sauce Apples. This by some is looked upon as a merit in cooking Apples, but I fail to see it. My idea is that when taken from the oven the pieces which the fruit has been cut into should to some extent retain their shape in the way of Blenheim, Cobbett's Fall, and others of similar character which do not shrink so much in the cooking. Lord Suffield requires less pruning than most varieties. When once the groundwork for the future tree is laid by securing enough branches to furnish it, comparatively little pruning is afterwards necessary. T. B.

PHYLLOXERA AND TANK BORDERS.

MR. CHALLIS, in concluding his remarks on this subject in THE GARDEN, Jan. 11 (p. 34), says, "I would here sound a warning note to those who contemplate growing their Vines in tank borders, viz., not to submerge them at any period except when the Vines are in a comparative state of rest, otherwise they may find that the remedy is quite as bad or even worse than the disease, for reasons which need no explanation." As the above "warning note" is evidently meant for the benefit (!) of those of your readers who may be disposed to follow the advice given by me to "A. W. N." in THE GARDEN a few weeks ago (pp. 513-4, Vol. XXXVI.), I may be allowed to make a few additional remarks in reference thereto in order to show how far this "warning note"—the reasons for which "need no explanation"—was necessary or justifiable.

In the first place, I may be permitted to say that it was I who first showed Mr. Challis the Phylloxera in its various stages of growth and in full activity through a powerful microscope, and who at the same time gave it him as my opinion, judging from the external appearance of the Vines at Wilton, that the dreaded Phylloxera was in the vineries there also, a statement which proved to be only too well founded, adding, at the same time, that in my opinion the Phylloxera was in a large percentage of the vineries in this country, unknown to the gardeners in charge, the majority of whom had never seen a living Phylloxera. I merely mention these semi-personal facts to show your readers that my practical experience of Phylloxera is quite as old and extended as that of Mr. Challis. I still adhere to my conviction regarding the uselessness of flooding Vine borders in spring and late autumn with a view to eradicating Phylloxera. This, as pointed out in my previous letter, is owing to the fact of the Phylloxera being then at rest, and, consequently, impervious to injury from submersion. Mr. Challis says that if the Vine borders be submerged at any other period than that stated by himself, "the remedy will be as bad or even worse than the disease, for reasons which need no explanation." How does he arrive at this conclusion? What possible material injury could the Vines in an early house, from which the Grapes had been cut, sustain by the border being submerged at the end of July and again for four or five days a week or ten days later? The Vines thus submerged could only absorb so much moisture through their roots, and no more. And what great injury would result from the complete submersion of the roots and borders of Vines actually swelling and ripening their crops, with the hot-water pipes kept warm and the atmosphere dry and airy at the same time? The Vines in this case could only assimilate a given quantity of moisture through their roots, notwithstanding their submersion. Supposing a few berries cracked, or even if a dozen or two bunches got spoiled in consequence of the roots being under water, which I

do not say would be the case, would not the end justify the means one hundredfold? Many good intentions have been ruined by following a "penny-wise-and-pound-foolish" way of doing things.

I may say that during the time the Vines had been affected with Phylloxera here that I showed it in all its stages of development to scores of ladies and gentlemen visiting at the castle, also to several gardeners, so that they one and all might know the dreaded pest, realise its power of destruction once it effects a lodgment on Vines, and thereby be the better able to sympathise with any of their friends and neighbours who happened to have their Vines attacked by the Phylloxera. Mr. Challis says (p. 34): "The method I adopted at first was to submerge the borders as soon as the wood was ripe and the Grapes cleared off in the autumn, and again just before the buds began to swell in the following season, but for the last two or three years I have submerged them at the latter period only, and have hitherto found it perfectly safe and effectual." In conclusion, I should like to make one or two remarks on the statement quoted: 1, were the Vines first planted by Mr. Challis in the tank borders perfectly free from Phylloxera? 2, if so, the flooding of the borders as indicated was merely a matter of precaution; 3, on the other hand, if the pest was found on the Vines growing in the tank borders after repeated annual and biennial flooding of the borders, it afforded conclusive proof of the flooding process at the periods recommended by Mr. Challis being "perfectly safe" as regards the Vines and equally harmless as regards the Phylloxera. Once more I strongly recommend gardeners having Vines growing in tank borders, *i.e.*, in borders which can be rendered water-tight to a point a few inches above the surface of the border, and which happen to be affected with the Phylloxera to flood the borders for a few days about the end of July and again a week or ten days later, for reasons stated in THE GARDEN for December 14, 1889. H. W. WARD.

Longford Castle.

Apples and Pears for Hants.—I am about to make an orchard capable of containing about 100 Apple and Pear trees 14 feet apart, with bush fruits between. The soil is light loam about 18 inches deep, resting on solid chalk. The situation is open to the south-east, sheltered on the north by a plantation of Beech. Would you please mention about a dozen each good sorts of Apple and Pear trees which would be likely to succeed, and give a succession of fruit from September to May; a few of both for dessert and the remainder for kitchen use? The trees are to be pyramids.—T. S., *Hants.*

Morello Cherries.—I, like "E," see no reason why the training, &c., of the Morello should be left until the last. In some gardens, summer pruning or pinching, as it may be termed, is carried out in the same manner as in the case of sweet Cherries. Were it not for Morello Cherries I do not know what kinds of fruit we should plant against our north walls. Currants, Red and White, succeed admirably, and provide late crops of fruit till the end of October. Very often Gooseberries succeed also in this position, but nobody needs great quantities of these for late supplies. When I lived in Lancashire a large Morello Cherry tree was growing at the foot of a stable wall facing north-west. The tree was probably 20 feet high; one end of it had extended around the corner of the wall which faced south-west. In its growth it passed over the face of a chimney. From here and along the south-western wall we gathered always by far the largest crop of fruit, which was much finer in quality, size, colour, and flavour. When any Cherries were required for exhibition, as they sometimes were, it was on this aspect they were obtained.—M.

Rooting Strawberry runners on turf.—I am very much in favour of this operation, and said so in THE GARDEN some years ago. It is the next best way of layering Strawberry runners to using pots, and if the young plants are intended for planting in the open quarters I would rather have them layered in turves than pots. Our mode of layering has been to get some good fibrous turves

from 2 inches to 3 inches thick, and cut these into squares about 4 inches in diameter. The man who layers takes a number of these in a basket with some short Bracken, or wood pegs, and a trowel. Holes are made in the vicinity of the runners so as to allow the turves to drop in level with the ground, and a runner is pegged on the centre of each. The turf is used upside down, and as there is generally a good deal of foliage about the Strawberry at that time combined with the plunging of the turf, it is astonishing how little the runners suffer from drought. The roots penetrate the turf in a very short time, and if the turves are soaked in manure water before being used, the roots will quickly take possession of them without entering the surrounding soil, and in a fortnight or so after layering the plants and turves become firmly attached. I never knew plants layered in this cheap and simple way fail to become quickly established and to do well either in the open ground or in pots for forcing.—J. MUIR.

CORDON APPLES FOR OPEN TRELLIS FACING NORTH.

HAD "Cordon" (GARDEN, Jan. 11, p. 31) given an idea of his soil, situation, and locality, fruit growers would have been able to answer his inquiry with a tolerable degree of certainty, but, like nine-tenths of the querists who ask for important information, he has left others to surmise the points which should govern the advice he seeks through the pages of THE GARDEN. Under these circumstances, and uncertain as to whether he lies south of London or north of the Trent, the most carefully provided lists may prove misleading, as some of the best sorts which would do well on a north trellis in the south or west might prove altogether too tender in the north, whilst a list suitable to Yorkshire might not contain several of the very best varieties which might be grown in the south. An open trellis facing north in a good locality is better than a north wall in a bad locality, and on this even a great number of fruits can be grown well, always provided certain conditions as to drainage, contracted root space, elevated borders, and a careful selection of stocks, as I pointed out the other day in my paper upon cordons for north walls, be observed by the planter. In this case, no matter how good the locality, unless the subsoil be hot, dry, and really unfavourable to the Apple, "Cordon" should make well-drained elevated borders, and then, having decided upon planting his Apples and Pears back to back, he should keep the stems pretty well away from the trellis with slates set on edge to prevent the roots from running into each other. By adopting this plan, the root-lifting of the one set of trees can be performed without seriously disturbing the others, and by keeping the Pears in perfect condition as really close cordons, the position will be by no means bad for almost any of the well-tried varieties usually met with as standards and bushes. No one, I suppose, would take a leap in the dark by recommending Cox's or Ribston Pippins, two of our very best Apples and specially at home on the Paradise stock, neither must our noble friend the Blenheim have a place, as it does best on the Crab with an abundance of room for extension, but seeing that "Cordon" knows his own latitude and is pretty well acquainted with the varieties which do well as standards in the locality, he must exercise his own discretion in the selection of sorts which require a good soil and climate. Maiden trees are cheap enough, and double grafting in some cases being beneficial, any mistakes in selection may soon be remedied; but were I planting a trellis of this kind I should arrange the choice or doubtful dessert varieties alternately with the hardiest which would succeed, for after all that has been said about quick returns there is no denying the fact that dessert Apples which do not require sugar are the best for cooking purposes. Then in the event of choice sorts proving a success, I should transfer the hardy varieties to another site and lose no time in converting those retained into double cordons. Take, for instance, Claygate Pearmain, one of our hardiest, healthiest, and most prolific late dessert Apples, but little inferior to the Ribston Pippin and superb when cooked. Plant it

extensively for giving a supply from November until March, and let the others run in alternately as supernumeraries, to be retained or transferred at pleasure. The new Besspool, a Nottinghamshire Apple, is well worth a trial, and if it succeeds, "Cordon" will have two of the most delicious eating or cooking varieties in cultivation. There are, of course, any number of varieties which will do well, as I have proved them here on cold east walls where the morning sun does not reach them very early and leaves them about noon, and yet the fruit is remarkably fine, clean, and well coloured. Running through a good fruit list and taken alphabetically I can vouch for the following, *viz.*, Claygate Pearmain, Court Pendu Plat, Court of Wick, Cox's Redleaf Russet, Devonshire Quarrenden, Dutch Mignonne, Fearn's Pippin, Irish Peach, Kerry Pippin, Golden Winter Pearmain, Sturmer Pippin, and Worcester Pearmain. These are alike good for the table or cooking and do well on the Doucin stock. Of cooking Apples not so well adapted for dessert, the following succeed on an east wall, *viz.*, Alfriston, Alexander, Bramley's Seedling, Cellini, Cox's Pomona, Dumelow's Seedling, Ecklinville Pippin, Hawthornden, Keswick Codlin, Lord Suffield, Lord Grosvenor, Mère de Ménage, Northern Greening, Stirling Castle, Stone's Apple, Striped Beaufin, Warner's King, and Winter Hawthornden. This list might be extended, but if "Cordon" looks into a good list he will find that one-half of these will give to a private family a succession which will carry through the whole of the Apple season, commencing with Keswick Codlin and Irish Peach, and ending with Dumelow's Seedling and Alfriston. W. C.

APPLES FOR HEREFORD.

I AM proposing to plant one or two small orchards in Herefordshire. Would you kindly tell me the best kinds to plant, or put me in the way of getting the best book on the subject? The orchards in each case would be about two acres. I would prefer to plant trees for pot fruit rather than for cider.—R. BRIDGFORD.

* * Although Apples of all kinds save the very tender section do well in Herefordshire, the writer of the annexed letter must not run away with the idea that every acre of land in the county is adapted to the culture of this fruit. The deep heavy loams of the old red sandstone produce the strongest, finest-coloured and most delicious cider met with in any part of Great Britain, and the situation being high, well sheltered from east and north, and open to the sun, the quality of table fruit is superb, although neither so large nor highly-coloured as the best samples met with in the neighbourhood of Maidstone and in some other parts of Kent. On the cold thin limestone marls cider is poor and deficient in saccharine matter; consequently it soon goes sour; table fruit is small and lacking colour, is only second rate, whilst such sorts as Cox's Orange Pippin do not pay for cultivation. From these remarks your correspondent hailing from Manchester will gather that Apples, good, bad, and indifferent, are grown in Herefordshire, also that the selection of soil and site is of more importance than the selection of varieties. Draining, deep cultivation, shelter, intelligent planting and management are important items in all parts of the county, no matter how good the soil and site, but unless the latter are really first rate, the speculative planter must not expect to make much headway.

If your correspondent owns the land or has obtained a thirty years' lease, and the two acre spots are well situated on the red loam, he may plant Alfriston, Besspool (new), Bramley's Seedling, Claygate Pearmain, Golden Winter Pearmain, Cox's Orange Pippin, Dutch Mignonne, Lane's Prince Albert, Mère de Ménage, Northern Greening, Stone's or Loddington, Sturmer Pippin, Wellington, Winter Queening, Carlisle Codlin, Keswick Codlin, Lord Suffield, Devonshire Quarrenden, Stirling Castle, Irish Peach, Cox's Pomona, Brabant Bellefleur, Tom Putt, Tyler's Kernel, Striped Beaufin and Worcester Pearmain, or a selection from them as dwarfs on the Doucin stock, or standards on the Crab. Blenheim Orange is not a success on the Paradise

or dwarfing stocks, but a superb Apple on the Crab, and should be most extensively planted by each succeeding generation, as it is not fertile in a young state, but once in bearing it may be considered good for fifty to eighty years.

The best, most popular, and exhaustive work on the Apple is the Report of the Apple and Pear Conference, including parts 1, 2, and 3, vol. x., published by the Royal Horticultural Society, 117, Victoria Street, Westminster, price 7s. 6d., or in a cheap form at 1s. 6d. In addition to papers on culture for profit, on pruning, on diseases and insects, this cheap volume contains selected lists of Apples best suited to each county in the United Kingdom, a descriptive catalogue, statistics, and other matter with which all fruit growers should make themselves thoroughly acquainted, not only before they commence planting, but also before they select a site for an orchard.—W. C.

Apple Beauty of Hants.—What Mr. Hibberd has said about this Apple, as quoted in THE GARDEN at page 47, is an admirable example of the way history is written. Mr. Hibberd says, "and has actually been named Beauty of Hants on account of the splendour of samples grown in that county in gardens near the sea." As the sponsor for the variety, if it really be distinct, I may say that it originated from one tree only. When I first noticed it in fruit, then some 20 years old, and in the garden at Glen Eyre, Southampton, situated on the high ground at Bassett on gravelly soil, the gardener, Mr. Stewart, who had planted the tree, maintained that it was one of a batch which came from Mr. Rogers' Red Lodge Nursery close by. The belief that it was a distinct variety arose from the fact that it fruited more freely than other trees of the Blenheim close by. The fruits were always much more highly coloured, and invariably were conical in form. I believe this latter characteristic still attaches to the variety, as having a worked tree of it here I find the fruits always more generally conical than are those of the Blenheim on a tree within 12 feet of the other. Believing it to be a distinct and superior form of the Blenheim, I suggested to Mr. Stewart the name "Beauty of Hants," and under that designation it was figured by Mr. Macfarlane, and the stock sold to Mr. Mongredien when a nurseryman at Heatherside, Bagshot. If generally it has been found that Beauty of Hants of the true stock is identical with Blenheim, then the peculiarities of the fruit on the original tree must have been due to extraneous causes.—A. D.

* * At the Apple conference, 1883, Beauty of Hants and Blenheim Orange were considered synonymous.—ED.

Work in fruit houses under difficulties.—I have to thank Mr. W. Coleman for his outspoken article on the above subject in THE GARDEN, Jan. 4 (p. 14), in which the position of a great many gardeners is truthfully portrayed. Some are not only expected to make bricks without straw, but are required to be competent to create things—at least they ought to be from the many unreasonable calls they have when their facilities are altogether inadequate to meet them. A little glass, and that of a construction more ornamental than useful, probably designed and erected by someone knowing absolutely nothing of plant life, picturesque in shape and ornamented with coloured glass, and which the uninitiated would-be occupier, viewing for the first time is apt to think very pretty. If he takes possession and has a little knowledge—which is a dangerous thing—his gardener finds that he is expected to have abundance of cut flowers, plants for room decoration, &c. I have grown plants for nearly twelve months, and when in bloom they were transferred to a gas-laden room, where in a day or two they have been wrecks of their former selves, and only fit for the rubbish heap. Had I had a town of houses and plenty of hands the case would have been different. There is quite enough and far too much of the happy family mode of cultivation expected to be carried out now-a-days without anyone trying to revive systems that have become obsolete, but it is usual with some people to expatiate on the good

old days, when grand things were accomplished. It is the laudable desire of many to improve the position and condition of gardeners, but such a non-sensical theory as Pines under Vines will not help to that end, as many employers are ready to swear by what they read in so-and-so, and fully expect their gardeners to accomplish such feats or quit their service. I always admire the writings of men who have won their spurs in the exhibition tent, as from experience they know what cultivation really is and what it is possible to accomplish under adverse conditions. An ounce of practice is worth a ton of theory.—PATHFINDER.

MELONS.

Now that the time for sowing Melons has again arrived, and growers have made their selection of varieties, a 3-inch pot, well drained and three-quarters filled with a compost of decomposed turf, mixed with a small proportion of leaf-mould, will be found very suitable on which to sow the seeds. I place three seeds in each pot (near the side), covering them with a quarter of an inch of the above materials, finely sifted, and plunging in a bottom heat of 80°. An atmospheric temperature of 70° is given, and the pots are kept as near the glass as possible in order to secure sturdy plants. Just as the young plants show the natural leaf is the time for potting them off singly; but the kind of fruit desired will influence the cultivator in the treatment he gives them now and during their future period of growth, as that grown for the exhibition table must be managed differently from that which is to be placed on the table of our employers.

MELONS FOR THE TABLE.—In the first place, I will deal with those intended for the table, because handsome, well-grown examples are what we like to obtain for the dining-room. The young plants may now be potted up to the cotyledons in the same sized pots as those in which they have been raised, and the same compost used, with the addition of a little well-decomposed manure, and the soil kept rather loose. The plants may then be returned to the hot-bed, and water given sparingly until the roots have occupied the new soil. At this stage the pots should be raised to the top of the plunging material in order to prepare them for the final shift into the bed or pots in which they are to be fruited. By this time the bed in the Melon house will be in readiness for them, by having been filled with fermenting material, which is very much better than the dry heat from hot water pipes. On this hot-bed place a layer of turf, grass side downwards, and on it raise mounds 2½ feet apart, and close to the front wall, of a compost consisting of four-fifths of good fibrous yellow loam and one-fifth well decomposed manure, with a sprinkling of wood-ashes and lime rubbish. The plants may now be removed from the pots and one placed in the centre of each mound, the soil made firm and well watered. A stake to each plant will be necessary if the trellis is any distance from the soil. By maintaining a saturated atmosphere during sunny weather, but on no account syringing the plants, they will make rapid progress, which will occasion the repeated tying of the leading shoots until they are within a foot of the top of the trellis, at which point they may be stopped. Pinch all lateral growths half way up the stem at the first leaf and train the unpinched laterals and the sub-laterals in a horizontal position. By this mode of treatment a good show of female flowers will be ensured at both top and bottom of the plant at the same time, and when these flowers have made their appearance, stop all growths at the first leaf beyond them. When this is done, and the bed is in a moderately dry condition, a good "set" may be expected, if a number of flowers be impregnated on the same day between 10 and 11 a.m. (I mention 10 or 11 a.m., as, even if dull, the temperature will be rising, and the flowers, consequently, drier.) As soon as a good "set" has been secured, top-dress the bed with the same materials as those in which the plants are growing, with this exception, that a larger quantity of manure must be added—one of manure to three of the other con-

stituents—and give it a thoroughly good watering. Once the roots have occupied the top-dressing, the plants may, with advantage, be watered with liquid manure as they require it until the fruits show signs of ripening; then all water should be used carefully in the house or applied to the roots, as a stagnant atmosphere charged with moisture or a wet bed at this period means cracked Melons. It will be easily ascertained whether the fruits are ripe or not by their smell. Well-grown plants will carry 2½ lbs. of fruit to the foot-run of stem.

Ventilation during the early months of the year must be carefully attended to, as the hot bursts of sunshine are often accompanied with dry, cold, cutting winds, which are injurious to tender plants, robbing them of their moisture and paralysing them to such a degree that after results are very much short of what they otherwise would have been. When these cold winds prevail, it is better to sprinkle the bed and paths with water in order to keep the atmosphere moist, and to allow the temperature to rise to 95° than to admit them, but as a change of air is beneficial to all plants, the apex ventilators in favourable weather should be employed to accomplish this end.

MELONS FOR SHOW.—As small Melons, like small Grapes and Strawberries, are sweeter than those exhibiting more marked skill in production, my object will be to deal with the means to be employed in order to secure a crop of small fruit, which usually finds favour at the exhibition. In potting off the seedlings, no manure should be used in the compost, but a small quantity of wood ashes may be added to the same kind of soil as that in which they have been raised. This mixture will be found an excellent medium for their roots until the plants are ready to be planted out. The above ingredients, augmented with a dash of lime rubbish, will serve as a good bed in which to grow them in their fruiting quarters. Five feet apart is a good distance to plant the Melons, and when they have established themselves in the soil pinch the leading shoot and adopt the fan mode of training with the four or five growths, which result from the stopping, and again pinch these growths when within a foot of their allotted space; also all sub-laterals at the leaf beyond the female flower, thereby securing a large number of the latter all over the plant about the same time, and rendering the setting of the required quantity a simple matter. A fruit to every 18 inches square will be sufficient to leave on the plant. All subsequent treatment must be similar to that recommended for the production of Melons for home use.

Should these small fruits be required for home consumption, four will constitute a dish, and although lacking the appearance of large examples, they may still prove agreeable to the palate.

J. RIDDELL.

Espalier trees.—The value of this mode of training trees cannot be too often pointed out to all who want fine examples of Apples and Pears. This more especially applies to those who have only small gardens, seeing the little quantity of room espaliers take up. It may be said espaliers are expensive, owing to the stakes, &c., required; but this is not so when iron stands and wire are used. I know a garden in Dorsetshire where there are many trees trained in this method. On these trees I have seen some of the brightest and largest Blenheim Orange, Cox's Orange, Ribston, Pomeroy and Sturmer Pippin Apples I ever remember. Many kinds of Pears did equally well. For large kinds, or kinds that require to hang on the trees late, espaliers are to be recommended, as the autumn gales do not blow the fruits off, and thus they become thoroughly ripened.—J. C. F.

The late pruning of Peach trees.—It is often recommended to delay the pruning of Peach and Nectarine trees in the open air until March or thereabouts and they are generally the last to be operated on in this way, but I do not approve of this practice, as I find that Peach and Nectarine trees in the open are amongst the earliest of all fruit trees to swell their buds and push into blossom and growth. To delay pruning until this occurs, even in a slight degree acts most injuriously on the immediate and future success of the tree. In my opinion the whole of the open-air Peach and Nectarine trees should be pruned in January

and the nailing-in should be done as soon after that as possible. Our trees are having attention now, and I can see if we delayed for three or four weeks they could neither be pruned nor nailed without doing much harm.—CAMBRIAN.

THE VINE.*

FORMATION OF VINE BORDERS, &c.—In proportion to the pains and labour taken in making a Vine border, so also will be the after results in the majority of cases. I admit there are exceptions, but these are rare, and the soil itself in such cases is generally well adapted to the requirements of the Vine. Drainage in some form or another is necessary as a foundation upon which to make up the border. Where the subsoil is clay and the surroundings with a tendency to excess of moisture, I advise the bottom of the border to be concreted and have a gentle slope to the front, where a drain should be laid parallel with theinery. If drain-pipes in sufficient numbers can be had, I would much prefer to cover the entire surface next the concrete with them, in rows pointing away from the drain to the house itself. In such a case some slight drainage should be laid on the top of the pipes to prevent the soil as much as possible from penetrating into the pipes or choking the spaces between. Without the aid of drain-pipes I should resort to old brick rubble, with as much old mortar amongst it as possible. If driven to extremities, I should not hesitate to use coke, broken up fine, as a surface-dressing over coarser material. Having advanced thus far, the next process will be to remove the soil to the border, first laying some of the best of the turves (which should have been specially laid aside), bottom upwards, over as much of the drainage as it is intended to occupy at the outset with the soil for the border. On these it should be built up to the required height in a solid manner (including drainage, about 3 feet 6 inches is a good depth for a border), treading it down firmly as the work progresses towards completion. Here let me say that I am a strong believer in a border that is made in a firm and solid manner, and also (which I omitted to state) that pot Vines should be potted as firmly as it is possible to make the soil without breaking the pots. Why do you advise this? some may say. It is because the firmer the soil is the greater will be the quantity of fibrous roots, which are the feeders, so to speak, of the plant itself. We do not need such a number of the coarse porcupine-quill-like roots, running helter-skelter all over the soil, picking out this and the other constituent that suit their fancy and leaving the rest. These are useful to a certain extent as main arteries to convey the sap upwards; but if they exist in too great a quantity at the end of the growing season, there must be a decay amongst them which will be detrimental to the Vine in future. The production of fibrous roots is what we should aim at in order to secure solid and substantial growth of the plant. These roots are useful to fertility in any plant, whether it be to produce flowers or fruit. Take the Peach and Nectarine, for instance: if these are grown too robust, they are not so fruitful as they should be. Gross growth in these fruit trees (as in others) means a corresponding gross activity at the roots, which has not patience to wait for the somewhat slow development of the fruit through its earlier stages; consequently many drop off in their infancy or before stoning is completed. This making of the border in a firm manner renders it all the more incumbent to secure the soil sufficiently on the dry side to avoid any pastiness; if this occurs, the same soil will never work well afterwards. For the first two seasons, I consider a width of 5 feet quite sufficient for all the requirements of the Vines. Let them take well hold of that before adding any more thereto. Their roots should overrun all the soil that is given them; this they would do fairly well in two seasons, when another 3 feet or so might be advantageously added, and so on until the border be completed. "Completed" is, however, hardly the

right word to use, for as long as moderately good Grapes even are aimed at, the border will need additions to be made to it at times to induce the roots to keep near the surface in search of fresh food. These additions, after the main bulk of the border has been made up, may be of a more stimulating nature, partaking more of the character of a top-dressing. For this I have no objection to good farmyard manure, at intervals of every few seasons; as a change thereto, fowl's manure, mixed with soil three times its own quantity in bulk, is a good alternative. Decomposed leaf-soil, good in its way, should be avoided for fear of creating a fungoid growth. Of artificial manures as stimulating agents we have a number, each, of course, being "the best" for the purpose. I do not place too implicit a reliance in any one kind; in fact I believe it is easy to use too much of such mixtures. They are many of them good in their way, but if used too liberally will become eventually an evil rather than an assistance to the cultivator. When the roots are in a confined space, and that well permeated with the same, an artificial manure becomes more useful than in a more extensive border. If more stimulating food is given to the Vines than they can absorb into their growth, it becomes a counteracting medium rather than an assistance (I have used Thomson's "Vine Manure," Clay's "Fertiliser," Bentley's "Vine Manure," and Wood and Sons' "Le Fruiter," but cannot say, candidly speaking which is really the best). I believe each has been beneficial. Future experiments may lead me to a more settled conclusion than I have arrived at thus far in practice. There is this, however, to be said about the matter, which is that good Grapes have been grown without one kind or another in years past, and no doubt will be again with no more difficulty than has hitherto been experienced.

PLANTING VINES.—The best time to plant out Vines of the previous season's growth is just as they show signs of starting in the spring. This operation needs to be done carefully, first removing the soil and unravelling the roots, then spreading them out in a fan-like form on some of the finer portions of the soil, adding some more afterwards before covering over with the ordinary soil to a depth of 4 inches or 5 inches. After planting, a good watering with tepid water should be given and the soil made firm a few days later on. During the first year or two I advise that the surface of the border be kept level, so that the water can better penetrate to the roots. If it is the intention to plant ainery for early forcing, then I advise starting the canes early the first season, and thereby inducing the Vines as much as possible to break nearly in a spontaneous manner each season afterwards. Thorough ripening of the wood is most essential to early forcing, and a prolonged season must have that tendency. I advise, where possible, that young Vines be planted at from 2 feet to 2 feet 6 inches apart, that every other cane be treated as a supernumerary, and fruited more heavily the first few years until the others or permanent Vines have become well established; then the others can be dispensed with entirely if necessary. During the first season's growth after the young rods have reached the top of the roof and been stopped, the lateral growths should be allowed to come away freely and ramble about in their own fashion to encourage as much root action during the rest of the growing season as possible.

PRUNING VINES.—Those that are intended for more immediate fruiting should not be pruned back after the first season's growth nearly so much as those intended to form permanent Vines, but kept well in advance of them. The permanent ones may be pruned back to the lower part of the roof, the others left one-third of their full length. As the growths from the spurs of the permanent Vines develop, those on the supers should be removed to make room for them, thus leaving 4 feet or 5 feet between each. Muscat of Alexandria ought always to have the latter distance, though many of us do not allow that space, I am bound to admit. There should be from 1 foot to 18 inches

between each spur on either side; the nearer the latter distance is approached the better for the future individual strength and ripening of each year's growth. I am a believer in the close spur-pruning of most Grapes; the best bunches are obtained close home. Exception must be made of such as Duke of Buccleuch and Barbarossa, which fruit best on the long-spur system with a frequent renewal of the rods. I see no objection to filling in a blank space on a rod by the lengthening of the growth from the spur next below it in the case of any variety. In training up young rods one of the greatest mistakes that is made is to provide more than are necessary, by which the growths cannot properly develop themselves, nor can they either mature their fruit or wood to perfection.

DISBUDDING.—The proper performance of this work early in the growth of the Vine is absolutely necessary. The least promising and weakest shoots should be removed when no larger than Peas, leaving the two strongest a little longer to see which promises the best, and eventually removing the other. One shoot is ample to each spur; two should only be left when a blank space has to be filled up at once. Only this year I saw some Vines with three and four shoots to each. I wondered what the Grapes would eventually be like when ripe, if ever they reached that stage, and my fingers longed to be at work to liberate the Vines of their superfluous growth. If disbudding is not done early there is a strain put upon the Vine before its roots get into proper action that cannot but be detrimental and weakening in its effect at these early stages.

BUNCHES FAILING TO GROW.—Where early forcing is carried on, more particularly in the London locality, the bunches will at times when about half grown show a disposition to turn their points upwards, stop growing, turn yellow and finally die off altogether. To say the least, this is annoying and vexatious, especially after a good show that promised well has been obtained. I generally find this occurs after or during a severe time of foggy weather, when there is little sunshine. The best preventive, in my opinion, is an increase in the temperature and somewhat less atmospheric moisture. This will at least check it if not gone too far. Another gardener complained of the same failing to me only this last spring; he could not understand it, but then it was his first year in this locality. This goes to confirm me that it is caused by the fog more than anything else. It is quite different from the bunches running off to tendrils, which can, however, be stopped by the same means as just advised.

STOPPING AND TYING.—Stopping the young growths from spurs should be regulated according to the room at disposal, in order to have the roof equally well covered all over when the foliage is fully developed, yet not so thickly as to prevent the circulation of air, or to impart too dense a shade beneath. Sometimes it is necessary to pinch out the point of the young growth at two joints beyond the bunch; at others it can be left to the third. I prefer the latter for all strong shoots, and the former for the more weakly ones. The best time for this operation is as soon as the point can be taken hold of comfortably without injury to the leaves below it. It should never be left till a knife has to be employed; the object of early pinching is to concentrate more strength in the bunches before they come into flower. It will not make the bunches any larger, but there is the possibility of so strengthening the bunch as to avoid the occurrence of small-sized berries among the larger ones. Lateral shoots from the spurs should be stopped and re-stopped at the first joints they make, and the leader also. In the case of Muscat of Alexandria and other white Grapes where extra light imparts more colour, the laterals may with advantage be removed entirely below and at the bunch, leaving them on as advised above it. When the fruit is fairly well advanced towards maturity, the lateral growths should not be stopped, but allowed to extend themselves. I believe an extension of growth, then, is an assistance to the Vine, and a means by which the Grapes can be better preserved in a fresh condition. I take it to be a good sign

* A paper read at the Ealing Gardeners' Mutual Improvement Society, November 27, 1889, by J. Hudson, Gunnersbury House Gardens.

in favour of a Vine if it persists in making lateral growth when developing a good crop of Grapes. This should be an indication that it has not been over-weighted with fruit.

TYING.—This is an operation that requires constant attention when the Vines are growing rapidly to prevent the leaves and shoots from being injured by coming into contact with the glass. With forced Vines it is necessary, for in cold weather the glass is below the temperature of the house. With Vines breaking naturally it prevents the points from being broken off shorter than desired. The young shoots should be brought down gradually; thus their safety is better ensured, for it is not pleasant to see a spur spoil for the season by losing its first growth. Some kinds are more liable to break off in this manner than others, from the rapidity with which they grow when once fairly started. West's St. Peter's, Black Alicante, White Tokay and Gros Maroc are all very sensitive in this respect. I like to see the tying completed just before the Grapes are in flower.

(To be continued.)

GARDEN REFUSE.

It is kind of "G. S. S." to give to us gardeners scientific warning as to the fate which may befall our garden crops if we will persist in using decayed garden refuse as manure. I fear, however, that with a thousand such warnings offered we shall go on sinning against the light of scientific teaching, and even grumble that we have not half enough of the material to satisfy our necessities. I make it a rule to put by to decay for the purpose named everything which will decay within a reasonable time. On the other hand, everything which will not so prove useful is burnt. It may be that within the bulk, small as it is, of a heap of ashes there is considerable nutriment, but all the same I greatly prefer to have some few cartloads of the decayed refuse, half soil half manure, to put on to the ground in the winter and dig it in rather than a few barrowfuls of ashes. I am disposed to regard the warning against insect pests and fungoid spores as of an alarmist kind, not warranted by experience. After having used yearly every atom of such decayed refuse as I could get together on garden soil for the past thirty years, or even much longer, I am not disposed to conclude that there is anything to dread in the employment of it. I have used a big heap of it this season, but it is here chiefly employed for flowers, as with strong soil I find the greater degree of woody matter and fibre found in the semi-decayed refuse to be of greater service in keeping the soil light and porous than is the case when ordinary London manure is employed. This latter is also somewhat too strong in its action for flowers. I have often found after soil has been well dressed with the vegetable refuse that after the year has elapsed and the ground is again dug it is full of the dressing, and in such case another crop of flowers of a diverse kind is taken off before another dressing is given. Garden refuse does admirably also for Potatoes, and specially good is it to fork in amongst fruit bushes and Raspberries. In some gardens the chief fertilising material is found in half-decayed leaves. That is perhaps a sweeter material than is the refuse of the garden, but the constituents cannot be greatly varied, whilst in garden refuse there is found infinite variety. Weeds, of course, should not be thrown on to the heap to rot if seeding. If weeds have not got so far as the seeding stage they make capital manure when well decayed. It should ever be the aim of the gardener to utilise to the utmost every particle of matter which a garden produces. In the case of strong soils it is not at all essential that refuse should be rotten to bury as manure if it be short, but the refuse heap proper is the collection of the waste products of the garden extending over a long period, and if the heap be kept turned, aerated, and sometimes dressed with soot, it forms a valuable compost.—A. D.

This can undoubtedly be made good use of in keeping up the producing powers of the soil, but I agree with "G. S. S." that it may also be a source of evil. The greater portion of the

decaying vegetable matter that is collected in gardens there can be no harm in, but I should never think of putting on the rubbish heap anything that contained the germs of disease. Foliage infested with mildew above all things should never be rotted down. There is no doubt that the spores rest for an indefinite period, and they are probably as ready to respond to quickening influences after a rest of several years as when first formed. Millions of these spores may be consigned to the rubbish heap in some years to be let free to work havoc when the decomposed matter is put on the ground. With respect to red spider, I am not sure whether the eggs retain their vitality for any length of time. I should rather think that when their season comes they hatch, and the insects failing to find the necessary conditions of life die, but on this point "G. S. S." will be better informed than myself. The wisest plan is undoubtedly that which ensures the extermination of anything that possesses powers of mischief, and acting on this conviction I make a point of burning all kinds of foliage which may be suspected of harbouring this formidable pest. The Strawberry rarely escapes a visitation, and when old plants are destroyed they should not be suffered to lie about, as the insects quickly migrate from the sapless leaves to invade fresh pasture land. I have more than once seen the evil effects of allowing old infested foliage to lie for a few days in the open. The stumps of all kinds of winter and summer green stuff are, I think, best disposed of by fire, and especially where clubbing occurs. It can be little short of folly to let these return again to the ground. It is probably in this way that many perpetuate violent attacks of club-root. Potato haulm is often cast on the rubbish heap, and this, all must admit, is one way of inviting the disease. As regards this esculent, I think that decomposed vegetable matter makes a fine manure for it. I have invariably found that where vegetable refuse had been freely used, the Potatoes grew very strongly, and I advocate its use for early Kidney, and indeed for all kinds of early Potatoes. The heaviest crop of Ashleaf Kidneys that I have ever known to be grown was entirely in vegetable matter. The very free manner in which roots are made in such material is probably the cause of the more delicate early kinds being so much benefited by its use.—J. C. B.

Condition of the soil.—In spite of the considerable rainfall of the winter so far, the soil is working so well that everybody seems engaged in getting in early Peas, Broad Beans, or sowing early seeds. There is too much reason to fear that the present delightful promise will not be long continued, but the weather and the state of the soil are both phenomenal in the middle of January having regard to wintery traditions. The same kind of weather prevailed at this time last year, and yet we had a very dull cold spring. The remembrance of that should induce gardeners to reflect ere they commit seeds too readily to the soil. The value of stable manure which contains a considerable quantity of straw is amply demonstrated in the case of stiff or clay land, as when buried thickly during the winter it serves to keep the newly moved soil fairly open and porous, which advantage never can result from the use of artificial manures. The straw not only furnishes fibre, which, slow in decaying, provides food for plants for some time, but it acts as drainage also, and that is important. The burying of a good dressing of stable manure now whilst the soil is workable will prevent its becoming sodden should February prove exceptionally wet. Where there is no such material buried in the soil, there is reason to believe that later rain will cause it to run together and thus become unfit to be a seed bed. It is much better to bury the manure now than in the spring where possible, but of course there will be some breadths of soil which cannot be cleared earlier; for these the manure should be short and half decayed, as then it will all the more quickly become incorporated with the soil.—A. D.

The season.—It is only necessary to walk through our market gardens to realise what a

wealth of green stuff there is for marketing in due course. There are a vigour and freshness about all green crops, Cabbages of all kinds, Kales, Broccoli, Onions, Spinach, &c., that cause them to be as promising in appearance as in the month of October. So far, then, there is a probability of a glut of green stuff, but much will depend upon the character of the weather during the next six weeks. It is possible that a time of great severity is in store for us, and should it be so, much of the green crops must go down before it, everything being so soft and tender. In the garden, winter Aconites, Snowdrops, Hepaticas, Violets, Primroses, Wallflowers, and others are in bloom; Crocuses, Hyacinths, Daffodils, and other early-flowering bulbs are through the soil and hastening on to the flowering period. The subject which should occupy the minds of gardeners is that of affording protection should a time of keen frost come. A still frost, even if abnormally sharp, might not do a great deal of harm, but when cold cutting northerly winds accompany it, it is then that damage is so serious. One mistrusts a mild, soft winter. It appears to be capricious in its mood and leaves behind that sorrowful legacy to gardeners, a late and inclement spring. No gardener likes to see snowflakes mingling with the blossoms of his Plums and Pears. In the country the fields are green with fresh verdure, the buds on the hedgerows are swelling into growth, and on all hands there are indications of an early spring. Vegetation has made such an energetic start, that though much of its early promise may be cut off, the advance can scarcely be stayed.—R. D.

Nursery orders.—Those who order many things from nurserymen are sometimes astonished by these gentlemen taking their own view of what should be sent, and supplying what was not ordered. One has to take some care, therefore, in this respect in sending orders, or one may have the garden filled with exactly the stuff that is not required. A nurseryman's business should be to oblige his customers in every way, and if he has not the plants they order, or cannot get them elsewhere, it is his business to tell them so. Some amateurs may not mind this sort of thing, if one plant is as good as another to them; but when once a person discriminates and makes up his mind what he wants, and weeds out what he does not want, then it is a serious nuisance to have anybody take liberties with his orders. A minor nuisance of the same class is that nurserymen frequently send plants gratis to compensate for carriage, which in many cases one cannot find room for, even if anyone cared for them. Nurserymen generally are a very worthy class of men, and one is often glad of their advice and help; but the things we point out seem, we think, in want of revision on their part. Plants sent to compensate for carriage are generally bad stock. The best way for the nurseryman to adopt is to send good plants of what their customers want. Their assumption that, if they have not one thing another will do, is often very trying to those who expect to get what they write for.—Field.

Russian Violets not flowering.—I should be so glad to know why some Russian Violets have gone entirely to leaf, with scarcely a blossom, when some Neapolitan Violets planted at the same time and treated in exactly the same way have been all the autumn, and still are flowering profusely.—A. W. FITZWILLIAM.

Woodlice eating Mushrooms.—Referring to THE GARDEN, Jan. 18 (p. 55), I notice you invariably recommend one remedy for woodlice. I had a house swarming with them. I purchased some tree frogs, which very soon cleared the woodlice and small snails out, and I have had no trouble since. I have them also in a small Orchid house and they keep it free.—J. M.

Death of John Henderson.—We are informed of the death of this American nurseryman, who went out to America in 1856, and settled in Flushing, N.Y. He had raised an extensive business, consisting largely of Rose growing, and was also an authority on the same flower. Mr. John Henderson was born in London in 1818, and received an early training in his father's firm of Messrs. E. G. Henderson and Sons, that fitted him for the business which he afterwards carried on with such marked success.

WOODS AND FORESTS.

THE GROWTH OF TREES.

EVERYONE who knows anything about trees is familiar with the fact that although the heart of the tree is surrounded by the rings that are formed annually, the heart is not necessarily, nor indeed frequently, the centre of the bole, or, in other words, that while on one side the rings are so close that they can hardly be counted, they may on another side be a considerable distance apart. While this fact is patent to all, the cause of it is by no means universally understood. Perhaps the theory most generally accepted is that the widest rings are formed on the side of the tree facing the south, while there is another theory held by a few persons, viz., that the greatest enlargement will usually be found towards the east. There is still another class who assure us that the greatest extension will be found on the side where the tree has most room. Now, I would humbly venture to suggest that none of all these theories is correct, and that the widest rings will invariably be found on the side where the tree has made the most vigorous roots. This direction is determined not by any greater inherent vigour in certain roots when the tree was planted, but simply by the nature of the soil, the roots being most strongly developed towards the richest feeding ground. I saw this strikingly exemplified lately in a wood where a large number of old trees were lying as they had been blown down and cross-cut. These comprised both Firs and hardwood trees. A Silver Fir which had been growing pretty close to the south boundary wall had a radius of 2 feet towards the north, the soil being rich and easily penetrated in that direction; whereas on the south side towards the wall where the soil was hard and stony the roots had found little encouragement to extend, and the radius only measured 1 foot. Then in the case of a Beech that had been planted close to a road the strong roots and wide rings were found on the opposite side from the road in a north-westerly direction. In the centre of the wood where the soil was similar all round, vigorous roots were found to have pushed equally on all sides, and in these trees the heart was always found to be the centre of the bole. It is a noticeable fact that the branches or limbs of trees have the wide rings always on the under side. This, I fancy, may be explained by the sap finding freer access in that direction, and perhaps the greater tension of the vessels on the upper side may have a constricting effect on them.

Seeing that in slit-planting the roots are not spread out as in pit-planting, but are drawn in a particular direction, might it not be well to let that be facing the prevailing wind? This would involve no extra expense, and where the soil is of the same character all round, the roots would naturally take the earliest and firmest hold in the direction given them. Let anyone plant a young tree, or if he prefers it sow a seed, and let the soil on one side be retentive clay or gravel, and the other side made up of rich friable loam into which the roots will freely penetrate. When he cuts down the tree after a given number of years, he will find that on the side on which the roots have been feeding in the fertile soil the tree will have laid on double the quantity of timber, measuring from the heart, that it has made on the barren side. If this is not conclusive proof that the soil has a good deal to do with the final shaping of the trunk, I do not know what would be accepted as such.

J.

IMPROVEMENT OF PARK SCENERY.

SUFFICIENT attention is not directed to park planting with a view to render the landscape scenery picturesque and varied, when marginal masses, young plantations, clumps, or groups are being formed in new parks; it is also necessary from time to time to fill up blanks in park plantations occasioned by high winds or the decay of trees, if a succession of healthy growing timber be desired throughout the country. Before selecting the subjects to form the principal masses, it is essential to have some knowledge of the trees most suitable to the various conditions of soil, geological formation, and climate. As a general rule, it is the safest and perhaps the wisest plan to plant the park belts, marginal masses, and the larger clumps and groups with those trees that are found to thrive best and to develop into the finest timber in the locality where the planting is intended to be carried out. Trees suitable for forming the principal masses in the park may be divided into two classes, thus: Oak, Elm, Lime, Horse and Sweet Chestnut trees for rich loam and clay soils and somewhat sheltered sites, Beech, Sycamore, Norway Maple, and Birch trees for thin, poor soils and in exposed sites. Among Conifers (though not strictly park trees), Silver Firs in variety, Douglas and Menzies Spruces, Pinus austriaca, Laricio, Benthamiana, Jeffreyi, ponderosa, macrocarpa, and many other hardy and tall-growing varieties may be planted on the declivities of hills in groups amongst the marginal masses to give variety, contrast and shelter; they can also be planted in groups to form a background to deciduous trees or prominent hills in the distance to break the hard, level sky outline. The best and at the same time most pleasing and picturesque effect in park planting can be produced by grouping in sweeping masses of different sizes and irregular shapes, by avoiding similarity in size and form of groups of each distinct kind of park tree, and by planting smaller groups of the newer and more beautiful varieties of each species in front of the common sorts, distributing these latter at wide and irregular distances apart from tree to tree, so as not to add a stiff and clump-like appearance to the larger masses. By a judicious arrangement of groups of ornamental trees and dwarf tree forms, they should exhibit a different outline to the eye on every side, and although they should be planted at wide distances apart to allow every tree sufficient room to develop its special features of habit and foliage to the fullest extent, yet these, when viewed at a distance, should blend into one group. Clumps of park trees are generally round or oval in shape, and mostly planted on prominent knolls. They should be composed of one distinct variety or species. Groups of dwarf trees may be advantageously used to soften down abrupt outlines of clumps. Mixed groups of fine-foliage and flowering trees, of silvery and dark foliage, of rich autumn-tinted and the more quiet coloured, and the round-headed with the fastigiated forms, the weeping with the irregular or oblong forms, should be tastefully distributed throughout the park, advantage being taken of the undulating surface by planting the groups on the rising ground, leaving the hollows or valleys to form grassy glades. These latter may occasionally be broken when too great a breadth of Grass is visible by planting groups of dwarf trees in the foreground. Thorns and other dwarf trees should also be planted near carriage drives, and on each side of sharp curves of park roads and drives in scattered groups of various sizes from a triplet to a score or more. These dwarf tree forms, when planted judiciously, give variety without abruptness and a more natural appearance generally to the planting. Single specimen trees of distinct and marked features should be planted on well-chosen spots, but care must be taken not to plant too many so as to give a speckled or chess-board-like appearance to the park. The leading features to be aimed at in park planting should be variety, with distinctiveness, and system of arrangement without formality. Conifers are only suited for park adornment at a distance from the mansion, on the sides of hills, or prominent high-lying outskirts; when planted

in the foreground or in the low-lying sites of parks, either in clumps, groups, single specimens, or to form avenues, they are altogether out of character with true English park landscape planting. The only exception to this rule is the Cedar of Lebanon, which may be tolerated near a mansion, but even this only when the style of architecture is Elizabethan, Tudor, Jacobean, or of some other allied type.—F.

Quality of timber.—It is generally admitted that climate and soil exercise a very decided effect on the quality of timber. Thus the quality of Oak from one part of the country, and even from different plantations not far apart, often differs greatly. In some situations where the soil is poor or thin and the climate perhaps cold, the trees grow slowly and the quality of their timber corresponds, being short grained and hard; while on good soil and under better conditions the growth is, as a rule, quicker and the wood larger in the fibre as well as stronger in some ways. A very general impression exists that slow-grown timber is the strongest, but this opinion does not, it is said, stand the test of experiment. It has been proved that fast-grown timber—Oak, at least—is the strongest, bearing the greatest degree of tension, samples from favourable localities and deep good soils surpassing those from the north and elsewhere, where the soil and climate are both inferior and the growth slower. This is opposed to the popular notion in favour of slow growth, and may probably be disputed by some. It might be advanced with reason that one of the best of all woods, the Scotch Fir, deteriorates in the quality of its timber the farther south we find it, although it grows to a fine tree, the timber of the highlands equalling the best samples of red deal, and becoming worthless almost in the south.

Elongation of tree trunks.—A note on page 44 of THE GARDEN states that "recent experiments tend to show that the popular notion that the trunks of trees elongate is entirely erroneous. Tacks were driven into the trunks of various trees and the distances between them accurately measured. At the end of the season they were found to have neither increased nor decreased their distances." The experimenter, however, in expecting to learn anything by means of these tacks, appears to have entirely overlooked the patent necessary result of any elongation which might be in process, namely, that as the elongation can only take place in one direction, it would carry with it all the tacks in the same trunk simultaneously without altering the distances between them. On the other hand, very convincing proof of the correctness of the "popular notion" on this subject is given by that most amiable of naturalists, Charles Waterton, in his delightful "Essays on Natural History," in which he records the circumstance of a Hazel nut having chanced to fall through the central aperture in a prostrate mill-stone which had long lain neglected in the grounds at Walton Hall. This nut germinated and produced a tree, which, as it grew, filled the aperture tightly, and in the course of time actually lifted the mill-stone to a considerable distance from the ground. A full-page illustration of the tree and the mill-stone in this condition accompanies the text. When the trunk of a tree has attained its full growth, any further elongation of the trunk is, of course, impossible.—WILLIAM MILLER.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

CHOICE PEARS FOR PROFIT.

NEVER perhaps within my memory have choice Pears been so scarce in January as they are at the present time. Fruit in some gardens was fairly plentiful in 1889, but in nine-tenths of the fair average orchards Pears were very scarce or a perfect failure, and although the autumn was good they ripened altogether out of season. Winter Nelis, Josephine de Malines, and Beurré Rance with us commenced ripening in November; Knight's Monarch, the true and best variety, was fit for use early in December; and Bergamotte d'Esperen, accredited to March, just carried us over Christmas. This prematurity combined with scarcity having left our fruit rooms empty, Pears just now are very dear, so dear indeed that I am tempted to repeat the opinion that Pears under glass and upon cheap boarded walls may be made to pay quite as well, if not better than Peaches. But why this prematurity, and where the profit if they will not keep, especially after a fairly good season, not one degree too hot for the production of average size and full flavour? The Pears of 1889 were the produce of imperfectly ripened trees, which, as a rule, did not receive half enough water through July and August, and this want of liquid food, I venture to think, may have checked the growth and hastened maturity. Heat and light are important factors, but root moisture must be abundantly supplied, especially to trees on the Quince stock, and this being in proportion, not only will the fruit be large, but the check which has forced our best late Pears some two to three months in advance of their season will be avoided. The rainfall this winter having been light, large trees against south and west walls should be taken in hand forthwith, and the subsoil being found dry the surface should be pointed up, well mulched, and heavily watered with diluted liquid, soap-suds, sewage, or, lacking these stimulants, with pond water. They will then produce fine and perfect flowers, and, the spring being favourable, they will set plenty of fruit, whilst drought, the most frequent cause of sterility, may prevent them from contributing their quota to the fruit room next autumn. Mulching and watering, as a matter of course, must be followed up throughout the summer, and the set being good the fruit must be well thinned, as Pears below medium size rarely attain their proper flavour. Pyramids and bushes being fully exposed, not only to rain from all points of the compass, but also to light and fresh air, do not so often suffer from drought; hence their fertility and the high flavour of the fruit, especially when it puts on a rich russet appearance. These may not require water, but early mulching will be highly beneficial, and when this has been done for existing trees attention should be given to the planting of Quince stock cordons. If bare spaces on brick walls exist they should be filled up, or, lacking these, the cream of the latest varieties may be grown against boarded screens, which can be set up quickly and cheaply. If timber of home growth is plentiful, this may be used, but those who have to buy can procure imported Spruce boards three-quarters of an inch in thickness at 8s. per square, and this in

the long run will be found most economical, as it costs but little in labour, stands the sun, and lasts many years if washed with a mixture of quicklime, Venetian red, and linseed oil when the trees are unnailed in the winter. These walls should be 6 feet in height and well capped, and if facing south or west, the trees, a foot apart, trained in an oblique position, should include dozens or scores of a few of the best sorts which ripen from December onwards. Winter Nelis, Josephine de Malines, Glou Morceau, Bergamotte d'Esperen, Easter Beurré, Olivier des Serres, Knight's Monarch, and Nouvelle Fulvie are grand winter Pears, and may be duplicated to any extent where the soil and climate are likely to suit them.

By way of a supplementary string to the bow, I should like to see cordon Pears under glass receiving the general and careful attention now devoted to late Peaches and Nectarines. Houses of the plainest character, provided they be large, light, and airy, will answer the purpose. The roof lights should be portable, and if furnished with a flow and return pipe the setting of the fruit would be ensured, as the petals of the flowers could be kept dry in damp, dark, or foggy weather. Well managed pot trees give good crops of fine fruit, but the cheapest and best mode of culture consists in planting out in raised, narrow, well-drained borders.

W. C.

Shading Gros Colman Vine.—I have a plant of this growing in a Muscat house, but until last year the berries never coloured satisfactorily. The treatment last year was the same as that adopted in former years, with the exception that I covered the three rows of glass panes over the Vine with whitewash. This shaded the bottom leaves of the laterals, which I always noticed gave way first. The result has been that the Vine has matured twenty-four bunches of faultless colour. The leaves kept green the whole summer, turning yellow at the same time as those of other Vines. The wood is well ripened and the eyes plump for another year's work. I can see no bad effect from the Vine being so heavily shaded.—T. STRATTON, *Balmedie, Aberdeen.*

Apple Margil.—This highly flavoured, hardy and richly coloured Apple, I think, does not occupy the place in gardens which it deserves. It may be termed a small-sized Ribston Pippin, but its fruiting qualities and freedom from canker or other disease render it a valuable kind. It is very suitable for dessert, as large sorts are often objected to. I remember a tree at Fulham (more than a quarter of a century ago in the private garden of the late Mr. Thomas Osborn) which bore heavy crops of fruit every year of the finest quality. I have several trees planted against an old wall with a north-west aspect, and they bear heavy crops every year. Two years ago a fruit had been missed when gathering the crop, and at the end of the year it was found quite sound and as yellow as gold.—M. TEMPLE, *Curzon House.*

Apple Alfriston.—I consider this one of the best late keeping Apples. More than twenty years ago I grew it in Norfolk, and I was so well satisfied with its fertility and general good qualities, that when I moved into the midlands I at once planted it with similar results, and I should certainly place it among the best dozen. It is usually classed as a cooking Apple, but when March comes and good Apples are scarce, selected specimens come in well enough for dessert. As I remember it in Norfolk it had less colour than I have had in it since, but soil and situation make a difference. It forms a nice garden tree on the Paradise.—E. H.

Pear l'Inconnue.—I regard this as one of the very best late Pears. The tree is a moderate grower, forms a good pyramid on the Quince stock, and is a great bearer, so much so that the fruit generally requires to be well thinned if a crop every year is to be expected. It is always superior

with me to Beurré Rance or Easter Beurré. I planted the tree here as a pyramid in 1858.—JOHN GARLAND, *Killerton, Exeter.*

Late Pears.—Mr. Crump, in a short note in THE GARDEN (p. 71), says now would be a good time for growers of late Pears to settle the vital question as to the best late kinds, and adds that his crop last year was almost *nil*, and that Pears of all kinds this season have ripened much earlier than usual. These two statements seem to prove that the present is a bad time instead of a good one, to go much into the question, as his case is not singular, the Pear crop being scant in most places last year. Not only was it so with us, but I never had the fruit so poor-looking and spotted, taking it all through, for though we had some sorts fair and a few good specimens of others, the sample was greatly inferior to what we usually have. The late kinds have been the worst, thus proving that they require a fine warm summer and autumn, especially the latter, unless the trees are exceptionally favoured as to position and aspect. Our favourites for use now have always been Josephine de Malines and Bergamotte d'Esperen, but numbers of these latter are so spotted as to render them quite unfit for use for dessert. The fact is, this Pear requires a sunny wall to have it really good, but Josephine de Malines succeeds as a pyramid.—J. SHEPPARD, *Woolverstone.*

Phylloxera and tank borders.—With regard to this I simply wrote that which from practical experience and close observation I believed to be correct in support of previous articles I had written, the accuracy of which had been called in question by "A. W. N." I still most firmly believe that the tank system for cultivating Vines in this country with annual submersion for ninety-six hours during the period the Vines are comparatively at rest is the surest and most inexpensive safeguard against the attacks of this pest. For these reasons I made two suggestions that this method should be thoroughly tested by others as well as myself, and I still trust not a few, but many, will be induced to do so. In the meantime I am quite willing to attempt to prove to Mr. Ward the efficacy of submersion during the period the Vines are at rest by planting an affected Vine in the tank border if he will supply me with one. The only stipulations I will make are that a disinterested and thoroughly competent person be appointed to examine the roots after the tap has been turned on for ninety-six hours; also that it be not delayed till such time as the insects are on the move, but while they are, as Mr. Ward says, hibernating.—T. CHALLIS.

Morello Cherries.—I have never found anything succeed so well on a wall facing north as Morello Cherries, provided the border has been adapted to their requirements. Most of these borders have a tendency to wetness, as less evaporation takes place there than in more favoured situations. Besides, north borders, as a rule, are not so often dug or trenched as others, and their liability to become soured is thereby fostered. Digging and trenching the ground favour the escape of moisture and render the soil more fertile by the free access of air. I have obtained very beneficial results from the trenching of tenacious loam resting on shingle when the drainage became defective. It is with a north border consisting of this tenacious loam that I wish now to speak, and to show how a soured and comparatively speaking barren piece of soil was made fruitful. Two feet of the surface soil of this border was resting on a bed of impervious clay, and as no provision had been made to drain off the superfluous moisture, the whole had become a sodden mass of inert matter. In order to render it a suitable medium for Morello Cherries to grow in, I took out the soil at one end ($3\frac{1}{2}$ feet deep, across its width, and 9 feet in length), giving the bottom a fall from the wall, with a drain sunk 6 inches deeper along the front. A foot depth of stones was then placed over the bottom and on this a layer of turf, Grass side downwards. As the drainage was then considered complete, another 9 feet of the length of the border was measured off and about 2 feet of the surface soil thrown back on the turves, while the remaining 18

inches of clay was wheeled away. Then followed stones and turves again, and in this manner half the length of the border was treated, a quantity of lime rubbish, road scrapings, and refuse from the fire heap being added to the soil and well mixed with it. I then planted Morello Cherries to cover the wall and Gooseberries to come in for late dessert to fill the border. Both have done remarkably well, and prove conclusively that large crops of these fruits are obtainable from north walls and borders when provision is made by drainage to allow the excessive moisture to escape.—R. C. H.

MR. HIBBERD LOSES HIS TEMPER.

IN his last issue Mr. Hibberd hisses out some ill-muttered spite because I did not insert a letter of his in THE GARDEN that appeared in the *Times*. One might think the vastly larger pulpit of the "Thunderer" would have satisfied him, but he hankers after that of THE GARDEN too. A strange fancy of his to be seen in that once venturesome sheet. I forget the elegant extracts about the early fate of THE GARDEN, and do not care to dig them up. I remember our coloured plates were a sign of the last gasp for life. I was afraid to publish his damaging letter, he thinks. I have some women's horror of a mouse, but no fear of Mr. Hibberd, even when hanging bricks on a fruit tree to make it bear fruit as well as bricks! What he sent to the *Times* to cover my attack did not go in THE GARDEN because it did not seem to demand either space or reply.

I said, and have nothing to say, about Mr. Hibberd's sprig of gentility, and the spectacle of Mr. Hibberd's demon clutch at my small plant of the same kind, because I do not agree with him about the Ribston, should charm the heart of a comic editor in quest of a really funny thing. Below is the document whose absence from THE GARDEN he deploras:—

In it he says that he did not write to the *Times* to say "the Newtown was more often met with of fine home growth." The statement is, of course, nonsense, and the denial that he made it in the *Times* is untrue, as we simply copied it from that paper. Also he says here that the King of the Pippins is "*tender and digestible*!" [It is the most astringent and ill-flavoured Apple in all the lists], and that the Ribston "*at its best is hard and indigestible*." Now when a man says these things about fruits, the quality of which is so well known to many men in markets and out of them, it is time to stop arguing with him, for such arrant nonsense has never before been published on well-known English fruits.

TO THE EDITOR OF THE "TIMES."

SIR,—The editor of THE GARDEN, in his second letter, makes an approach to acceptance of my modifications of his propositions. It is with market Apples and the public taste in the selection of them that we are concerned, not with individual tastes and fancies. He has faith in the public taste, but denounces as of "very poor quality" an Apple, known as King of the Pippins, that happens to be one of the greatest favourites, with more money in it probably than any other Apple in cultivation. I would sooner trust his taste in selecting fruits than in framing arguments, but we are not far separated and may find it possible to agree in time for some more useful work than disputation. I will follow the example set me and take the points in order:—

(1.) Newtown Pippin I have not described as "often met with of fine quality of home growth." I said it was "more often met with of fine growth" than Gravenstein, but that it might be "disposed of as one of the curiosities of the fruit garden." The imported fruit is of such fine quality that it would never pay to grow it here for market, for the tree is slow in bearing and requires, even in good Apple

climates, the aid of a wall. The negative declaration that is hazarded displays greater courage than reason. I consign that also to the region of curiosities.

(2.) King of the Pippins is not described by me as "an Apple of fine flavour," but I have quoted Dr. Hogg, whose testimony the editor of THE GARDEN rejects. I protest that if the public judgment is sufficient for determining the merits of market Apples, then King of the Pippins must be one of the best, for there is no Apple of its season that sells so well or pays the grower better. The thing that sells is of some importance when we cater for the markets. I accept the verdict of the public and also the logical consequence as regards this Apple, for it looks well, eats well, is *tender and digestible*, and the tree bears well and will grow in almost any soil. The editor of THE GARDEN may attempt to vindicate the public taste by depreciating the Apple it loves, but I prefer the rational way and care more for facts than for fancies.

(3.) The writer admits that Blenheim is slow to bear, and that Ribston is liable to canker. For the purposes of this discussion that is sufficient, for disputants rarely admit all that is urged against them. Men who plant their own land and can afford to wait may do well to plant this fruit on soil that suits it, and I again speak of it as "the noble Blenheim." It is none the less noble that for a market gardener of only moderate means to plant it largely on another man's land would be to pledge himself to ruin; and this market grower of moderate means is a person of some importance in the present discussion. What Covent Garden can consume is but one part of the question; we wish the men to live who supply the market; for it is on the commercial foundation we are endeavouring to build in our advocacy of extended fruit culture. The editor of THE GARDEN believes the Ribston will be delivered from liability to canker, and is himself experimenting in the hope of making useful discoveries. But all this has nothing to do with the question before us, for we are tied to the facts, and it would be a condemnation of his peculiar reasoning if he would candidly own that the Ribston, like the Newtown Pippin, is one of the curiosities of the fruit garden. I quite agree with him that "the fate of the Ribston is by no means hopeless," but what a commentary is that on his assertion that the Ribston is one of the few "very best" English Apples that "should be grown" for the supply of the market!

The taste of the child that is brought forward is simply childish; more so than the public taste that may be relied on because it approves an Apple that is "very poor in flavour." There are times when children, well cared for in respect of all their dieting, will eat any Apple they can get hold of, and there are times when they are a bit fastidious and prefer good to bad Apples. The market grower who is about to plant will trust his own judgment before that of all the children in the world.

Now permit me the preacher's privilege to say "lastly." It appears to be agreed that Cox's Orange is of the greatest importance for the supply of the market and for a place in the domestic garden. It may be grown as a standard or a dwarf on the Paradise stock with advantage wherever the circumstances are favourable to the production of first-class Apples. The Ribston is so uncertain that it would be most unwise for anyone to speculate in it largely when Cox's may be relied upon to keep in health and bear abundantly. Ribston ripens slowly, and *at its best is hard and indigestible*, though of the finest flavour. Like the "noble Blenheim," it is superb when cooked. Cox's Orange is best from dwarf trees; Ribston is best from trees on Doucin stock, trained as espalier, and in cold climates it is worthy of a wall. Blenheim is fastidious in respect of atmosphere as well as soil. On heavy land near London it rarely attains to fine quality either without or within, having little colour and a poor flavour. In its home and all around Oxford it is grand; it is even more grand in some gardens in Hampshire, and has actually been named Beauty of Hants on account of the splendour of samples grown in that

county in gardens near the sea. Another Blenheim district is in the neighbourhood of Reading, where it attains its largest size and finest quality on trees that from the day they were planted to this hour have scarcely been touched by the pruning knife.—SHIRLEY HIBBERD, *Kew, January 7.*

The italics are mine. The whole correspondence arose through someone who knew little of the good Apples writing in praise of the Gravenstein. I wrote reminding people of the far greater merit and value of what I call the great English Apples, best among them the Blenheim. Mr. Hibberd wrote warning people against planting it—not really because of the Blenheim, but to satisfy his craving for a thrust at me. But he is not a guarded fighter, and the chief interest of the letter above quoted is this, that in it he shows how wrong he himself was to try to do harm to the repute of the best Apple grown in England. In the *Times* he said I was "unhappy in my choice" of the Blenheim, and then forgetting, shows now in how many districts it grows well and profitably. After these letters appeared I spoke to Mr. Webber, who certainly knows the market side of the Apple question as well as anyone, about Messrs. Hibberd and Wright's denunciation of the Blenheim. It is, he says, "the last Apple to deserve it." The one fault it has, slowness of bearing, is our own fault. An Apple of finest vigour we graft on the Crab, a tree itself of great vigour, and the two together grow wilder than young forest trees. A group of a dozen Blenheims planted four years ago are now like Sallows in a rich wood after being cut down, while every other Apple has done something to form a head that looks like a young fruit tree. But we are not compelled to graft the Blenheim on the Crab. There are several alternatives, and it is worthy the skill of our fruit growers to find out some quicker way with it.—W. R.

SNOWDROP NAMES.

TO THE EDITOR OF THE GARDEN.

SIR,—I am sorry to differ from Mr. T. Smith, of Newry, to whom my garden and I are indebted for many acquisitions in the past, and to whom we hope to be indebted for many more in the future. But I do think he has pressed rather hardly on a certain Italian firm which has rather ruffled him. I know nothing of them in any way beyond constant dealings with them about plants and bulbs, and I am ready to declare that my impression about their proceedings does not at all accord with that of Mr. Smith. I do not say they are infallible, but is there an infallible nurseryman on the face of the earth? I am only quite convinced for several reasons that could be given that they are perfectly honest, and they have put plants and bulbs into my hands which I had never heard of elsewhere, and for which I cannot thank them sufficiently.

Last year I procured from my San Giovanni à Teduccio friends the three decidedly most interesting things that I got at all, besides a crowd of others which were all of them good.

Leucojum roseum is, to my mind, one of the loveliest, if not quite the loveliest bulb in my garden. I remember coming across it in the border quite unexpectedly on a fine July morning, and I admired it more than all the gay flowers with which it was surrounded. Iris stylosa speciosa and Iris alata speciosa speak for themselves, and they are in the first rank of beauty. Many other plants and bulbs which are of secondary importance when compared with these I could name without difficulty. We must speak of things as we find them, and I

seem to have been very fortunate where Mr. Smith has been unfortunate.

As my pen is in my hand, I may just say that my garden is tending to destruction if we are to have sharp weather in spring-time. Over one hundred different plants and bulbs are in full blossom already, and such a portent as *Narcissus maximus* in flower before the close of January was never heard of before.

St. John's, Ryde.

H. EWBank.

NOTES OF THE WEEK.

Crocuses at Clifton.—The following is a list of ten species of *Crocus* which are in blossom here to-day: *C. aureus*, *C. banaticus*, *C. chrysanthus*, *C. corsicus*, *C. imperati*, *C. minimus*, *C. pusillus*, *C. Olivieri*, *C. Sieberi*, *C. susianus*.—G. H. WOLLASTON.

The earliest Narcissus.—Here is my first outdoor *Narcissus* (*Ajax minimus*). Last night's frost and the heavy storms and gales do not seem to have injured it. *Crocus minimus* is very lovely just now.—A. KINGSMILL, Stanmore.

Cymbidium Lowianum is represented in The Dell collection by a magnificent specimen carrying twenty-eight spikes, which have on an average thirty-three buds. When in full bloom this *Cymbidium* is exceptionally striking, as it is a remarkably fine form, the flowers large, and with the lip of an unusually deep crimson colour.

Helleborus niger ruber is a fine variety of the common Christmas Rose and in full beauty just now in Mr. T. S. Ware's nursery, Tottenham, and in the Royal Gardens, Kew. The plants are very free and the flowers of good size, white, with the outer surface of the segments and the buds of a rich rose colour. Large clumps in the garden are bright and handsome at this season.

Eranthemum nervosum makes a bright group in the stove at Kew, and also in Messrs. H. Low and Co.'s nursery at Upper Clapton. The *Eranthemums* are a useful and easily-grown class of stove plants far too little seen, and *E. nervosum* is one of the best. The flowers are of the deepest blue colour, made more intense by the rich deep green leaves.

Odontoglossum Wilckeanum.—A plant of this beautiful New Grenada *Odontoglossum*, of the luteo-purpureum type, is bearing a strong spike of its finely-formed flowers in the garden of Mr. G. C. Raphael, Castle Hill, Englefield Green, Egham. The flowers are pale yellow in colour, boldly blotched with light brown, the crest deep yellow. It is named after Herr Wilcke, gardener to M. D. Massage, Marche, Belgium, by whom it was first flowered.

Daphne Mezereum is a common shrub in the humble garden of the cottager, and bushes of it were wreathed in bloom the other day in Egham village. We might search many large gardens, however, without finding it. Large plants of it, with the leafless branches studded with fragrant bloom, have a peculiar charm in midwinter, and there are pink, white, and double-flowered forms besides the common type. It will grow in ordinary soil, and loves full exposure to the sun.

Cypripedium Harrisianum superbum is a noble variety and we have never seen it finer than in The Dell collection at Egham, where several plants are now in bloom. The flowers are of the richest colour, shining as if varnished, and beautifully coloured with glossy purple, especially on the dorsal sepal which measures almost 4 inches across. It is one of the most handsome of the Lady's Slippers, in spite of the addition of new hybrids almost every month.

Odontoglossum Harryanum.—I send part of a spike of *Odontoglossum Harryanum* to show how widely open its flowers are when grown cool. Last year this plant flowered in a moist intermediate house, and the variety seemed so worthless that it was determined to grow it in a cool and drier atmosphere, with the result you see. The flowers have opened widely this year and coloured well. Last year the petals never expanded and the colour was nearly green.—EDWARD H. WOODALL.

Hemanthus magnificus is worth a note now in the stove at Kew, where with *H. natalensis* it is in full flower. The strong scape bears a large brush-like head of the deepest crimson filaments tipped with gold-yellow anthers, a brilliant and vivid contrast of two striking colours. The "Blood-flowers," as they are usually called, are strange, and in their way useful,

the sturdy scapes appearing without leaves and giving bright colour to the stove during the winter. *H. magnificus* comes from South Africa.

Varieties of *Celogyne cristata* are now very beautiful in The Dell collection, all the varieties being represented. Of the Chatsworth form there is a specimen several feet across, and one mass of white, a lovely sight reminding us of the huge plant that was formerly in the collection of Mr. Lee at Downside, Leatherhead. *Lemoniana*, which has pale lemon in place of the rich yellow of the other; *maxima*, so named from its larger flower; and *alba*, pure white, are all in bloom.

Franciscea calycina major is a handsome stove plant that, amongst others, has suffered from the increase in Orchid cultivation. It has in many good gardens long since been discarded, but was just opening its flowers in the stove at The Dell, Egham. The plant is in superb health, and in a few days will be covered with a mass of violet flowers, which are of various shades, becoming lighter with age, the rich background of foliage bringing out the delicate colour in its fullness.

Toxicophlœa Thunbergi.—Seeing in a recent number that *Toxicophlœa Thunbergi* is considered less free-blooming and desirable than *T. spectabilis*, I send you a shoot from a big bush now in full flower to show how very free-blooming and handsome a shrub it is when grown in a sunny airy house, and well rested in a cold house after completion of growth in August.—E. H. WOODALL.

*** A beautiful and fragrant thing.—Ed.

The double white Camellia at The Dell, Egham, is smothered with buds, which promise a fine show of bloom later on. It is upwards of 20 feet in width and nearly as much in height, the growth and foliage in such health as is not often seen in the open air. A large temporary glass erection is placed over it, fitted with hot-water pipes, so that the great display of bloom may not suffer when severe frosts occur. The covering is removed in spring and the plant left to itself until winter again returns.

Apple Blenheim Orange from Scotland.—We sent the Blenheim fruits to let you see that even in the north of Scotland it is quite possible to grow Apples which would bear comparison with the best imported fruit. Those Apples are from trees about fifty years old, growing on the garden wall at Meldrum House, Old Meldrum, Aberdeenshire. The trees are very healthy and clean and bear heavy crops every year. We exhibited a dish of the same fruit at the Scottish Horticultural Society's meeting, at which Mr. Barron, the gardener, was awarded a cultural certificate.—DICKSONS & Co., 1, Waterloo Place, Edinburgh.

*** Very beautiful fruit.—Ed.

The display of *Lælia anceps* in The Dell, Egham, has been of unusual splendour this season. Mr. Ballantine estimating that at one time there were nearly 200 spikes in full beauty, and these of the finest varieties known to us. Even now there is a good show from the type to the late-blooming *Veitchi*, which although not equal to such noble varieties as *Stella* in size of flower, is very distinct in its violet markings on the front and side lobes of the lip. *L. a. Sanderiana* was showing a wealth of its splendidly formed flowers, massive, and of the purest white, except for the lip, which is rich purple-rose in the front lobe, the base yellow, and the inner face of the side lobes barred with deep lake. *Stella* is purer, having just a tinge of rose-purple on the lip, and one of the loveliest of all, though not surpassing *L. a. Schroederiana*, recently certificated by the Royal Horticultural Society. Spikes of the finest form of *L. anceps*, which carry flowers almost twice the size of those of the old type, are of charming grace both on the plant and when cut.

The new rockery at The Dell, Egham, now approaching completion, will be one of the finest in England, and give ample scope for the planting of a large and rare collection of alpine and other hardy things. Pulham's artificial stone has been used to a considerable extent, and deep "pockets" secured, with here and there a pool of water for the growth of aquatics and moisture-loving plants. *Rhododendrons*, which flourish here with that perfection seldom attained except in

such favoured spots, make a rich background, with finely variegated *Hollies* at intervals. All tree stumps that disfigure such interesting rockeries as that of the Royal Gardens, Kew, have been rigorously excluded. They harbour insects, breed fungi, and in a few years decay, creating disease and turning the rockery into the likeness of the half-rotten roeteries that are a blot to many good gardens. The beautiful climate and exceptional soil at Egham should produce a rich growth of hardy plants, as it has of Conifers, and make The Dell as famous for its outdoor attractions as for its Orchids.

Orchids from Minchinhampton.—I send you two blooms from a spike of *Odontoglossum sceptrum*, which has been in flower for the past month. It is a good cool house Orchid and most beautifully marked. The spray of *Epidendrum cochleatum* has been in full beauty for the last four months. It is both pretty and also curious, and I may say a nearly perpetual bloomer if kept in an intermediate house with good drainage and plenty of moisture at its roots and over its foliage, but so that the flowers are not wetted.—J. F. WILKINSON, The Gardens, Highlands, Minchinhampton.

Moth Orchids at Egham.—The *Phalænopsis* in the collection of Baron Schröder at The Dell, Egham, are blooming freely, and represent a rare series of types, amongst them a remarkably fine form of *P. grandiflora aurea*, the flowers massive in form, broad, rounded, and of the purest white, except for the deep yellow colouring on the anterior part and lateral lobes of the lip. *P. Schilleriana* and several varieties, some beautiful and distinctly spotted, with bolder and larger flowers than usual, were in great beauty; also *Sanderiana alba*, in which there is scarcely any trace of colour, the bloom of the purest white. *P. amabilis* was of course in flower.

Flowers at Scilly.—A local paper, dated Jan. 23, reports that about 260 packages of flowers were despatched from Scilly January 14, and over 300 Jan. 16. The plants in bloom on the islands Jan. 10 were: *N. Soleil d'Or*, *N. Scilly White*, *N. gloriosus*, *N. Grand Monarque*, *N. Paper-white*, *N. Telamonius plenus*, *N. obvallaris*, *N. Ard-Righ* (or Irish King), *Arum Lily*, Christmas Roses, *Anemone fulgens*, *Roman Hyacinths*, *Anemone coronaria*, *Wall-flowers*, and *Marguerites* (white and yellow). The prospect of the *Narcissi* crop is most encouraging. The blooming season has never been so early since *Narcissi* have been grown in the islands. Several packages were sent off by the middle of December.

Strobilanthes isophyllus.—A small group of this stove plant was recently in bloom at Kew, and though one of the best of the genus, it is unknown to many. The genus to which it belongs is large, containing about 180 species, spread over a wide area, but occurring most frequently in the East Indies. *S. isophyllus* is pretty when the plant is in a 5-inch pot and in full bloom, the flowers of a lavender colour and the leaves deep green. It is also known as *Goldfussia isophylla*. Its culture is easy and a light soil will suffice, while plants can be readily raised from cuttings, which may be struck in a hand-glass placed in the stove or propagating house. Our stoves often want variety at this season, and here is a plant that may be used with advantage.

Hyacinthus azureus is one of the prettiest hardy flowers of January, and will stand hard frost with impunity, the small, conical, dense heads of campanulate sky-blue flowers only suffering from a heavy snowfall which is apt to break them. When this is anticipated, cover the clump with a hand-light, as for the varieties of netted Iris. This winter gem was introduced by Kotschy in 1856 from the Vienna Botanic Gardens, and as yet remains comparatively scarce in gardens. It has the habit and appearance of a *Muscari*, but the flowers are of the distinct bell shape characteristic of those of the *Hyacinth*; hence, it has been classed by Mr. Baker in this group and called *Hyacinthus azureus*, though often labelled *Muscari azureum*. It grows but a few inches in height, and a vigorous clump clustering at the foot of a wall is in mid-January, when its sky-blue flowers are in fullest beauty, a

perfect picture. Plant the bulbs also in nooks on the rockery and in clumps on the border. A coloured plate of this appeared in *THE GARDEN*, Aug. 10, 1889.

Chinese Primulas from Chelsea.—We have recently received a number of flowers of various kinds of Chinese Primula from Mr. Bull, and amongst them some of unusual beauty, showing a still greater advance in this winter flower. Fulgens is bright red, a fine telling colour; Imperial Blue, as near to blue as any of the other so-called blue varieties; elegantissima, the flower large and well marked; and mutabilis, which has large, well-formed flowers, shaded with rich magenta colour. All are single varieties.

The Aniseed Tree (Illicium floridanum), a coloured plate of which was published in *THE GARDEN*, August 17, 1889, is in flower in the economic house at Kew. There are five species of Illicium, one hailing from America, the others from India, Japan, and China, and of the five, the only one worth growing for its characteristic beauty is floridanum, which, as its name suggests, is a native of Florida. Although introduced as far back as 1770, it is still rare in collections. It makes a compact shrub with shining green leaves, which when rubbed give out a pleasant aromatic fragrance. The deep crimson flowers, which are produced from the axils of the leaves, are made up of about thirty twisted petals. It requires a warm greenhouse, though I. anisatum survives the winter against a wall in the same gardens.

Ranunculus anemonoides.—This charming dwarf alpine Crowfoot is one of the most useful of early spring flowers for the cold house. It is perfectly hardy, and in sheltered spots on the rockery flowers early in February, though usually towards the end. As a pot plant, however, and grown in a cold frame, nothing could be more beautiful, the flowers being produced in profusion, the finely-cut Anemone-like foliage, of a pretty glaucous tint, just opening as the blossoms expand. The buds are always of a lovely rose colour, becoming paler and often tinged with purple when fully expanded. In good free soil on the open rockery this plant succeeds well, but it does not like being disturbed, and should be left to take care of itself when fairly established. A little lime in the soil will be an improvement.—K.

The alpine house at Kew is very bright at present, and seems of no little interest to lovers of hardy flowers. The Christmas Roses have been flowering here since the middle of November, and now these have been reinforced with the Lenten Roses of the orientalis group. Variable in colour, profuse, and always to be relied upon, these latter prove of the utmost value for work of this kind. Also in flower are Croci of various species, such as C. aureus, chrysanthus, bannaticus, Tommasianus, obovatus, versicolor, Imperati, and many others, Hepaticas in various colours, blue of different tints, pink, single and double, and white. A very curious variety is one called variabilis, with blue, pale blue, and white flowers from the same root; it is one of the freest flowering varieties and also one of the earliest. Narcissus minimus, nivalis, Bulbocodium, Saxifraga luteo-purpurea and Burseriana, Snowdrops, Primulas, and many other spring flowers go to make up a very interesting show.

Clivia miniata superba.—Flowers of this received from Mr. E. H. Woodall remind us of the great improvement this race has undergone during the past ten years. Continental and English growers have both striven to increase the beauty of the flowers. We have now not only a brighter colour and increased variety of shades in the flowers, but they are borne well above the leaves, unlike the original type. Greenhouses should be brightened by the Clivias in early spring when they bloom, and even without flowers the plants are ornamental, the leaves being long, deep green, and handsome, especially when set off by a number of spikes carrying large heads of richly coloured flowers. Seeds are easily raised, and in a batch of seedlings we can hope to find some improvement on existing kinds, but the practice of giving names to every variety that seems

to have some claim to be considered new will only create a dislike for the whole race. No varietal name should be given to a new flower unless it is absolutely distinct, not showing a difference in degree only. Some of the named sorts are almost identical with the type, not worth a name, and not sufficiently distinct to justify it. The variety superba is well named, the flowers being much larger and brighter in colour than those of the usual forms of Clivia miniata.

Saxifraga Burseriana, now in full flower in the open air, is almost a month earlier than it was with us last year. It is the only one in this large and varied group to flower so early in spring, and when not disturbed by the birds it is one of the most delightful little pictures that can well be imagined. The little Moss-like cushions of bright green or glaucous leaves, the points sticking up like the spines of a young hedgehog, are surmounted with a profusion of the most lovely large white flowers. In some the flower-stems are green, in others purple, the latter variety being very conspicuous. Birds, in our case at any rate, are the greatest enemies, picking the petals quite away to get at the stamens. The margins are prettily frilled or crisped, but after the birds have had their way one might call them ragged. The plant may be increased by division.—K.

Eucalyptus globulus.—I herewith send you cones of Eucalyptus globulus from plants here (now stately trees). The seeds were sown in heat in March, 1882, and the seedlings planted out the following May. They have been growing in various situations since without the slightest protection. I know the cones (or whatever you may term them) have not perfected seeds, but is it not rather unusual for them to form even these so young? There were many (most of them) much larger than the enclosed. I should be glad to know if this Eucalyptus has fruited previously in many places in the British Isles.—JOHN ROBERTS, *Tany-bwlch, North Wales.*

Japanese Camellias from Twickenham.—We have received a gathering of Japanese Camellia flowers from Mr. W. Gordon, Twickenham. One named Iolanthe is remarkably pretty, the flower well shaped and bright rose in colour, broadly margined with clear white, the stamens rich golden yellow. It is a single flower, like the two beautiful kinds of which a coloured plate was given in *THE GARDEN* for Sept. 14, 1889. Those who have warm sheltered spots, and especially in the southern counties, should plant these Camellias amongst the early flowering shrubs, not forgetting also their value for the greenhouse. Some of the semi-double kinds are of rich beauty, especially one figured at the bottom of the plate referred to, and named Gerald Waller. The broad, handsome flower is broadly flaked and speckled with bright carmine.

Orchids at Kew.—There are several species and varieties of interest in bloom now in the Orchid house at Kew, consisting principally of Dendrobiums. D. Wardianum is the showiest, and there are some good forms, one with flowers much larger than usual. Also in full beauty are the charming crassinode, aureum, also known as heterocarpum, primum, and speciosum, a New Holland species introduced as far back as 1824. It has a dense and large raceme of creamy white flowers. The prettiest of all was a plant full of bloom of D. Ainsworthi, a lovely hybrid between D. nobile and aureum, the sweetly-scented flowers pure white save for a rich amaranth feathered centre to the lip. Cattleya Trianae was opening its flowers, also C. Percivaliana. Besides these, in full bloom were Goodera discolor, Saccolabium bellinum, Angreum sesquipedale, Vanda Amesiana, and a curious Mormodes with narrow sepals and petals named M. lineatum, Cypripediums of many kinds, and such old favourites as Coelogyne cristata.

Eriostemon cuspidatus.—The Eriostemon genus, containing about thirty species of tropical Australian evergreen greenhouse shrubs, is seldom represented in gardens by even a single member. We lose much by this neglect, as some of the Eriostemons have a rich beauty when the plants are well grown and in full flower. There is a

specimen of E. cuspidatus in the greenhouse at Kew smothered with the starry white flowers that cluster thickly at the end of the leafy shoots, and such a picture in the depth of winter might be seen in other gardens than Kew. There are few Eriostemons that are not worth some care, the flowers being white or pale pink and produced in the dull season. Much the same culture will suffice as for other hard-wooded Australian plants. E. cuspidatus was introduced as far back as 1824.

Bulbocodium ruthenicum is the name under which we received a charming spring bulb, now in full flower in a cold frame. It somewhat resembles the well-known Bulbocodium vernum, and we believe it was described as the variety versicolor by Spreng. It differs chiefly in having narrower leaves, the rich rosy purple flowers being the most important distinction between the two. It is a lovely bulb for spring flowering, either in the rock garden or border, dwarf in habit, and when planted in quantity making a very interesting group. Although perfectly hardy, it will, perhaps, be safer, as it blooms so early, to plant it in positions where it can be easily protected when necessary. Both the type and variety are useful for planting under trees of not over dense shade, and they flower earlier and receive just the protection they require when in bloom.

Colchicum crociflorum.—This is a most interesting, though perhaps less attractive Colchicum, than C. luteum. It is well named, as the flower resembles that of a Crocus. This must not be confounded with the C. crociflorum figured in the *Botanical Magazine*, t. 2673, and which is barely a variety of the well-known C. autumnale, or the C. crociflorum of Smyrna, which is a variety of the charming C. montanum. The present species is a native of Turkestan and the Ala Tan Mountains, and therefore perfectly hardy, usually flowering in the open air towards the end of January. There are many flowers to a bulb in the form of little bunches, the segments milk white, with a distinct purple band down the back, anthers yellow; the leaves are very short at flowering time, narrow, lance-shaped and bright green.

Colchicum luteum.—Notwithstanding the prevalence of orange and yellow Crocuses just now, this distinct and striking species of Colchicum is a most welcome addition to the spring bulb border. It is a native of the temperate region of the Western Himalayas, and is perfectly hardy in the open border. The flowers of all the other species of Colchicum are either purple or white, the majority of them appearing in autumn, and, so far as we know, the present plant is the only one with yellow flowers that has been yet introduced. It seems to have a wide range of distribution and may prove variable when its cultivation becomes more general. For the rockery or choice bulb border it is a gem, and however hard the winter may be, we have seen flowers early in January when the weather proved open for a few days. It increases apparently very slowly, and rarely ever ripens seed in the open with us.

Prunus Pissardi forced.—This Cherry Plum, introduced about eight years ago into Europe, is very beautiful as a forced shrub, and its distinct beauty when used in this way should induce those who have not thus grown it to do so. With slight protection and a little artificial heat bushes of it may be flowered in January or February, and the shoots studded with blush flowers, relieved by the purplish colour of the budding leaves, have a delightful beauty in the greenhouse, besides giving variety to the usual list of forced shrubs that lose much of their interest through constant repetition. It is placed amongst Camellias in the greenhouse at Kew, a happy way of bringing out the purple colouring of the young leaves and the almost pure white flowers. P. Pissardi has an interesting history. It was introduced into France by M. Pissard, head gardener to the Shah of Persia, who sent two plants of it to M. Carrière in 1882. It is said to be a favourite at Tauris, a town in Persia, where it grows wild, not only for its richly coloured leaves, but for the fruit, which is highly esteemed.

FLOWER GARDEN.

SEA HOLLIES.

NEARLY all the Sea Hollies (*Eryngiums*) are very beautiful and distinct as grown in the garden, and as planted in sea sand and stones, our native species, *E. maritimum*, becomes "a thing of beauty" all the summer, even although it is one of the most difficult to cultivate successfully. The best and easiest kinds to grow are, perhaps, *E. amethystinum*, *E. planum*, *E. giganteum* and *E. Olivierianum*, but there are many others easily raised from seeds sown in deep sandy soil where they are to grow and flower. A good group of *E. giganteum* is one of the most attractive objects one can have for summer and autumn effect, and generally seeds quite abundantly and sows itself freely in most

the central boss and placed in a vase without any water, they endure fresh and effective as indoor ornaments for weeks, even if not for months, together. My own experience is that all the *Eryngia* keep best without water in the vases or pots if cut at the right time, as above indicated. A good, bold mass or group of *E. Olivierianum* mixed with the blue Caucasian Comfrey is always much admired here every year. It grows near the roots of an Austrian Pine, which keeps the soil in a dry state, and this seems to suit the *Eryngium*, as it does not succeed well in deeper, richer, and moister parts of the garden. A bold group of this plant edged with *Acanthus* would be a noble feature in any garden. F. W. B.

Tulips.—In THE GARDEN, January 18 (p. 48), "D. K." asks the question as to the origin of such

totally abandoned. The newest and best collection of these Flemish late Tulips is at present in my possession. The Dutch collections of late Tulips at the end of the last and the beginning of the present century were formed from seedlings obtained in Holland and from the best collections in Flanders and in England. The few collections of late Tulips now existing here have originated in this way. Of many of the Tulips at present in cultivation the first growers or raisers may be possibly discovered, but it may be more difficult to obtain any accurate information about their parentage, as many raisers did not take notes about the parents of their seedlings, or considered this to be a secret which ought to be kept.—J. H. KRELAGE, *Haarlem*.

SEEDLINGS OF THE FLORIST TULIP.

TULIPS are very readily raised from seed, so easily, indeed, that it may even be done without intending it, and under a roughness of treatment that would seem specially designed to ensure a failure. Some years ago I had to leave the bulbs in one of my Tulip beds so long in the ground, that a quantity of chance fertilised pods were fully grown, but were some six weeks short of being ripe. As a preliminary to taking them up, I had rudely, with a stick, dashed out the brains of these adolescent pods, and thought no more about it till the spring, when I found countless seedlings, in their thread-like seed leaf, coming up over a wide area around the scene of slaughter, and some even upon the gravelled pathway. Of course, no one would think of thus tomahawking a valuable Tulip pod of high-bred seed, but that illustration will show that there is little fear of ripened Tulip seed not growing readily enough.

After much attention to raising seedling Tulips, I think it is best to sow the seed in October or November, when the old bulbs are planted. It will come up when they do, and any weaker seeds will gain advantage in an early sowing. I have not grown Tulip seeds in pots, boxes, or frames for some years now, and am certain that from first to last it does better in the open ground. Though very thin and scale-like, it has strength to push through half-an-inch of soil, and to find its way out in even rough and heavy ground. If, however, the soil is one that inevitably "lifts" with frost, the seed is safer when not sown till February. Kept, however, till late in spring, I have known it lie idle till the following January. It did so once when I sowed some at the end of April. The young plants are so hardy that, with the least coddling in a frame, or under any influence of stagnant damp, they are liable to collapse at the ground line, and this is extinction. Ventilation and drainage may seemingly be all sufficient, but the long, rounded seed-leaf is solid and succulent, and very apt to be drawn and weakened under any sensation of "protection."

Not only are Tulip seedlings happier in the open ground, but it is also a gain in every way to leave them there undisturbed till the summer of their third year. To this end the seed must be sown very thinly, by which I mean some 2 inches or 3 inches apart. By the third summer of their age, there will be quite a family of young bulbs of different sizes, and at various depths, on the spot where each seed originally came up; and a couple of the largest bulbs of each seedling may be selected for replanting, and all the others thrown away. Otherwise the raiser on any large scale will be simply over head and ears in young Tulip bulbs before the five to seven years are over, at which they attain their blooming size.



Eryngium Olivierianum.

soils in open sunny situations. It has silvery-fluted stems, glaucous serrate leaves and umbellate clusters of grey-blue flowers, surrounded by a whorl of spinose bracts, which look like frosted silver and are admirably adapted for cutting for winter decoration. It is one of the best of all the kinds for naturalising in barren spots of sand and stones in fully exposed situations where but few other things would succeed.

But the very best and highest coloured of all the *Eryngia* known to me is *E. Olivierianum*, a plant long grown in gardens under the, as it appears, erroneous name of *E. amethystinum*. This is a perennial of free habit and great beauty. Our illustration shows two or three of its flowering stalks, cut long and placed simply in a vase. Its stems and bracts are of a deep amethystine blue colour, with a metallic effect, and if cut when the first flowers open on

a Tulip as *T. vitellina*. I think I have given authentic information about the origin of that Tulip as well as of some others at p. 572, Vol. XXXVI. of THE GARDEN. It is very probable other similar sorts are European seedlings. The Tulip is one of the oldest cultivated plants. During nearly three centuries florists and amateurs have been trying to get new varieties and hybrids. The variability in this plant is very considerable, and irregularities are very frequent. The early single and double varieties of Tulips now in cultivation have, with the exception of a few older varieties, all originated during the last century in Holland, and yet at present novelties in these classes are obtained there. As Mr. Douglas states, a lot of new and excellent varieties have been obtained in England in recent times. On the Continent there have been obtained numerous excellent varieties, more particularly in the classes of bybloemens and roses in Belgium and French Flanders, where, however, their cultivation now is nearly

The more they are taken up, the worse they will be in over-production. Left alone, they are too cunning to send their bulbs (called "droppers") over deep, and it is an immense gain to induce them, if possible, to make a new bulb where the old one was, instead of half-a-dozen smaller ones in as many different places. They may adopt the more desirable course, if left at depths of their own choosing, but if carefully replanted, as we may think best, the old game of droppers goes merrily on again; and if under pot or box treatment there is a repetition, on only a slightly larger scale, of bulbs distorted among the crocks, or flattened against the bottom of the box.

I think a year, perhaps more, is gained by leaving seedling bulbs undisturbed for three years. At that time I take them up, when the foliage shows any sign of fading, and plant two of each seedling as if they were adult bulbs and in regular Tulip bed order, that is, in rows across the bed, each couple side by side, with 6 inches between them and the next pair, and 7 inches between the rows. There I leave them until in two or three years more very many of them will produce their maiden blooms. This is a time of indescribable interest, superior to that in any other florist flower, by virtue of the long suspense ending at last in the wonderful variety, and here and there the perfect beauty of the new faces which we have waited that long while to see.

At their first bloom all are judged, and those rejected with faults, such as a "poor shoulder," long "cup," pointed or flimsy petals, or impurity of base or of stamens by dark stains of an unsightly inky shade upon the white or yellow ground colour. Other faults are roughness of petal edges, or a "three-cock-hat" deportment, in which the three outer petals stand off in a triangular kind of way from the three inner ones, and probably turn over at the upper edges in a "dog's-eared," fashion. Or perhaps a flower will "quarter" through the petals being so narrow at the base, that when the flower expands, it cannot hold itself together. Any of these faults, in the self or breeder form of a seedling, are perpetuated in the rectified strains into which it may afterwards break. The body colour of the petals does not matter, so long as it is congruous to that of the base, that is, a self colour of rose or pink, or rose-scarlet, must have a white base colour; shades of lavender, lilac and violet should also have white for the base. If the base is yellow in these flowers, there will be two ground colours in mixture or confusion upon the rectified forms, and these tricolors, as they are called, are an inadmissible type. A yellow base should accompany self colours of reddish-brown, or of mahogany and rosewood shades, difficult to describe. If scarlet is associated with it, the scarlet should have a yellow tinge, as in vermillion, and not a rose-scarlet tint. White bases with the above colours would again result in tricolors.

Choice seedlings are named or numbered at their first bloom. They are almost sure at this time to be yet in the self or breeder state, and the flowers that break from each separate variety of breeder must always bear the breeder's maiden name. A Tulip never changes that in any after condition of life. However distinct or leading a break may be, it cannot lawfully bear a different name. It is only a particularly fine strain of the variety from which it is derived. There are aliases of some of our Tulips, and where they were given knowingly it is a misdemeanour—perhaps a florist felony. Some of the shabbiest breeder colours break into the most brilliant rectified flowers, and *vice versa*;

so, though a pretty breeder is fair to see, we do not despise the very plainest if they break well, and have good properties in purity, shape, and substance.

Purity of lineage in Tulip seedlings is of the utmost importance, and there should be no risk of seed having a white ground flower for one parent, and a yellow ground one for the other. Not only would such a cross result in dirty whites and washy yellows, but the markings would show confused colours from the different classes, and the brilliancy of their distinction would be lost. To keep the flowers from chance interference, a light puff of cotton wool may be gently laid over the stigmas; and if these are already discoloured in the least degree, some other agency than ours has fertilised the pod and such a flower should be passed over. Each section of the tripartite stigma is apparently connected with one of the three pairs of rows or columns of embryo seeds, and thus may have given rise to the fancy that three separate crosses could be made upon the same pod of seed. I often use several male parents for one pod, though not for this reason, because the slightest touch of pollen upon any single point of the stigmatic surface may result in a perfectly well filled pod. I have seen the point of one anther in contact effect this.

There is no perceptible strain upon the Tulip in seed-bearing, for the pod is fed by the fibres and foliage, which by the time that the petals fall have already perfected the new bulb. When the rest are taken up, this may quite safely be abstracted and stored like the rest, the stem with its foliage and growing pod being left to ripen, as if it were that of an annual. The seed-stem, however, must be carefully secured to a stick and great care taken not to injure the foliage or sever the connection with the fibres.

F. D. HORNER.

THE WEATHER PLANT A FAILURE.

THE *Kew Bulletin of Miscellaneous Information* for the present month contains a report made by Dr. Oliver, of University College, of a series of experiments carried out in the Jodrell Laboratory of the Royal Gardens last autumn on Herr Joseph Nowack's renowned weather plant, of whose marvellous properties as a forecaster of weather, earthquakes, and fire-damp we heard so much towards the close of the summer of 1888. The proprietor attended at Kew Gardens in person and superintended the experiments, he himself preparing the forecasts, and Dr. Oliver and Mr. Weiss making a close inspection of the movements of the plants and noting the actual weather experienced from day to day so as to check the correctness or otherwise of the predictions. The plant is the well-known tropical legume, *Abrus precatorius*, a shrubby climber originally a native of the East Indies, but now scattered to the Mauritius, West Indies, and other tropical countries. Dr. Oliver enters minutely into a description of the ingenious devices by which Herr Nowack professed to be able to ascertain what would occur at some future date, the weather forty-eight hours hence, and earthquake and fire-damp days or weeks hence anywhere up to a distance of many hundreds of miles; also an explanation of the mode of fixing on the day to which the forecasts referred (for it was found in practice not to be limited strictly to forty-eight hours); if the results were not favourable the final determination of the day for which the forecast was made out was only made after the event. In this way less than one-half the forecasts were two days ahead, the others being one, three, four days, &c. The dates for some of them were altered twice, so that every opportunity was afforded to select the most suitable day to agree with the forecasts. But, notwithstanding these unexampled facilities, Herr Nowack made a very poor show of what it was possible to attain in the

matter of forecasting anything. There were numerous changes in the weather during October, but although there were over 140 predictions, Dr. Oliver states that only one change was anticipated by Herr Nowack. The predictions of earthquakes, *schlagwetter* (fire-damp in coal mines), and the positions of areas of high and of low barometer within the limits of the Meteorological Office Daily Weather Charts (the last-mentioned idea having occurred to Herr Nowack since his arrival in England) were submitted to Mr. R. H. Scott, and were found to be as unsuccessful as the weather forecasts. Of nine earthquake predictions one was correct and eight failures; of nine *schlagwetter* two were correct, two nearly so, and five failures. Between fifty and sixty barometric charts were drawn up, and on placing them side by side with those prepared from the facts at the Meteorological Office "no accordance was found between the successive pairs of maps." The result of the inquiry, therefore, has been to show that the plant is not to be relied on as a substitute for the ordinary systems of weather predictions.

NEW MUSKS.

It is some sixty years since the popular Musk plant was introduced from the Colombia River, U.S.A., and with a rapidity not surprising it became deservedly popular. A few years ago Harrison's Musk was introduced, and by reason of its large and strikingly marked blossoms, it soon became a very valuable market plant, and it is largely grown for the purpose. One sometimes meets with what is regarded as a large-flowered form of the common Musk, but it appears to be pretty much a matter of high cultivation. Mr. Clapham did excellent work when he introduced his three new hybrid varieties about eight years ago. They are all true Musks; one of them, *M. moschatus grandiflorus*, is a robust growing variety like Harrison's, but quite distinct from it, the flowers large and of a pure yellow shade, of fine form, and produced with great freedom. It has been tried as a bedding plant in the same way as Harrison's, and found to answer equally well. There are some gardeners, perhaps, who are not aware what excellent bedding plants the Musks make when properly looked after.

Mr. Clapham's two other hybrids were very distinct, but they do not appear to have found their way into cultivation. They are both of a singularly dwarf and compact habit of growth. The most striking is named *ruber*. This does not grow more than 3 inches to 4 inches in height, the flowers large, and of a deep reddish buff colour, and freely produced. I think Mr. Clapham must have secured this hue of colour by crossing some old form with *M. cupreus*. I wonder this variety, so singularly distinct and attractive, has never been taken up and grown for market purposes. The flowers are quite as large, and perhaps a little larger, than those of Harrison's. I think charming small beds of this dwarf Musk could be made in the summer flower garden. The other kind is as dwarf, compact, and free as *ruber*, but with self-coloured flowers of a glowing rich yellow colour. These two dwarf varieties can be easily propagated by placing plants in a gentle heat in early spring, and then striking cuttings from the young growths sent up by them. Like Harrison's, neither of these three hybrids of Mr. Clapham produce seed, like the common Musk. Seed of the common Musk is not in such demand as it formerly was, probably because my surmise is a correct one—that the plant is not nearly so largely grown.

But the old-fashioned Musk is always well worthy of being grown in pots, using a light rich soil for the purpose. As soon as the plants begin to make growth in spring the old stools can be divided into small pieces, potted, and cuttings taken from them if stock is required. Placed on a slight hot-bed, they grow freely, and young stock can soon be had. The Musk can be grown in pots into large specimens if required. I have seen very fine examples of the old form, and also of Harrison's, produced at flower shows. I have also seen both employed for filling hanging baskets.

The principal points to be attended to in growing

specimens of Musk are to use a rich soil, give plenty of water when growing, a moderate amount of shade, and not to disturb the roots more than necessary during the season of growth after the first potting.

A class for a specimen Musk plant is often found in the schedules of country flower shows, and some good plants are staged, and I have seen prizes awarded to *Mimulus cardinalis* as a Musk. When the City Flower Show was held a few years ago in the gardens of Finsbury Circus, some excellent specimens of Musk (city grown) were shown, but the great difficulty was to get them into bloom. But that was not the fault of the cultivator so much as the conditions of atmosphere and light under which it is difficult to bloom Fuchsias and other plants that in a clearer and brighter atmosphere flower readily and freely. R. D.

English plant names.—This subject is very interesting, and is not exhaustively treated in any book I have seen. I think I can help "A. D." as to the two names he mentions. The Sweet William was dedicated to St. William of Rochester, and worn by pilgrims returning from his shrine. The Stock (or rather Stock Gillyflower) was the "Clove-scented flower" growing on a stock or woody stem, not from tufts of leaves, as the Carnation (or Gillyflower proper) does. I have been looking in vain for some one to point out that if *Anemone* (an undoubted Greek name) is derived from a lost word *nemos*, it is preceded by the "privative *a*," and therefore would mean "not growing in woods."—JUNIA.

Victoria Asters.—I look on this as the most useful of the many strains of Aster now in cultivation. I cannot see much beauty in the dwarf kinds that do not grow more than 7 inches or 8 inches in height. They are certainly effective when used for forming masses or lines of colour, and are favoured by those who require plants for small beds that give a large amount of bloom in a small space. But no one can pretend that they display any grace of growth, and to my mind they are in this respect on a level with the flat trained specimen Chrysanthemums that only show how much time and labour can be wasted. These dwarf Asters are not of much value for cutting from; whereas the Victoria strain gives fine bold blooms of excellent form, that can be cut with good long stalks. There is a great variety of colour in them, and some of the tints are very pleasing. The Victoria Asters are very useful for cutting, and should be grown where cut flowers are much in request. By raising a portion of the plants in warmth and planting out as soon as possible and making another sowing in the open air early in April a succession of bloom may be kept up for two months if autumn frosts are not too severe.—J. C. B.

Helleborus caucasicus.—This Christmas Rose does not seem to have attracted much attention, probably because such kinds as *maximus* and *angustifolius* are superior to it in size of bloom, but I am of opinion that in the course of time it will be much grown. It blooms in January just at a time when flowers are very scarce, and when the large-flowered forms, especially *maximus*, are past. What I admire in this Hellebore, however, is its sturdy appearance. The leaves are of a very dark green, and of such substance that they retain their freshness when other kinds show signs of adverse wintry weather. I fancy that this would prove to be the hardiest and most enduring of all the Christmas Roses, and might be made to do fairly well where this family of hardy flowers does not succeed so well as might be desired. The flowers are pure white under glass, but they should be gathered as soon as open, as they soon take on a pink tinge. Those who cultivate Christmas Roses in pots would find this kind useful on account of the succession it affords, and a well-grown plant of it is really ornamental for its foliage alone.—J. C. B.

Scoliopus Bigelowii is a curious and interesting Californian plant allied to *Trillium*, but without the beauty of this class. It is very dwarf and has a pair of pale green leaves, the brownish flowers appearing

one at a time, with sometimes as many as fifteen to twenty buds to keep up the succession. It was in bloom recently at Tottenham, and will please those who like curiosities. A moist shady border suits it.

Erythraea diffusa is a hardy perennial of a trailing habit, which we find of great use in furnishing our small rockery. During summer it is covered with numerous rosy pink flowers, making dainty and very attractive little patches. We find it very useful for trailing over stones and also on the level; indeed, it is almost as easily established as the well-known *Arenaria balearica*, though a stronger and larger growing plant. It may be increased by division to any extent.—K.

CAN THE HOLLYHOCK DISEASE BE CURED?

"D. T. F." does not (THE GARDEN, Jan. 18, p. 56) write hopefully of this troublesome and insidious pest, and when the disease has once laid firmly hold of the plants, as it seems to have done in the instance to which "D. T. F." alludes, it may be incurable. "D. T. F." seems to have obtained a few fresh plants as an addition to his collection. The disease, he says, appeared on those plants, and "for a few weeks it confined itself to the strange strains." Did "D. T. F." take any pains to arrest the progress of the fungoid growth in its early stages? He does not say, merely remarking that it spread rapidly (as it was sure to do if let alone) over the whole collection. I was in a similar dilemma about seven years ago. I obtained three dozen of the best varieties I could get from the north of England warranted clean, and as far as I could see they had no disease upon them. This was in the autumn, but after Christmas, when the plants made new leaves in the frames where they were placed, the disease appeared here and there. As soon as it was observed I cut off every affected leaf with the stalks and burned them, dipping the plants at the same time in a solution of soft soap and flowers of sulphur. The leaves require a good sousing in the water, as the downy substance underneath where the disease is prevents the water from thoroughly saturating them. Knowing the character of the parasite I was dealing with, I was not at all sure that it had been quite destroyed. It did appear again and again, so that it was not until after the third dipping and picking off of the affected leaves that it entirely disappeared. The plants were set out in the open garden in due course, and all of them flowered well, no disease appearing until the month of September, when I found it on one plant. This was dug up at once, cleaned, and isolated in another part of the garden. The question may arise, How did it happen that the disease disappeared for six months to appear again on one specimen? I can only account for this by supposing that it came from Marsh Mallows, which one of the gardeners found in a diseased state at half a mile distant from the garden. If he touched the leaves of the Mallows he might have brought the germs that way, or they might have been borne by the wind. I had some trouble with it for two or three seasons, but I never failed to have a fair bloom. Ultimately, I left the plants out of doors all the winter, and lost nearly half of them, but those that remain may be the hardiest, and they showed no disease whatever last season. They are now in pots and we will at once take as many cuttings as we can get and root them under hand-glasses in the propagating house. My experience on this matter would lead me to suggest the importance of attacking the disease as I have advised on its first appearance. Let all affected leaves be removed and the plants soused overhead in the soft soap and sulphur solution. "D. T. F." remarks that "In some sites and soils the fell destroyer's power is held in check through influences and forces that are absent in other places." I can say nothing on this point, but I do believe that over-propagation in warm houses or stifling hotbeds in the early spring months weakens the plants and causes them to be more prone to the attacks of any kind of disease. It may also be well to try whether it would not be possible to get up a vigorous stock of plants from seeds saved from the finest varieties. About fifty per cent. of them would be as good as the parents, and some amongst them might be

better, but for making a good effect in the flower garden, the formation of the individual flowers is not of primary importance, although the critical florist must have perfection in detail. I have grown Hollyhocks and judged them at flower shows for a quarter of a century and more, but never saw better flowers than were exhibited at Newcastle-upon-Tyne autumn exhibition last year. So the cultivation of the Hollyhock is not yet hopeless in England. J. DOUGLAS.

KITCHEN GARDEN.

EARLY PEAS.

MUCH importance is still attached to the earliest rows of Peas in the open air, though perhaps not quite so much as of old or before so many vegetables were grown under glass. In this, as in various other cases, it is possible to be over-zealous, especially in the matter of sowing the seeds. Few succeed in preserving good rows of late autumn-raised Peas, nor is it profitable to sow seed very early in the year, especially when the ground is in such a miserable plight as it is here this season. Not only shall we not sow any Peas in the open during January, but it is doubtful if they can be got in properly much before the end of February. When the state of the ground permits, about the middle of February is the best time to make the first sowing, nothing, all things considered, being gained by sowing earlier. Rather, however, than to either puddle in the seeds or wait till the end of February, or later, for the ground to become drier, a little extra trouble will be taken in raising a sufficiency of plants under glass for either two long rows, or a number of shorter rows equal to a length of 26 yards. Before these are transferred to the open yet another row of plants will be similarly raised if the state of the ground prevents seed being sown before the end of February. This raising of plants under glass is now a very common practice, various methods being resorted to. I have tried several, including sowing in turves, troughs, and small pots, but much prefer ordinary bedding *Pelargonium* boxes. These, with a layer of crocks in the bottom to prevent the roots clinging to the wood, are filled with fine light soil, nearly a quart each of two or three varieties being somewhat thickly sown in these. This being done before the month of January is out, or very early in February, there is no need to place the boxes in heat; in fact, the plants will be much sturdier and ready for turning out quite soon enough if they are raised in a late Peach house or cold pit.

Opinions vary considerably as to the merits of the various early varieties or so-called varieties of early Peas, but after having tried the greater portion I can truthfully assert that the difference, if any, is very slight, the gain of a few days in favour of any one of them being determined by circumstances. All the extra early round-seeded forms, these including Sangster's No. 1, Daniel O'Rourke, Taber's Perfection, Ringleader, Early Selected, First Crop, Dickson's First and Best, Dillistone's Early, and Early Rival might be, and very often are, drawn from two bags only, and though two forms are comprised in the above, there is very little difference in the character of the crops. We sow one of them, William I., and Chelsea Gem if procurable, and, failing this, we had recourse last season to William Hurst, and a very good substitute it proved. Naturally the round-seeded form is the earlier by about a week, but the dwarf variety being more favoured is the earlier as a rule, as well as far better in point of quality. William I. is

the most profitable of all, and the quality is fairly good, though inferior to that of the Wrinkled Marrows, which closely succeed it. We invariably plant one long row of William I. and take the first favourable opportunity of sowing another, the latter keeping up the supply till Telephone, the best second early variety, is available.

Next a few words as to the best positions for early Peas. Gardeners, as a rule, favour the sunny wall borders, but I have great doubts about the wisdom of thus utilising space that might well be turned to a better account. As a rule, the London markets are well supplied with early Peas a few days in advance of the generality of private places, and yet the crops are grown in the open fields, the growers having no advantage with regard to varieties, Sangster's No. 1 and William I. being still very largely sown, usually from the beginning to the middle of February. The Peas being grown without stakes and on firm, good ground, are predisposed to early flowering, but transplanting in any way has just the same effect, an early if somewhat light crop being more profitable than a heavier weight of pods from four days to a week later on. We prefer to put out the dwarf early variety on a light and well sheltered border where the plants receive much additional protection, while one long row is grown on a flat-topped ridge of good soil at the foot of a south wall. These much favoured dwarf varieties yield about three good gatherings in close succession to those obtained from pit-grown plants, but the quality is so good that it quite spoils the palate for the dry round-seeded forms, and if William I. is ready early enough and we can avoid sending the poor Peas to the table, we always do so.

Early Peas do not require either a very rich or extra deep root-run, warmth rather than strong food and moisture being principally needed. Heavy or bad working ground ought to have a dressing of comparatively fresh manure (not the poor, lifeless stuff too often forthcoming in the shape of old hotbed material) and be roughly laid up very early in the winter. Very loose, light ground, as a rule, is best left unmanured and undug till just before it is cropped, as it keeps drier and warmer in a more solid, unbroken state. If from any cause the ground cannot be got into a free, working condition, then ought a narrow trench to be opened, either for seed sowing or for plants, this being filled with good light soil from the frame ground, as it is labour wasted to sow or plant in very lumpy ground. It is advisable to sow or plant early Peas more thickly than the later varieties, a quick if short crop being most to be desired. Fully one pint of seed ought to be sown in a drill 40 feet long, and be covered with 2 inches of fine light soil. We also plant thickly, taking great pains with the work. A rather deep trench is opened, and after the soil has been shaken away the roots are dropped to their full length into the trench and lightly fixed in the soil. Potash ought to abound in soil intended for Peas, and I find excellent results attend a free addition of wood ashes and burnt refuse to the fine soil placed in the trenches. The dwarf sorts may be disposed in rows 18 inches apart, and for the taller growing, round-seeded varieties and William I. a distance of 42 inches is not too much, especially if Spinach is sown between. The planting out of Peas raised under glass should be done late in March or as early in April as the state of the ground permits. They may be at once lightly moulded up, and should have short Fir branches placed against them on both sides, this both protecting them somewhat and also serving to

keep them upright. Only in a very dry May is there any necessity to water or give liquid manure, but if the haulm is topped soon after the first flowers are set the pods will fill up more rapidly.

I. M. H.

THE VEGETABLE SUPPLY.

I AM afraid the market growers in the neighbourhood of all southern towns, at any rate, are having but a poor time of it. So very abundant are nearly all kinds of common vegetables, that it hardly pays to market them, and in many instances the growers would have actually been better off not to have sent much that is perishable to the markets. The great increase in the number of allotment gardens in the vicinity of the smaller towns especially has not been without its effect upon the regular market growers, and the latter are likely to feel the pinch still harder as time rolls on. I frequently pass by several large fields divided into allotments, and am really surprised to see so much green food spoiling on the ground. The conclusion I have arrived at is that either the working classes do not eat half enough vegetables, or else that they are for a time capable of making their land grow many more than they can either use or dispose of to advantage. It may be, both surmises are to a certain extent correct, and both will perhaps be modified in time. Whether or not the lower orders will consume more green food as they become educated up to it remains to be proved, but as far as the heavy crops are concerned I venture to think the cultivators will not long be troubled with these unless the owner of the ground is under an obligation to annually supply so much manure, solid or otherwise, to each holder. As far as can be seen of the allotment holders of rather long standing, they use little or no manure, and have perforce to be content with very moderate crops. It is those allotments newly broken up or cut out of superior pasture land that are so productive, and already we hear complaints of working men quitting exhausted ground for that which will yield much better returns at a very little extra outlay for about three seasons. In time it will be quite possible for allotment holders really to have the best portion of the trade in common vegetables in their own hands, always supposing they go intelligently and perseveringly to work. It is to be hoped when they have driven the regular market growers out of the markets they will continue to grow and sell abundance of vegetables.

Just at present the superabundance of Celery, Brussels Sprouts, Cabbage, Kale, and roots generally greatly militates against all parties but the actual consumers, and even the latter do not seem happy with it all. Market growers and salesmen dread a mild winter, and with good reason too, as it appears fewer vegetables are eaten in mild weather than when it is severe. At present Brussels Sprouts, Savoy, and such like will hardly sell at any price, but if a severe frost happens to destroy these as well as Broccoli in a wholesale manner, then will there be a great demand for sprouting Broccoli long before it is fit for use, Thousand-headed Kale, and similarly coarse sheep food. Fabulous prices, or somewhere about £75 per acre, have during a severe winter been given for Thousand-headed Kale, which at the present no one would look at. Market growers are holding back their supplies of green vegetables in the hope that a severe frost will shortly destroy other people's crops and not theirs, and it may be that something of the sort will happen before the month of February is past. The Brassica tribe generally is in a soft, over-luxuriant state, and the frosts experienced in December crippled the tops of Scotch Kale, Brussels Sprouts, and Broccoli very much more than is often the case.

Soup vegetables again are a dead loss this winter. Onions ripened none too well and these are growing out badly, while immense heaps of Carrots will, unless a change soon takes place, be given to horses, cattle, or pigs. Turnips are generally left in the fields, and if not wanted now the tops may prove remunerative, as these may come in when other greens

are either bolted or rotten. Directly a sharp frost sets in there is a great demand for the three kinds just named, those who buy largely for the markets speculating briskly in them. Not, however, till the various soup kitchens in large towns are in full swing is there any prospect of improvement in the root trade. Celery again does not sell so well as usual, and seeing that many of the tops have been injured by frost, the stalks will not keep long, and the crop will be a losing one. Altogether the outlook is far from being hopeful as far as the growers are concerned.

W. IGGULDEN.

FLOWERS IN THE KITCHEN GARDEN.

A KITCHEN garden ought to be a place of pleasure as well as profit, and to make it such one must devise a means of exciting in those to whom the garden belongs a love for the beautiful, by a happy arrangement of flowers and fruits in this department, as well as by the growing of the necessary vegetables. I will give one instance of how this was accomplished. Some few years ago a north countryman entered upon his duties as "head" in a nobleman's garden in one of the northern counties in England where the kitchen garden proper consisted of about four acres of ground, walled in, and intersected with narrow, badly-made paths in all directions. In some places there was no margin to show where the soil ended and the walk began; in others the fruit trees and bushes almost closed up even these "walks," if such they may be called, seeing that they consisted merely of levelled soil covered with a sprinkling of gravel shaped out by Box edgings of which only the remnants remained. The wall trees possessed spurs quite a yard long, and these, being very numerous, gave one the idea that the object had been to screen the wall, not to obtain a supply of fruit. Stones were heaped up in one quarter, manure in another, and carelessness and neglect showed themselves in every direction in which the eye turned. The staff and expenditure were limited, and others had failed in the attempt to regenerate the place. The family had, up till now, seldom visited this portion of their garden, and the gardener thought, and rightly, that the first step in the right direction would be to make the garden a place where they could walk with pleasure in all weathers. He set about the alteration of the principal walks, widening and remaking them in the following manner:—

Grass verges, 15 inches wide, were laid down to form the sides, and the soil between them was dug out to a depth of 18 inches in the centre, from which point it gradually sloped towards the edges. In the centre of this was placed a 4-inch drain pipe, which was surrounded with large stones; then followed several layers of variously-sized stones and gravel, and the whole was finished with a coating of gravel that had been passed through a quarter-inch sieve and from which all sand had been sifted. After repeated "rolling," the walks became quite solid and were dry at all seasons. Running parallel with these walks, borders 6 feet wide were made on both sides, and filled with such hardy perennials as could be got in the neighbourhood, with the addition of clumps of summer-flowering Chrysanthemums, Gladioli, Roses, single Dahlias, Sun-flowers, sweet-scented Geraniums, Scabious, Stocks, Heliotrope, Centranthus, &c., with a front edging of blue Lobelia, which contrasted well with the Grass, and the whole backed by a row of Pear trees screening the vegetable ground. By the beginning of August many of the plants were displaying a wealth of bloom, and when the family returned from London and saw the alterations that had been effected during their absence, they showed their unmistakable appreciation by encouraging the extension of improvements to other parts of the garden.

Having thus secured the key to success—the confidence of his employers—the gardener was enabled to proceed with other useful and necessary changes, only one of which (as it added to the beauty of the place) I shall in the meantime mention.

The principal walks, above referred to, led to a stone and cement basin in the centre of the garden,

which had no doubt been placed there some hundred years ago for the purpose of supplying water to the neighbouring plants; but time had told its tale on the curbstone, as much of it had crumbled to pieces, and the stagnant water in the basin, combined with a heterogeneous collection of rubbish—the accumulation of years—gave out a most disagreeable odour during hot weather. This unpleasant circumstance led to the clearing out of the basin, and as a supply of water at high pressure passed within a few feet of it, no difficulty was experienced in attaching an inch lead pipe to the main, with a stop-cock between it and the basin. The inch pipe was then conducted through a gap in the curbstone down the side of the basin, along the bottom to the centre, and then raised perpendicularly with a jet fitting, standing 2 inches above what would be the water level, and around this was piled a rustic pillar of stones to keep it in its position. An overflow was also effected through a gap in the curbstone and led into a drain in one of the walks. The deficiencies in the curbstone were made up with clay, and thus a good foundation procured for a Grass verge, which in due course was laid down.

When the renovations were completed, the water was allowed to flow in, and the miniature fountain threw up its sparkling spray, the height of which could, of course, be regulated at pleasure, the maximum being 20 feet. It is easily seen that this enhanced greatly the beauty of the kitchen garden, and was also very useful in dry weather for watering. I have noticed that these basins or tanks are very common in English gardens and are occasionally in the dilapidated condition I have described. Might not similar improvements be made with advantage in many places, and even if a water jet is not desired, at any rate a supply of fresh running water substituted for a filthy accumulation.

R. C. H.

Seakale Lily White.—Of the superiority of this comparatively little-grown form over that most generally forced there can be no doubt. One of the first to recognise its value was my old and much-respected friend, the late Mr. A. Barker, who had a fine breadth of it at Hindlip. Recently, at Canford Manor, Wimborne, I noticed an extra large quarter of ground entirely devoted to it, while large quantities were being forced in the Mushroom houses. It differs from the old form in that the points of the forced shoots or partially expanded leaves have not a tint of either purple or green in them, but instead of this are creamy or Lily white. In point of quality it is also considered superior, and being equally as easy of culture as the old form, ought everywhere to rapidly replace the latter.—I.

Pea Duke of Albany.—So far as my experience is concerned, Duke of Albany is one of the best of mid-season Peas of recent introduction. In the season 1887, a notably dry summer, and one during which Peas suffered to some considerable extent in most parts of the country, I had several long rows of it under my charge in a northern garden. Other varieties by the side of it were attacked with mildew, owing no doubt to the prolonged drought, but Duke of Albany escaped, and produced a magnificent crop of well filled pods. The Peas, moreover, were of excellent flavour. It would be interesting to hear what others have to say on the matter.—C. L.

Brussels Sprouts.—"Cambrian" (p. 59) recommends the sowing of Brussels Sprouts in April for general purposes. Perhaps this time may be soon enough for Wales and the south of England, where climatic influences would tend to their rapid growth, but if adopted on the heavy loams of Yorkshire the crop would prove a comparative failure even in the most favourable seasons. We sow our Brussels Sprouts in boxes about the middle of February and raise them in gentle heat under glass, and by the beginning of April they are ready for pricking out into cold frames, when they make good plants by the end of May, and are then planted out on trenched ground well enriched with manure. By this means only are we enabled to produce a satisfactory yield of this indispensable

vegetable. Our plants usually attain the size of something like 2½ feet in height and are furnished with large and solid sprouts two-thirds of their length. These sprouts, too, remain good as far into the spring as any I have seen on plants raised out of doors.—J. R.

ORCHIDS.

ANGRÆCUM SESQUIPEDALE.

THE *Angræcum* genus was once only regarded as of interest to the botanist, few of the species being cultivated as ornamental plants, but when Mr. Ellis brought *A. sesquipedale* home from Madagascar and established it in his garden at Hoddesdon, where it flowered in 1857, upwards of thirty years ago, a new interest sprang up in the genus. To the Rev. Mr. Ellis is, therefore, due the fact of introducing it to

as a genus is not now, however, looked upon as containing botanical curiosities only, for such species as *A. citratum*, *A. Sanderianum*, *A. Ellisi*, *A. Kotschy* (here figured), *A. Scottianum*, and *A. Chaillanum* have completely changed the aspect of affairs, not to name many other species which are now grown and looked upon as objects of great beauty. A flower of *A. sesquipedale* before me does not, however, come up to its true character, as its spur measures only a foot in length; the sepals and petals and the lip are ivory white, thick, and the spur green; this when contrasted with its blue-green distichous leaves forms a splendid picture. The plant would appear, by the quantities which have been imported by the Messrs. Low and Co., of Clapton, to be much more common than Mr. Ellis found it, for there are enough fine plants in the Clapton Nurseries to furnish half the Orchid establishments in the country.



Angræcum Kotschy.

Europe in a living state, but Du Petit Thouars should have the credit of its first discovery, he having made the plant known nearly seventy years ago. Mr. Ellis speaks of this plant upon several occasions in his book of travels, and says "he only found it in the lower and hotter districts in the island, that it does not grow in the moist and thickly wooded parts, but generally on straggling trees along the borders of the forests, and most frequently upon the trunks and branches of thinly-leaved trees;" from this it may be inferred that the plants enjoy exposure to sun and light, and in such positions I saw it recently doing splendidly in Mr. Jacob's garden at Cheam Park. It is one of the most beautiful plants of this section of Orchids, and certainly by far the finest species of this genus not only in cultivation, but the finest yet known. Perhaps some of the forests through which Stanley has recently travelled may yield some even finer than this. *Angræcum*

Should something startling in the way of colour occur, it will lead to the *Angræcums* becoming the rage; the number of species is large, and from the small-flowered *A. hyaloides* to the large-flowered *A. sesquipedale* there are many changes. These plants are all remarkable for the length of tail which is developed from the base of the lip, and which adds greatly to the effect produced. *A. sesquipedale* may be reckoned a plant of considerable beauty even without flowers, the leaves being broadly oblong, imbricating, and two-lobed at the points; they are arranged in a two-ranked fashion (distichous) and are of a rich greenish blue hue, so that it forms a conspicuous object in the house when not in flower. There have been some differences of opinion about these plants, for as some flower before Christmas, lasting until the present time or later, so another form opens its blooms in the late spring months, thus lasting until the early summer. It has been said

that the spring-blooming kind is a better form than the winter bloomer, and that the varieties are distinct, but after watching them closely I am of opinion that there is nothing to distinguish one from the other. Like *Aerides* and *Vandas*, *Angraecums* have no pseudo-bulbs, and the stems will not bear too severe a drying, and therefore, although they should receive a very limited quantity of water during the winter months, they should never be allowed to suffer. A slight atmospheric moisture should also be about them. The drainage should be good, and I think the best results are obtained from pot culture. W. H. GOWER.

Masdevallia Schröderiana.—This very rare species, originally introduced by Mr. Sander, is now flowering in Mr. Measures' garden at Camberwell. The growth of the plant much resembles that of *M. Reichenbachiana*, but its flowers are quite distinct, being of good size, beautifully coloured, and very showy. They stand well above the foliage, the three tail-like points of the sepals being yellow, whilst the outer portion is of a beautiful bright amethyst-purple, the centre white, and the throat rich orange-yellow. It is a lovely and beautiful species, and is very rare.

Orchid flowers from Cheam Park.—Mr. May, gardener to Mr. Jacomb, sends me a beautiful box of flowers. Among them I note particularly *Phalaenopsis Stuartiana*, a beautiful variety, profusely and richly spotted; also some flowers of what I consider is *P. gloriosa*, which was figured in THE GARDEN, April 20, 1889. There also came a fine variety of *P. Schilleriana* and many charming forms of *O. Alexandræ*, fine flowers, of good substance and beautifully fringed; and flowers of *Dendrobium Ainsworthi* and *Odontoglossum Hunnewellianum*, a pretty plant. This species was introduced by Mr. Sander, of St. Albans.—W. H. G.

Cypripedium Sallieri and the variety Hyeaenum.—This plant was supposed to have been raised at the Chateau du Val, in France, the residence of Madame Fould. Last season when noticing a plant of this form which flowered in Mr. Shuttleworth's collection, and which he received from Burmah as a small seedling plant, M. Sallier wrote to say that the plant named after him he had no reason to suppose was a hybrid. Later on Mr. J. Bowring, of Forest Farm, near Windsor, raised a seedling which was considered like it. Is not this the form known as *Hyeaenum*, which is even more beautiful than *Sallieri*?—G.

Lælia peduncularis.—The Flor de Jesus, so called by the dwellers in Guatemala, where it is a much prized plant, was in our collections fifty years ago, and in my younger days it had become a somewhat common plant, but it was considered a difficult plant to grow. This arose, I have no doubt, from overloading its roots with soil, as I have found out since that it thrives best with the tiniest bit of soil about it. Of late years, however, the plant has become scarce, and I was agreeably surprised to find in an amateur's collection a plant bearing seven racemes of its beautiful blooms, which are rosy purple. The inside of the side lobes is marked with deep crimson, in front of which is a faint tinge of yellow or yellowish white.—G.

Saccolabium bellinum.—So far as regards the beauty of its individual flowers this species must be given the first place amongst *Saccolabiums*. It belongs to that section of the genus which is distinguished by having the flowers in a corymb—a group to which the beautiful *S. bigibbum* also belongs. The number of flowers on a scape is usually four or five and rarely exceeds seven. They are about $1\frac{1}{2}$ inches across, with fleshy oblong sepals and petals of a creamy yellow, thickly blotched with dark brown. The lip is very remarkable in structure; the basal part is in the form of a pouch, from the margin of which the spreading front portion projects. This is covered with white, thread-like processes, except on the centre, where there is a patch of yellow. The

saccate portion is white spotted with purple inside. The species is a native of Burmah, whence it was introduced five or six years ago. It is best grown in Sphagnum alone, and prefers to be suspended near the glass in the East Indian house; the baskets should be small and well drained.—W. B.

ORCHIDS AT BRISTOL.

ONE of the most interesting collections of Orchids in Bristol is that of Mr. Crispin in Chester Park. In the early part of January a number of species and varieties were in bloom; and amongst them a large healthy mass of *Lælia crispa* at once claimed attention, not only on account of its fine vigorous condition, but from the fact of its carrying a strong spike bearing four fully expanded flowers. The plant is kept as near the glass as possible in the East Indian house and deluged with water, except for a short time after the usual season of flowering, this treatment differing from that commonly accorded to *Lælias* and *Cattleyas*, for which the process of drying off for a protracted period is deemed so necessary. After flowering in July last, a number of bulbs subsequently produced spikes that showed no appearance of sheaths, and this Orchid has continued to throw flower-spikes up to the present time, while the growth has greatly increased. *Dendrobium speciosum*, which was carrying eleven stout racemes of large well-reflexed flowers, is an old introduction. Some pieces of *Lælia anceps* and *L. albida*, relieved by the more neutral tints of *Oncidium leopardinum*, with a light graceful spike here and there of the free-flowering *Oncidium flexuosum*, and a number of smaller specimens, such as *Cattleya Percivaliana*, *Cattleya Walkeriana*, *Oncidium Papilio*, and others, formed a bright picture. In the intermediate house *Phajus grandifolius* was throwing up a crowd of its noble spikes, while depending from the roof, *Dendrobiums*, among them being *D. heterocarpum*, *D. crassinode*, and *D. nobile*, in various stages of flower, added to the brightness of the structure. In the cool house the *Odontoglossums*, including *O. Pescatorei*, *O. Rossi*, and *O. Cervantesi*, with several others, were bearing strong flower-spikes.

Mr. Crispin's success is undoubtedly in part due to the admirable construction of his houses, these having been built in a way to meet the requirements of each section, and include East Indian, intermediate, and cool houses. In the two former a portion of the pipes is laid in open brickwork water tanks, and the pipes being fitted with the necessary valves together with the use of a hygrometer in each house the atmosphere is completely under command. Hot-water pipes of small diameter are affixed to the roof. They prevent drip, which proves so destructive to young growth. But with Mr. Crispin this is practically unknown, as latterly neither syringe nor watering-pot have been used, sufficient moisture being quickly raised by evaporation, and all watering is done more effectually by plunging the plants in a tank of tepid water. C. M.

* * With these notes were received spikes of *Lælia anceps* and *Cattleya crispa*, both showing that the plants have been thoroughly well grown and agreeing with what is written of Mr. Crispin's collection.—ED.

SHORT NOTES.—ORCHIDS.

Cypripedium Sedeni rubicundum is a very brilliant and free-flowering form of this hybrid, which I lately noted. It is one of those bright-coloured forms which are so desirable in collections of these plants, and which are always welcome.—G.

Lælia acuminata.—This, sometimes called a white variety of *Lælia peduncularis*, I lately saw in bloom. It bears quite a quantity of spikes, the flowers on which, however, were past their best, and certainly much smaller than those of the very fine form received a short time ago from Mr. Cypher, gardener to Mrs. Studd, at Bath. The colours are, however, the same, being white with a deep crimson eye, and just a stain of yellow in front.—G.

Cypripedium Carrieri.—This is a beautiful plant, being a cross between *C. superbiens* and *C.*

venustum. It is peculiar in showing the preponderance of its first-named parent upon the flower; the sepals and petals are white, veined with green; the petals are reddish-purple at the tips, and the large greenish lip is veined with purple; its foliage is tessellated much in the same way as that of *venustum*. It is a French hybrid of great beauty.—W. H. G.

Dendrobium transparens.—This is a very pretty old species which has not found much favour with the plant-growing public, but it really deserves every attention, its flowers being very elegant and freely produced. The flowers are numerous, each about $1\frac{1}{2}$ inches across, white, more or less flushed with rosy mauve or rosy lilac, and stained at the base with a large blood-coloured blotch. It comes from Northern India at some 5000 feet elevation.

Odontoglossum Alexandræ flaveolum (W. H.).—This is no doubt the variety of which I have received fine flowers. The forms of this, which I have from time to time seen, and in which the sepals and petals have been of a dirty white or straw colour, I consider of no value. In the variety before me the sepals and petals are of a good shade of yellow and the lip is of a deeper yellow, bearing numerous radiating lines about the crest of a reddish crimson, and one or two spots of rich crimson on the lip. In every other respect but colour it may be reckoned a good form of *Alexandræ*. This variety is well deserving of all care, as the form is somewhat rare, especially such a richly coloured one as the one now before me.

Cypripedium Atys.—This is now flowering in Mr. Measures' collection at Camberwell. It is the first time I have seen this plant in bloom, and it occurred to me that it was exactly like *C. Fitchianum*, sent out by Mr. Williams in 1888. This, Mr. Williams, in the eighth volume of the Album, page 350, says is a cross between *C. Hookeræ* and *C. barbatum*; the foliage is conspicuously tessellated with deep olive-green on a greyish ground, and the flowers are somewhat similar to those of *Hookeræ*, saving that they are less beautiful and have a very large pouch for the size of the flower. This description will apply to *Atys* and *C. Fitchianum*, and if anyone can point out any distinctions, I should be glad to know them; if not, *C. Atys* must be considered a synonym of *C. Fitchianum*.—W.

A new Odontoglossum.—This is a new species received from Mr. Broome, Llandudno. The stem is very flexuose, and carries a raceme of about fourteen flowers, each measuring about an inch and a half across, sepals and petals spreading, the former greenish yellow, heavily blotched with irregular shaped spots of dull chocolate; the ground colour of the petals at the base is white, on which are three narrow parallel lines of reddish-brown, the apical portion passing into greenish-yellow margined with dull chocolate; lip, pure white, spotted with chestnut, and having a very long and full beard, composed of long, thread-like appendages, which grow out of the crest and disc; these are white and completely cover the lip, giving the flower a very curious and shaggy appearance. I am told the plant comes from Burmah, which, of course, is an error, as no *Odontoglossums* are found out of America, and so for a time perhaps its locality will remain doubtful. It is a most peculiar flower, and collectors should be on the look out for this novelty.—G.

Plant shelters.—Those of your readers who like out-of-the-way devices in gardens, as I do, may care to hear of the results from our little mound caves, of which I wrote in THE GARDEN, December 18, 1886 (p. 563), and will, I hope, experiment in the same direction. The first caves were built with two small pieces of stone, so after showing that the greenhouse Ferns, such as *Adiantum cuneatum* and *Pteris serrulata*, would stand the winter, the roof began to drop in. These were planted in February, 1885. We made a new series of mound caves and planted them in October, 1887. These had one large stone for each side, back, and roof; they have stood well, and the greenhouse Ferns in them are now green, and both have seedlings all along the sides of the stone, showing that

they are quite at home. In another set of caves *Cyclamen macrophyllum* is thriving, and a number of different varieties of *Adiantums* are planted, but have not yet had time to establish themselves. I have tried a good many bulbs and tender Primroses, but these failed, I suppose from insufficient light. There must, I think, be many plants which would succeed as well as in a greenhouse. In very cold weather a slab or slate may be used across the mouth of the caves.—GEORGE F. WILSON, *Heatherbank, Weybridge.*

THE WEEK'S WORK.

PLANT HOUSES.

FERNS.—Any injury which the roots of Ferns suffer tends to weaken the growth of the plants for a time, and if any top-growth is being made when the roots are interfered with, the young fronds become crippled. Even the removal of the old drainage material, consequent on the plants being repotted, affects them in the way named if there is any growth going on. During winter most species are quite at rest, whilst others that may be said to never be wholly dormant are the least active. The best time for repotting is towards the end of the dormant season, just before the new growth begins to move. This, under ordinary treatment, usually takes place from the middle to the end of the present month, according to the amount of heat the plants receive. The great difference that there is in the size which the various species of Ferns now in cultivation attain, and also the difference that exists in the character of their growth, naturally require the exercise of judgment in the amount of root-room that is given to the respective kinds. Ferns will do with much less root-room than most things, provided the growth is sufficiently supported with manure water during the spring and summer whilst the fronds are in course of formation.

TREE SPECIES.—Even the largest of the Tree species, such as the *Dicksonias*, *Cibotiums*, and *Cyatheas*, will do with much smaller pots or tubs than are often used. Too much root-room causes the fronds of these large growing species to attain double the size necessary. Big fronds crowd out or smother the smaller kinds, which are equally as beautiful and interesting as the large growers. For the same reason the planting out of the large growers in houses, where with the aid of rockwork a natural effect is sought, is objectionable, as by confining the roots of the Tree Ferns and other large kinds in pots or tubs and plunging them, a much better result is attained. In this way the big plants can have their positions altered from time to time, and double the number of the smaller kinds can be kept in good condition through the large sorts not reaching an unmanageable size.

SOIL.—Ferns do not like shaking out with a view to giving them new soil in the way that is practised with many plants; consequently this should not be done, except when the material happens to get sour and unsuitable for the roots, or in the case of such kinds as it may be desirable to break up where an increase of stock is wanted. For this reason the material they are potted in should be of a description that may be expected to keep in a healthy porous state for an indefinite time. Brown peat containing a full amount of fibrous matter answers for the majority of Ferns; for though most of them will grow in loam, they do not attain the dark green colour in it which they do in peat. In addition to the sand which is mixed with the potting soils used for most things, a good sprinkling of charcoal, potsherds, or coal cinders broken to the size of horse beans should be added. Soil composed of these materials will keep in right condition for the roots as long as anything that can be devised, as if the drainage is not allowed to get foul through the presence of worms, or by its not having been sufficiently secured, it will last for many years.

POTTING.—A little more drainage should be used for even the deeper rooting kinds of Ferns than is necessary for the majority of plants, whilst the shallow rooters, such as *Gleichenias*, *Davallias*, and

others that have creeping rhizomes, should have still more. For all this latter section shallow pots or deep pans are preferable to pots of the ordinary shape. When repotting do not interfere with the roots that are closely packed round the outside of the balls. Make the new soil as solid as the old balls; if this is not done the water will pass off down the outside, and leave the centre dry. Raise the temperature a few degrees as soon as the plants are potted, and keep the atmosphere a little more moist than it has been during the winter. It will be better not to give air for three weeks or so after the potting is carried out.

STOVE.—ACHIMENES.—Where these plants are wanted to give a long succession of blooms some tubers should be put in heat shortly, and a second and third batch later on. If the roots were properly matured before the tops were allowed to die down, they will now be plump and strong; whereas badly ripened tubers will be soft and liable to decay when they are put into the soil unless care is taken that it be fairly dry. Loam and leaf-mould sifted, with enough sand to make the whole light, is the right material to use. If heavy soil is used the young roots get broken when the plants are transferred from the pans or pots in which they are started to those they are to be grown in. An ordinary stove temperature is the best for them.

GLOXINIAS.—A portion of the stock of *Gloxinias* may also now be started. In the case of small roots struck from leaf-cuttings last summer, it is best to set them going early, as they have then a long season in which to attain size and strength. It is well to put small roots into 3-inch or 4-inch pots at first, giving them more room when they have taken well hold of the soil. A mixture of loam, peat, rotten manure and sand forms a suitable compost. Do not cover the tubers deep in the soil. The crowns should be on a level with the surface. A temperature such as advised for *Achimenes* will answer for *Gloxinias*.

GLOXINIAS.—SEED SOWING.—Where the plants are grown from seed it is necessary to see that the strain can be relied on, otherwise labour and room are wasted. Sow in shallow boxes or ordinary seed-pans, which drain and fill with soil of a similar character to that recommended for growing the tubers in. Pass it through a fine sieve, make the surface smooth, and sow thinly, covering the seed very slightly with a little of the finest of the soil. Again press the surface, stand in ordinary stove heat, and as soon as the seedlings appear raise the pans close to the glass. T. B.

KITCHEN GARDEN.

BROAD BEANS TRANSPLANTED.—It has been almost impossible to preserve the autumn-raised plants from slugs, but in all cases where there is a fairly good plant the first favourable opportunity should be taken of breaking up two or three of the end rows in order to have a sufficiency of plants for filling up the gaps, or, better still, the requisite number may be raised in small pots under glass and turned out before they are badly root-bound. As a rule, extra early dishes are not very highly valued, but were it otherwise, raising the plants singly in 3-inch pots and transplanting these to a warm border is perhaps the quickest and best way of procuring early gatherings. The rather shy-bearing extra long-podded varieties are induced to crop more surely and quickly when transplanted from pots, but this fact is principally of value to exhibitors.

SOWING BROAD BEANS.—In all cases where no Beans were sown in the previous autumn and none are raised under glass, the earliest rows ought to be got in as early in February as the state of the ground will permit. The *Mazagan* is less popular than of old, and either a good selection of *Early Longpod* or *Beck's Dwarf Green Gem* (we grow both) is preferred. Whether a portion of a warm border be given up to them or not ought to depend upon circumstances, and I will only add that they are nearly or quite as early in a sunny open spot as they are when grown on more sheltered borders. As there is every probability of many

early sown seeds perishing in the ground, they should be sown somewhat thickly, thinning out later on being resorted to if need be. The rows of *Beck's Gem* ought to be 2 feet apart, as the plants branch strongly, and not being smothered up crop profusely. Single lines of the taller sorts may also be 2 feet apart, or if double rows are sown these should be 3 feet apart, the seed being covered with about 3 inches of light soil. The broad-podded section ought not to be sown yet, the seed of these being the most liable to rot in the ground.

A PEA BORDER.—In many large gardens early Peas have to be very extensively grown, as many as four quarts of seed being sown as early in February as the ground can be got into a fit condition for the reception of the seed. The fashion is to devote a long south border to this crop, and when the rows of any of the early round-seeded and the still taller-growing *William I.* are only 3 feet or slightly more apart, they are almost certain to overshadow and weaken each other, also doing much injury to wall trees behind. A simple way of obviating this difficulty is to dispose the rows of the taller varieties fully 10 feet apart, and between these grow about four rows of either *Chelsea Gem* or *William Hurst Peas*, neither of which often attain a height of 2 feet. If preferred beds of *Early Potatoes*, *Spinach*, *Cauliflowers*, and *Beck's Gem Broad Beans* can be grown between the taller Peas, and the latter will in either case be much more productive owing to being exposed to plenty of light and air, while the intervening crops will be slightly sheltered by the rows of tall Peas and will do well. Those in charge of smaller gardens might in many instances adopt the same plan on a smaller scale, and if well carried out they will have good reason to be satisfied with the experiment.

SPINACH.—It is yet somewhat too early to put out *Cauliflower* plants or to plant *Potatoes*, but the first favourable opportunity should be taken of sowing seed of *Spinach*. There is always a great run on the winter *Spinach*, and the sooner the spring-sown crops are available the better. It is rarely advisable to devote a breadth of ground entirely to *Spinach*, as it can be grown in sufficient quantities in either the wide or narrow spaces between early Peas. In the former case the drills may be drawn 12 inches apart; while if the rows of Peas are disposed more thickly together, one line of *Spinach* midway between them is ample. Quite shallow drills ought to be drawn, the seed being sown somewhat freely and covered with light soil. This crop has few enemies, but if slugs prove troublesome they must be kept off by the aid of soot and lime. What thinning out is necessary may be delayed till the thinnings are large enough to use. The breadths of winter *Spinach* are doing good service, frost which completely killed many Russian *Violets* growing very near, not in the least injuring the plants of either the round, prickly-seeded, or *Victoria Spinach*. Naturally very little growth is made during the winter, but a dressing of soot given shortly and occasional surface hoeings may hasten the formation of fresh leaves considerably. It is to be hoped that the seed of *Victoria* or *Monstrous Viroflay* will soon be sold at a sufficiently cheap rate to admit of one of these superior and extra large-leaved varieties entirely superseding the smaller forms for all crops.

ONIONS.—Those who harvested their crops of Onions well have good reason to be satisfied with the precaution taken. It was scarcely possible to ripen the greater portion of them in the open, and all who were wise in time placed them thinly in a heated, yet airy vinery, or other dry comparatively hot position for at least a month. Thus treated they keep admirably; whereas those stored in a partially harvested state are now too far advanced in growth to be of much value. In the latter case the best thing to do with them is to plant out thickly in rows between young *Strawberry* plants or between fruit bushes. Late frosts may cripple some of them, but the bulk will most probably continue to grow, and in the course of a few weeks may be drawn for use as required. Being pulled to pieces, every separate growth will be found to have a fairly large bulb attached to it, and Onions

of this description when sold in the markets are known as "Scallions."

TRANSPLANTING ONIONS.—Autumn-raised plants, principally of Tripoli varieties, have continued to grow more or less all the winter, and are unusually strong and abundant. If there is a likelihood of Onions being scarce in May a small portion of a sunny, though not necessarily a south border may well be given up to the growth of a few short rows of The Queen, White Naples, White Lisbon, or any other quick-bulbing Onion that may have been raised. This should be both rich and firm, the firmer the better in fact, short of binding the soil together badly, quickly formed rather than extra large bulbs being most needed. Only thin out the rows, the plants being carefully lifted so as to preserve all the roots possible. Replant in shallow drills, well spreading out the roots and cover firmly. The neat grown Queen and Baretta may be put out 5 inches apart in rows 9 inches asunder, rather more space being given up to the larger varieties. Soot stirred into the surface of Onion ground promotes a more rapid growth. It is yet rather early to meddle with the main supply of Tripoli and autumn-raised Onions generally.

W. I.

FRUITS UNDER GLASS.

VINES.—Stopping, tying down, pinching and regulating the laterals in the early house will now require daily attention, the main point being the retention of just sufficient wood to furnish every part of the trellis with an even spread of foliage. The shoots in all cases should be pinched at the second or third joint beyond the bunch, and all laterals behind it at the first leaf from time to time as they make growth, but the leading lateral may be allowed to make several joints, always provided there is plenty of room for the leaves when they are fully developed. Remove all superfluous bunches from free setting varieties like the Hamburg the moment the best placed and most promising can be decided upon, and raise the day and night temperature, the first to 70°, the latter to 60°, to draw them out to their fullest length, especially where they show a tendency to run into tendrils. Also give all the air possible, say from 9 a.m., when the temperature begins to rise, until 1 p.m., when the house must be shut up with sun heat and moisture.

WATERING.—As no one thinks of watering Vines when the Grapes are in flower, advantage should be taken of a mild and bright day for giving to the inside borders a supply which will keep them going until after the berries are set and ready for thinning. Old Vines will take generous liquid at every watering, but young ones, especially if they are strong, will not require stimulants until after the Grapes are thinned, as too much vigour is detrimental to fertilisation. The supply of water, notwithstanding, must be abundant, as well-drained inside borders will take from 2 feet to 3 feet in the course of the season, and the higher the temperature, provided it does not exceed 90°, the better the progress.

FERTILISATION.—When the bunches generally are in flower raise the temperature on all favourable occasions, give sufficient fire-heat to favour a free circulation of fresh air, but avoid draughts, and keep the atmosphere somewhat drier to foster the dispersion of pollen. When this is plentiful run over all shy setting varieties about noon, using a camel's-hair brush or rabbit's tail, and see that the good old Hamburg supplies the principal part of the pollen. Muscats, Buckland Sweetwater, and Gros Colman require particular attention, and set best when the points of the bunches are turned up to the light, but not above the foliage.

SUCCESSION VINERIES.—Discontinue syringing when the shoots are about 2 inches in length, but damp the walls and floors twice a day, and pay extra attention to the turning of the fermenting material. Disbud with a free hand, reduce the bunches on each shoot to one, not necessarily the largest, unless they are wanted for some special purpose, as four small or medium-sized clusters are

better than two large ones, especially where high finish and home use or market are leading points with the cultivator. Where early Muscats and Gros Colman are grown together the house should be started not later than the first week in February. The Muscats most likely will be cut first, but if they are not, the two will succeed well together, and the Colmans will be greatly superior to the general run of this second-rate Grape met with in later houses.

FIGS.—When the pot trees have made five or six leaves all the strongest shoots must be pinched by degrees, and free varieties, like Brown Turkey, be thinned, otherwise the whole of the most forward fruit may be lost by being too covetous. Top-dress frequently, water copiously, using generous liquid at a temperature of 80°, and syringe well twice a day, not only to feed the fruit, but also to prevent the spread of red spider. Renovate the fermenting material, using fresh warm leaves from the reserve, and apply sufficient fire-heat to maintain a night temperature of 60° to 65°, with a little front air, 70° to 75° by day, and 80° after closing with sun and moisture. As Figs revel in heat, light, and moisture, the glass must be kept clean, and the house may be closed about 1 p.m., when every part of the foliage must be copiously bathed in warm water.

STRAWBERRIES.—Continue the fertilisation of the flowers when the temperature reaches the maximum on fine days, and give plenty of air to prevent condensation of moisture. Thin and support the fruit with small sticks when well set and remove the plants to the Pine stove to swell and ripen. Water regularly and well, using tepid liquid, and syringe freely to prevent the appearance of red spider. Work the different batches forward as space offers, filling up at the coldest end of the house, water cautiously at first and fuming at short intervals to ensure freedom from fly when the plants are in flower. Get the main crop plants cleansed and transferred to light shallow pits where the buds will come on in advance of the roots and draw from these as they are wanted. Clear all Peach houses and early vineries as soon as other arrangements can be made, well scrub the shelves and wash the walls with quicklime and sulphur to prevent future outbreaks of spider. Keep Queens and other late sorts cool and quiet for the present, but see that suitable pits are prepared for their reception, as they must have the shelter of glass when they commence throwing up the flower trusses.

HARDY FRUITS.

PRUNING.—When the training of wall trees, Peaches and Figs excepted, is finished, bushes and pyramids must be pruned, cleansed, and staked without delay. Manuring, mulching, and forking can then be brought to a close, and nets, where necessary, will make the buds secure from birds, already busy upon Plums and bush fruits. A few years ago we found syringing Gooseberries with a thin solution of lime quite sufficient, but this no longer answers our purpose; consequently we are obliged to prune early and net before the buds commence swelling. The promise of flower is wonderfully good, but the weather is much too mild for the season, as trees kept in a state of semi-excitement when they should be quite dormant rarely set kindly, although frost never touches them when in flower in the spring. Protection, as a matter of course, must be provided, and seeing how quickly Apricots and Cherries will be in flower, the materials should be got ready for use without delay. Those whose expenditure is unlimited will have their glass copings and canvas curtains ready for putting in position in a single day, but others compelled to fight the elements with the roughest and cheapest of materials will have to resort to the broad coping board, a few rustic poles, and a front facing of two or three thicknesses of second-hand fish netting. These may be planned and laid aside for the present, as I question if it is not better to leave protection alone than coddle the trees before the flowers begin to expand.

STRAWBERRIES.—Weeds and runners having

been growing throughout the winter, advantage should be taken of dry days for trimming and putting the beds in order and increasing the mulching, as being the most profitable mode of keeping small weeds in subjection. If animal manure is not forthcoming, a thorough dressing with stiff calcareous loam will answer equally well, as it will have time to pulverise and be fit for breaking down amongst the old stools in the spring. Another important aid to old beds is a good dressing of soot sown by hand between the rows, and the same may be said of liquid manure, care being taken that these stimulants do not fall directly upon the crowns of the plants. The season of growth, no doubt, is the best time for applying liquid, but where the tanks, as so often happens at this time of year, are full to overflowing, it is much better to cart it to the fruit quarters than allow it to run away into the drains. Raspberries, bush fruits Pears on the Quince and Apples on the Paradise stocks will take any reasonable quantity of liquid during the winter, especially where the soil is light and porous and the lower roots rarely receive half enough in summer.

PLANTING.—As few fruit growers make a practice of planting in December and January, those having work in arrear should take advantage of dry days for getting trees transferred to their permanent places early in the coming month. As each tree is planted it should be carefully staked to prevent wind-waving, and mulched to prevent drought, but on no account should a single shoot be touched by the knife, as each wound allows the escape of sap which should aid in the formation of new roots. Where large quarters have been deeply trenched or cultivated for new plantations of young trees, the ground should be worked over a second time with steel forks, then when in good condition each station must be defined by the introduction of a neat stake. If the ground is heavy and lies low, hillock planting will answer best, and all manure must be reserved for use as a mulch; but if light, poor, and subject to drought, a little fresh rich compost should be placed about the roots. Mulching may consist of almost anything that will keep in moisture, but for poor porous soils there is nothing better than good farmyard manure, as it answers the twofold purpose of feeding the roots and keeping them moist and cool.

W. C.

GARDEN FLORA.

PLATE 738.

SOLANUM WENDLANDI.

(WITH A COLOURED PLATE.*)

This plant has been for several years conspicuous amongst the climbers grown in the tropical Water Lily house at Kew, its large heads, almost a foot in diameter and crowded with flowers, nearly all expanded together, hanging from the rafters of the roof, and remaining in beauty several weeks. Mr. Moon has been compelled through want of space to represent only a portion of one of these heads. The size and bright colours of the flowers are, however, well shown, and we have but to multiply the picture by three to get a correct idea of the character of a full-sized inflorescence. Kew is indebted for this Solanum to Mr. Wendland, Director of the famous Botanic Gardens at Herrenhausen, who sent a plant of it in 1882, with the information that it came from the colder regions of Costa Rica, where it climbs upon trees. It has thick succulent stems, covered with prickles, slightly hooked when young, but

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 12, 1889. Lithographed and printed by Guillaume Severeys.



SOLANUM WENDLANDI

becoming blunt and corky with age. The leaves vary in size and shape, those near the ends of the branches being oblong, acuminate, and about 4 inches long, while those lower down are more or less pinnatifid and 10 inches long. The flowers are in compact cymose heads on the ends of the growing branches, which, when allowed to hang downwards, have an elegant effect. Each flower is from 2½ inches to 3 inches across, pale lilac-blue, shaded and lined with purple; the little pyramidal cluster of stamens standing erect in the middle, being yellow, adds to the attractions of the flowers. The plant grows freely in a moist tropical temperature, and produces the finest flower-heads when the stems are 10 feet or 15 feet long. The flowers are at their best in the month of August. In winter the leaves fall off, the plant remaining at rest until about March. Grown in a pot, the shoots produced were too weak to flower; it was only after the plant had been luxuriating in a bed of rich soil for some months that its great beauty was revealed. As a climber for large warm houses one need not desire anything more suitable than this *Solanum*.

Seeing that the genus *Solanum* is one of the largest known—it numbers some 800 species—one feels surprised that so few good garden plants are comprised in it. Probably, however, the genus is rich enough in ornamental kinds, did we only know of them. Only last year there flowered at Kew two pretty species, climbers, which, so far as I know, are new to cultivation, viz., *S. pensile*, a free grower, with elegant dark green foliage, and loose terminal pendent racemes of bright purple flowers; and *S. Seafortianum*, a stove species, native of Trinidad, with pale lilac flowers in drooping clusters, almost an exact counterpart of *S. jasminoides*, a most useful climber for the cool house, its pretty milk-white flowers being as charming as is suggested by its name.

Amongst plants valuable for their bright-coloured fruits, we have, of course, some exceptionally good *Solanums*, the best of them, and a favourite in almost every garden, being *S. capsicastrum*, the Star Capsicum. Then there is *S. Melongena*, the Egg Plant, an ornament of the first quality when well grown. *S. cornigerum*, a remarkable annual, with curiously horned, large fruit has recently been brought into notice at Kew and elsewhere, and is worth growing along with the Egg Plant. Besides these, which are known to most people, there are hosts of large-growing species, trees, indeed, one might well call them, which in favourable conditions are as ornamental when in fruit as Plum or Apple trees. At the Cape and on the Riviera such kinds are abundant, wild, indeed, in considerable variety at the former place, and pleasant to look upon both in regard to foliage and fruit. They are, however, inveterate sun-worshippers, refusing to thrive where the sun does not continually shine upon them.

The large-leaved species are perhaps most plentifully represented in gardens, being valuable for what is termed sub-tropical effect in

summer. Some of these, as, for instance, *S. marginatum*, *albidum* Poortmani (figured in THE GARDEN, Jan. 26, 1889), *S. robustum*, *S. laciniatum*, *S. atro-violaceum*, and *S. Warscewiczii* are amongst the finest of large-leaved, quick-growing summer plants, and when used with taste their effect is particularly good. But grouping them in enormous beds is not using them with taste, although the practice prevails in most gardens. W. W.

THE ORCHARD.

FRUIT GROWING IN BRITAIN.

TO THE EDITOR OF THE TIMES.

SIR,—I have been watching, from its inception, the correspondence which you have published on this subject, but I fail to have noticed any discussion as to the real point of consequence in considering any particular culture or application of land as a profitable industry. The matter seems to have lapsed into a controversy between the champions of particular varieties of certain fruits, especially Apples. Lifelong experience and observation in this country, throughout the European Continent, America and Australia, have convinced me that the real cause of the decay of fruit growing in this country is its relative unfitness of climate for such perfect maturity of fruit. There is not sufficient sunlight. So long as the importation of fresh fruit from more or less distant, but more favoured lands was rendered both too costly and too precarious by the length of time and high rates of freight required for conveyance hither, there was no incentive for the transmission of foreign fresh fruit to our market, and, therefore, home grown fruit commanded its regular, certain, and lucrative sale. Facilities, rapidity, and cheapness of transportation, seconded by simultaneous distribution of "price currents," all the world over, have entirely overborne the home grower's former sale advantage.

Fruits of all kinds—and notably Apples—are not only superior in flavour, but are far better keepers (store fruits) when ripened under a glowing, intensely bright sunlight and in dry air (to say nothing of temperature) than when matured in a comparatively opaque and humid atmosphere such as ours. Add to this that fruits cultivated under such superior conditions cost considerably less to produce, and the result has been, and is, that, so soon as transmarine fresh fruits could be conveyed hither quickly enough and cheaply enough to ensure delivery in good merchantable condition, and exempt from undue charges, they naturally supplanted home-grown fruits in command of our own market. I do not believe that fruit-growing in this country can now be revived as a really profitable industry, or that the substitution of this or that particular variety for any other in cultivation has anything to do with the question.—EDWARD GIBBON SWANN, C.M.E.

—Mr. Swann is wrong in several of his assumptions, though right in saying that something should be said as to what should be done.

1. Mr. Swann does not believe that "fruit-growing in this country can be regarded as a profitable industry." Fruit-growing is a profitable industry in this country, as he would know if he looked into the matter. English-grown fruit brings splendid prices; Cox's or Blenheim of first quality and various others pay admirably; the only difficulty is getting enough of them. I have known 16s. a bushel to be given

for Blenheims this year in a rural part of Sussex!

2. He is wrong in supposing that our climate is against Apple culture. Splendid Apples are grown in the south and west of Britain and also in Ireland, and indeed in every part. There is ample sunlight for the Apple—our greatest native fruit. Our climate is much more against Pear culture, but if everything else that goes to good culture were attended to, the climate would not fail to ripen the hardiest and best kinds.

3. Apples are not better keepers when "ripened in a glowing bright sunlight." English Apples keep admirably, and when grown in America and hot countries do not keep so well. I have gathered delicious Ribstons from the tree in Western New York (at Rochester), yet the Ribston seldom comes to us from America in anything like good condition, because the fruits are overdone by heat. The Ribston in England keeps admirably if kept rightly (a good deal of British fruit is kept too warm). Our climate, and all climates, are liable to vicissitudes that make fruit growing uncertain—even in America the Apple crop fails from time to time.

The true reason of our failure to supply our own market is not our climate—it is that the French and American growers pay more attention to their work and plant in a wiser way. The British orchard is often a museum of diseased, though picturesque, curiosities, particularly in the west of England. Frequently there is only one tree of a kind, so that it is not worth while to market the fruit, and when people do market it they get next to nothing for it.

The real remedies are planting but few kinds in any one place, and adapting the kind to the soil and climate as far as one can. I am now speaking of people who hope to supply the markets with the best fruits. Many may have personal and local reasons for planting particular kinds, but those who wish to compete with the best market fruit will do well to confine themselves to the selection that I give here and which has been made with much care:—

Alfriston	Mère de Ménage
Besspool (New)	Northern Greening
Blenheim Orange	Reinette Gris
Bramley's	Ribston
Claygate Pearmain	Stone's
Cox's Orange Pippin	Sturmer
Dutch Mignonne	Wellington
Flanders Pippin	Winter Queening
Lane's Prince Albert	

From this list I omit good early Apples like the Irish Peach and others, interesting for other reasons, wishing to select only fruits that can rival or beat the best that come from any country.

Country gentlemen and landowners of England could enormously help our fruit culture if they would bear these few things in mind. Plant a good many trees of any Apple you know to be thoroughly good. Above all things, to ensure success in the market, the English grower must "grade" the fruit, as the French and Americans do; he should not send any but good fruit to market, and the bad fruit he now sends in the middle of his basket he should give to his pigs.

Mr. Swann is wrong in supposing that the question of variety has nothing to do with success; the kind is the question of questions; it sometimes means a guinea a bushel instead of 5s. There are so many kinds of holdings in England, from cottage gardens upwards, that entering into details of culture would be useless. The selection of right kinds is of ten-fold more

importance, though it should go without saying that good culture is essential.

The evils are far too many sorts, many worthless; no sorting or grading of qualities, rubbish being often sent to market which is not worth the cost of carriage; old, useless orchards never renewed. The idea that an orchard will last as long as an Oak wood seems to prevail. But it will not, and those who have good soil should plant trees every year, say one first-rate kind. I have now an old orchard with all the trees cut down to the ground. I mean to make up for it by planting an acre of the Blenheim, the best Apple that grows on English soil, and as many Cox's and Ribston as I can get on stocks that please me, with a smaller number of the sorts above-named—the best I know.—EDITOR "GARDEN," 37, Southampton Street, Strand, W.C.

— I am glad to observe the prominence which you are in so timely a manner giving in THE GARDEN to the important subject of Apple cultivation in this country. Having during the last few years devoted a good deal of attention to this subject, and having planted nearly sixty different varieties—not because I consider so many are necessary for any one cultivator to grow, but for the sake of experimenting on their various qualities in my soil—I feel not a little interested in the correspondence that from week to week appears on the subject. I quite agree with those authorities who so strenuously advocate the severe reduction of the immense and embarrassing number of varieties at present in cultivation, and the concentration of planters' attention to those sorts only the perpetuation of which would be a "survival of the fittest." Like all other truths, this one may, however, be capable of being carried too far, and a too rigorous curtailment may in consequence be adopted to the exclusion of some exceedingly useful and profitable sorts.

It is pretty universally admitted that there are three English Apples—the Ribston Pippin, Cox's Orange Pippin, and Blenheim Orange—that stand out prominently as the very best Apples of British production, and that these when well grown are fully capable of competing favourably with the very best varieties of other countries. It is also pretty freely acknowledged that two of these kinds labour under disadvantages, so far as the important consideration of profit to the cultivator is concerned—the Ribston on account of its capricious habit and liability to canker; the Blenheim by reason of its slowness in arriving at a bearing condition. Those, then, whose object is to secure a good return for their outlay within reasonable times should have some other strings to their bow, especially if it be desired to produce a supply covering the whole period of the Apple season, and to possess trees from which, even in comparatively unfavourable seasons, they may reasonably rely upon having a crop.

If this be so, what are the kinds, new or old, that answer the nearest to this threefold requirement, and which deserve to supplement (not to supersede) the three splendid sorts above referred to?

In answer to this query, I suppose that nurserymen, like doctors, will differ to some extent at least. At a recent important fruit exhibition in the metropolis I put the question to two (independently) of the best known nurserymen and exhibitors as to which were the best dozen Apples to grow in England, having regard to the combined requirements of (1) quality, (2) productiveness, (3) profit, and the lists of these equally competent authorities coincided only in three kinds. These three were Cox's Orange Pippin, Lane's Prince Albert, and Stirling Castle, the other nine sorts in each case being different. Thus to get at my limited dozen, twenty-one sorts were mentioned by only two authorities, and if I had gone to other equally competent judges, probably many more varieties would have been mentioned.

The result of my own cultivation thus far, together with such observations and diligent inquiries as I have been able to make, would lead me to

recommend the retention of at any rate the following varieties, though not, of course, of all by any single grower.

Amongst early Apples the last I would dispense with in my ground would be Duchess of Oldenburg, a truly beautiful fruit covered with a peach-like bloom, aromatic and brisk as a dessert Apple, and also good for cooking. It is not a keeping variety, but very profitable where there is a ready market, and if any Apple can be called a certain cropper this is one. Ecklinville Seedling is also most reliable and of a strong constitution, and will often bear when most other sorts are a blank. It is a better keeper than the foregoing. Lord Suffield has gained a reputation to which my testimony can add nothing. Stirling Castle might be added, but where severe reduction of numbers is desired it is hardly needed in addition to, though it may if preferred be substituted for Ecklinville. A very robust, prolific and exceedingly showy Apple, though scarcely of the highest flavour, is Councillor or Yorkshire Beauty.

For mid-season use New Hawthornden is valuable and handsome. Cox's Pomona, productive and exceedingly ornamental as it hangs on the tree, and though not quite of the best quality, seems still to deserve recognition, and the old favourite Cellini, in spite of the disparagement it has recently received at the hands of some authorities, is so productive and generally useful that it is rather premature just yet to vote its extinction. The new Apple Bismarck is likely, I think, to take an important rank in this section, and the Queen, Schoolmaster, Lady Henniker, Golden Spire, and the little as yet cultivated Landsberger Reinecke appear very promising.

It is, however, in late-keeping kinds that cultivators will probably ultimately find the best return for their outlay, the extensive planting of some of the best of which is even more to be recommended than that of the more numerous mid-season varieties, and which has perhaps been too much neglected on account of the trouble and accommodation required for the storing of the long keepers. The following I would venture to enumerate as about the cream of those that answer to this requirement: Bramley's Seedling, Galloway Pippin, Lane's Prince Albert, Wellington, Mère de Ménage, Alfriston, Besspool, Northern Greening, and Allen's Everlasting.

Doubtless this, or any restricted list omits many exceedingly useful and desirable sorts which it would be a pity to allow to go out of cultivation; but it aims at a reasonable limitation of such varieties as, until the advent of an ideal all-round Apple, can hardly be dispensed with.—GEORGE BENINGTON, *Bush Hill Park, Enfield.*

Grafting old Apple trees.—There are quantities of inferior sorts of Apples grown about the country the trees of which might be profitably grafted with good varieties. Care should be taken that the trees are sufficiently healthy. Blenheim Orange will often bear quickly when grafted on old trees. This Apple does not often bear early, but when lifted and replanted every other year, I have had it commence bearing in five years after being grafted, and it has borne regularly afterwards crops of very fine fruit. I consider Cox's Orange Pippin unsurpassed by any other variety in its season. King of the Pippins is a good bearer and commences to fruit when very young.—L.

Apple Lord Suffield.—This in its season is without doubt the best Apple for the kitchen we have. For several seasons our trees have not missed once, the branches of very young trees often requiring to be propped up to support the fruit. Its precocious nature, however, has, I think, a good deal to answer for. I find trees six years of age in perfect vigour, but when a dozen years old they begin to show signs of debility. Unsuitable soil may, perhaps, have a good deal to do with throwing this variety into bad condition. The trees here are growing in shallow, heavy loam resting on chalk, and were planted about twelve years ago. There are only four of this age, three pyramids and

one espalier, all on the Crab stock. The pyramids have cankered badly, but there is nothing amiss with the espalier. This unhealthy condition so early is, I think, due in our case in some degree to deep planting. I have placed the roots nearer the surface, and after attending to their wants through the summer shall note the results.—R. POTTER, *St. Clare Gardens, Kemsing, Sevenoaks.*

BLENHIM ORANGE APPLE.

If good wine needs no bush, it is quite certain that this grand Apple will stand any amount of abuse from all fruitists who have not been successful in its culture. One writer says it is a long time in arriving at fertility. But what of that? It is growing broader and higher every year, and when it does come into bearing it may be reckoned upon for half a century or more. This difficulty then, as in the case of Pears on the free stock, may be got over by men of each generation planting for their heirs. And so the supply will be ever increasing, as I can point to trees 50 feet in height and eighty years old still producing good crops of fine fruit. But there is yet another and a shorter way to fertility. The impatient fruitist may graft healthy established trees of inferior sorts, and in five years he will find the Blenheim bearing good crops of magnificent Apples, which, if his digestive organs be wrong, he may eat fresh or cooked, as they will carry their own sugar. Another correspondent condemns the Blenheim because inferior sorts which commence bearing at an earlier age pay better, or have paid better; but this may not last, as the masses soon know a good Apple when they see one, and taken at all points there is nothing to beat the Blenheim for general use. A third person condemns it because it is fastidious as to soil and atmosphere; but there is nothing remarkable in this, as all fruits have their likes and dislikes, not excepting the common Crab. Indeed, were it not so, one of the toughest knots with which the fruit grower has to contend would be unravelled, and Cox's Orange Pippin would soon be as plentiful and cheap as Codlins and Kings. The counties of Oxford (its home), Hants and Berks are named as being particularly favourable to its growth; but why leave out Gloucester, Hereford, and Worcester, three counties in which the Blenheim is all that can be desired within and without? Indeed, I question if the finest and best coloured fruit ever met with is not grown on the stiff loams of the old red sandstone lying between the Severn and the Wye.—E.

— I had from some very old orchard trees of this grand Apple last year a superb crop; indeed, one so good on the whole as to lead numerous Apple growers to wish they had twenty trees to every one they now possess. The motto of the Apple advisers of to-day seems to be, "plant only for self." That is a peculiarly selfish doctrine. Happily, our fathers thought differently, and thus have left us a valuable legacy of fine old trees throughout the kingdom. One of my neighbours who is an experienced market grower of fruit avers that were he about to put down on his own land a big area of Apple trees, he would plant the greater part of it with Blenheims. He remarks, "Never mind; if I did not live to enjoy the produce, someone would;" and it is just that kind of large-heartedness we want to see in regard to the planting of orchard Apple trees. We have no Apple more robust, more healthy, more enduring through all sorts of seasons and in all sorts of soils. No variety that once begins to crop does crop with more persistency from year to year, and, finally, no variety which produces a finer or handsomer average sample of the very best quality. If we had no other Apple in cultivation but the Blenheim, fruit need rarely be wanting from September until May if they be properly stored. If it be shown that many varieties of Apples are far more precocious croppers, and therefore whilst young more profitable, it is none the less true that the Blenheim is in the very prime of life, full of vigour, and producing grand fruit when these precocious varieties are dead or worn out. If the planter purposes producing crops to furnish the early market, then he must plant Lord Suffield, Lord Grosvenor,

Stirling Castle, Cellini, &c. Perhaps he has his land for a twenty-one years' lease only, and in that case naturally wants to get as much out of the ground in the time as possible. But those who should plant Blenheims are the owners of the soil. The man who could leave on his own ground a thousand fine trees of this grand Apple, some fifteen to twenty years old, to his children, would leave them a small fortune, for every tree then would be worth at that time, if they had done well and been properly pruned and cultivated, fully 30s. each; indeed, fruit to that amount would be obtained in one good season from each tree. It is sometimes advised to have dwarf trees beneath standards. The plan may do very well for the first ten years, but at the end of that time the dwarf trees should be gradually eliminated. It would be much better to have them alone, and when worn out to clear away the whole and give the ground over to vegetables for a few years. The Blenheim seems specially to do well on turf. I have found the trees to be clean and good on chalky clay and gravel alike; they will bear ample feeding, however, and I have no doubt but that were the sewage matter which we now so persistently waste but utilised to water our old orchards in dry weather, immense benefit would result. In one case which came under my notice during the past year, some large Blenheim trees were regularly watered with house slops all the season, with the result that they produced a grand sample, the finest fruit selling at 10s. per bushel; and yet these trees are forty years old. So far as I can judge, they may be still bearing fine fruits forty years hence. It is said of the Blenheim that it produces its own sugar. I do not regard it so much as a sweet Apple as one devoid of acidity, and it is better to have little of either sugar and acidity than too much of either in an Apple. Baked, the Blenheim is indeed delicious; that form of cooking, because the skin is stout and thus retains the entire flavour of the fruit to the last, seems to bring out all its excellent properties admirably. I have had a few sent me by a friend baked for an invalid, and they have been pronounced delicious. We want plenty of Blenheim trees planted, then well cultivated, afterwards the fruits properly gathered and stored to induce keeping, and thus we may have a plentiful supply through the winter for the nation's wants.—A. D.

It has become the fashion to decry this good old favourite, one of the principal reasons for this being its shy-bearing habit during the first few years of its growth. This, however, is not the only condemnatory charge against it, as one writer further adds that it is "fastidious in respect of atmosphere as well as soil," and, altogether, what the editor of THE GARDEN rightly considers the best Apple that grows in English soil (it should have been "British") is having a poor time of it with the critics. That it is somewhat slow in arriving at a profitable state must be readily conceded, but is there another bad quality that can rightly be urged against it? I venture to think not. Latterly fruit culture generally, and the planting of Apple trees in particular, has almost amounted to a craze, and in my opinion the ultimate results will be, as far as a commercial speculation is concerned, to say the least most disappointing. Not only have the professional growers for sale limited their selections altogether in favour of those varieties which give quick returns, but the same rule appears to have been generally followed by several owners of large estates who wisely provide their tenantry with trees, as well as by innumerable other private planters. In how many collections are either Cox's Orange Pippin, Fearn's Pippin, Boston Russet, Bramley's Seedling, Besspool, Striped Beaufin, Sturmer Pippin, and Blenheim Pippin included? The two first named may perhaps be fairly well known outside the ranks of readers of the leading horticultural journals, but of how many of the rest can this be said? The consequence of this wholesale planting of varieties known to pay their way quickly will eventually be such a glut of fruit in fairly plentiful years even, that it will scarcely pay to gather and convey it to the nearest town. It is the case now, and when all the trees planted during the past four years are at a good

bearing size the difficulty of finding a market for the fruit will be ten times greater. Then it will be seen how short-sighted has been the policy of planting none but those varieties of precocious free-bearing habit. This has been my contention from the first, or rather since the great question of Apple-growing for profit has come so much to the front. Just about that time it appeared to be everyone's aim to foster this laudable ambition of growing a sufficiency of fruit in this country, and anything in the shape of what appeared a discordant note in the harmony prevailing was ruled out of order. Two of my oldest and most intimate friends are both extensive growers of hardy fruit and salesmen in London markets, and if they do not best know what is wanted I should like to ask who does? From them I long ago learnt that one bushel of Blenheim Orange, as it is most generally termed, is worth three times more than almost any other variety even in years of comparative scarcity, while in very fruitful seasons it is nearly the only well-known Apple that well repays for cultivation.

The only really sensible way out of the difficulty, this meeting all cases, is to either plant or re-graft a number of young trees with Blenheim Orange and other valuable late, if somewhat shy-bearing varieties, as well as a goodly proportion of those Apples known to be the best to give quick returns. The latter should be considered only as supernumeraries, and be done away with, if need be, when the more valuable varieties have attained a good bearing age. I could point to instances where this practice was resorted to fifteen years ago, other additions on the same lines having been made annually since. For the past six years the naturally grown standards of Blenheim Orange have been fairly productive, and, thanks to an unimpaired constitution, these trees will continue to improve in fruitfulness and value. With regard to the fastidiousness of the Blenheim Orange, I hold this to be simply imaginary, or at any rate it is very much less marked than its detractors would have it appear; in fact I consider the Blenheim to be one of the most accommodating in habit of all Apples. If Mr. Hibberd had taken the trouble to look through the report of the Apple conference at Chiswick, he would have seen that Blenheim Orange was one of the most popular varieties either for cooking or dessert with all who sent in reports or selections, and if the two qualities are combined it must head the list. From all parts of England, Scotland, and Wales the reports were substantially unanimous in giving front rank to Blenheim Orange, and Mr. Malcolm Dunn in his paper on Apples and Pears actually describes it as a "free bearer, and one of the best and most useful of Apples." I have practised gardening in eight widely divergent counties of England, and have visited many more, and in no one instance have I met with a locality where, if Apples could be grown at all, Blenheim Orange failed. There may be localities where it is both largely and well grown, and I could mention several, but this is principally due to the fact of its merits being more fully recognised in those particular districts, and abundance of trees planted accordingly. That the character of the tree and fruit varies considerably I readily concede, even in a radius of four miles, but in this respect it does not materially differ from King of the Pippins, Cox's Orange, and other well-known varieties. I hold that if standard trees of Blenheim Orange on the Crab stock are not unduly pruned they will arrive at a bearing state, say, in the course of eight or ten years, and that when good fruit are stored in an untainted atmosphere and quite clear of straw or hay, there are no Apples, imported or otherwise, not even excluding Newtown Pippin, that can equal it in quality, either cooked or eaten raw, from Christmas to well into February. It is worth waiting for.—W. IGGULDEN.

Filbert bushes.—If the crop of nuts this year is not large, it will not be for want of catkins, as never do I remember seeing the bushes so full of them as they are at the present time, and as the weather has been so mild and favourable for the ripening and dispersion of the pollen, the female flowers, which are

also showing in great abundance, must become impregnated, and a safe set, as a matter of course, follow. After this has taken place, I do not suppose that frost does any harm; and if not a crop, and that a heavy one, may now be regarded as a certainty in most districts.—S. D.

APPLES.

THOSE who have had much to do with the cultivation of Apples in different localities, even where the conditions may be set down as favourable to Apple culture, cannot fail to have noticed how the difference in soil and climate affects some varieties more than others. I have met with people ready to express a decided opinion in respect to some particular sorts, and when asked to give the reasons for their conclusions, it turned out that these were arrived at from experience gained in the single locality where they had lived all their lives. Needless to say, such evidence is of little value in deciding the merits of Apples, as of most kinds of hardy fruit. Yet it can only be on such grounds that any difference of opinion can exist as to the merits of Blenheim Pippin, though, like other kinds, it is to some extent affected both in the growth of the trees and the size and quality of the fruit by the locality; still it succeeds in most parts of England. Like several other sorts in which the trees attain more than ordinary size, it naturally does not come so soon into bearing as the more precocious kinds, especially when grafted on the Crab or ordinary free stocks, which I maintain are more suitable for the large growing varieties than any of the dwarfing stocks.

There is one way of inducing Blenheim and other large growing sorts to fruit early that has not yet been adopted so freely as it might have been. The natural outcome of the indiscriminate planting which has been followed through the length and breadth of the land of good, bad, and indifferent sorts—often the two latter—has resulted in numbers of full-sized trees, or such as are approaching that state, which are healthy, if to some extent weakened by overcrowding of the branches and neglect in other ways. The advice one usually hears in such cases is to grub up the trees and plant better sorts. This advice may be very well where usefulness is looked upon as of less account than appearance, and where everything in a garden or orchard must be trim and ship-shape. But it is not a wise course to follow. Those who have had much to do with the cultivation of hardy fruit will have seen what can be done in the way of renewing old Apple trees, that had got into the condition described, by heading back. Where judgment is brought to bear on the work so as to avoid heading in too closely, new prolific heads, as free of growth and as bright and clean in the bark as if the trees were young, may be had in much less time than it takes young trees to bear anything worth naming. If in place of confining the work to removing the heads of the trees they are grafted with the Blenheim or any other desirable kind that is slow in coming into bearing, at the end of half-a-dozen years they will be in a condition to carry crops such as it would take young trees twice the length of time to arrive at a state to produce. This is no new idea, but a fact that has been proved in times and places without number. But it is not so often acted upon as it might be. When heading back trees that had got into the condition in question, if the variety was not one that it was desirable to keep, I have always taken advantage of the opportunity and grafted it with a sort that was slow in coming into bearing. T. B.

Apple Bramley's Seedling.—I quite agree with "J. L.'s" reference (GARDEN, January 25, p. 71) to this fine Apple. It is one of the best cooking Apples and one of the latest keepers. It is, moreover, a free bearer, at least so far as my experience is concerned. When in Lincolnshire the other week I saw some remarkably fine samples of it offered for sale at a country town market by a farmer's wife. The Apples were large, of good shape, and very fine, and appeared as if they would

keep for a long time to come. In reply to a question, the woman told me that it was the best Apple they grew, and although the trees were young, they had never failed to produce a good crop since the second year from planting. The price asked by the vendor was 3s. per stone, and buyers were plentiful at that rate.—C.

TREES AND SHRUBS.

THE ANGELICA TREE.

(ARALIA SPINOSA.)

Two good qualities at least, late flowering and the retaining of its large compound leaves till frost sets in, render this handsome and distinct North American shrub, or small growing tree, one of particular value for ornamental planting. Flowers are few and far between in our parks and gardens by mid-October, but if the weather is at all mild, the huge panicles of bloom of this Aralia are conspicuous, while the large and much-divided leaves are full of beauty, even in those cold and cheerless days.

I often think that planters are far too apt to forget the value of these late-blooming and hardy foliaged shrubs, for it must be admitted that a tree or shrub that remains in all its summer beauty long after the majority of these have become bare and uninteresting is well worthy of encouragement, and deserves at least a fair share of attention.

That it is quite hardy, a rapid grower, and an unusually free-rooting plant will be admitted by everyone who has a specimen, and I question much whether half a dozen persons can report unfavourably of the behaviour of the tree in this country, the southern portion at least. Suckers, too, are usually produced in such abundance that propagation is very simple, all that is required being to cut these off with a spade and treat them to a year's coaxing in the nursery border. They soon respond to transplanting and good treatment, and are after a year fit for planting in the permanent positions. Not at all uncommon is it during severe winters for the stems to be partially or wholly cut back, but this seems only to stimulate the plant to throw out a greater number of stronger shoots in the following spring.

If left alone, a single plant will in a few years form a large mass, and where plenty of room can be afforded, it is a good idea to let Nature have her own way, for the appearance of a great clump of this Aralia, whether in flower or leaf, certainly must not be despised. True, the individual flowers are inconspicuous, but then the much-branched panicles on which they are produced are visible for a long distance away, and remind one somewhat of those of the *Dimorphanthus mandschuricus*. Anyone may have a specimen of this Aralia in his grounds, so far at least as the quality of the soil is concerned, for about this it does not appear to trouble, thriving and flowering freely where other less showy and distinct kinds of shrubs require leaf-mould and coaxing to get them to grow. Around London there are a few good specimens of the Angelica tree, but still it is a rare and neglected shrub.

In planting this Aralia, it is necessary to allow sufficient space for perfect development, for it is noticeable how puny and deformed the leaves appear when the plant is hemmed in and choked up by other trees. A. D. W.

Early flowering shrubs.—In addition to those named by "E. H." (p. 65), I would recommend *Amelanchier Botryapium* and *A. florida*; the former variety blooms very early grown as a tall standard, and if planted so that it has a good background of dark evergreen subjects, it shows to perfection. *A. florida* is very effective planted three or four together in the shrubbery, standard trained, allowing free growth without any pruning. *Cercis siliquastrum* (Judas tree) is not often seen in gardens; the flowering leafless trees with the bright purple flowers are interesting. *Lonicera tatarica*, with its pale pink, bell-shaped blossoms freely produced, is an attrac-

tive shrubby plant. *Berberis Beali* is the earliest to flower of any of the Barberries. It has been flowering here since the middle of December, and is a conspicuous object in the shrubbery; whereas, the common *Aquifolium* is only just bursting into flower. *Rhododendron dahuricum* commences to blossom in February and is very showy when seen at a distance; four or five plants have a brilliant effect, the rose-coloured flowers being exceedingly showy in a bed in which *Kalmias*, *Gaultherias*, *Azaleas*, &c., may be growing. *Kerria japonica* is another bright flower when in perfection, its bright orange-coloured rosette-like flowers are so freely produced. *Garrya elliptica* must not be forgotten, it being an exceedingly effective shrubby plant, as well as useful for a wall. By New Year's Day its catkin-like flowers are bursting into bloom.—S.

Euonymuses against walls.—The Japanese forms of *Euonymus* are fairly hardy in the southern counties, but are not often turned to so good an account as they might well be. This, however, does not apply to the neighbourhood of Wimborne, Dorset, as I noticed several instances where the fronts of cottages have been very neatly clothed with them. At Canford Manor the small silver variegated *E. radicans* is largely bedded out, while against the front of the gardener's house there is quite a large tree, and very bright and pretty it looks now and at all times. The more showy *E. latifolius albus* is similarly located, and I also observed it in other positions where neat, yet very ornamental wall plants are needed.—I.

Black Walnut in America.—One of the largest specimens of Black Walnut, says *Garden and Forest*, probably ever sent to an eastern market in the log may now be seen in the timber yard of Messrs. Johnson Bros., 385, Albany Street, Boston. The tree which produced it grew near the falls of Kenawah, in West Virginia, on the line of the Chesapeake and Ohio Railroad. The trunk, which measured 64 feet to the first branches, has been cut into five lengths; the butt log, the centre of which is hollow from decay, measures at the base 8½ feet across. The diameter of the log, cut 25 feet from the ground, is 4 feet 2 inches, and that 50 feet from the ground has a diameter of 3 feet 11 inches in one direction and 3 feet in the other. The upper end of the fifth log, at a point 61 feet from the ground, where the trunk had been a good deal flattened, measures 4 feet 1 inch through one diameter, and 2 feet 9 inches through the other. These measurements are all made inside the bark. A thousand feet of lumber have been cut from the main branches, and the five trunk logs are estimated to contain 10,000 feet. The wood in the butt log outside the central cavity is beautifully curled and marked. A superficial examination of the annual layers of growth shows that this great tree has grown on the whole with wonderful rapidity, and that it is probably less than 300 years old.

Sweet-scented Honeysuckles.—Although the number of shrubs that flower during the winter is limited, we have among them three kinds whose flowers possess delicious fragrance. One of these, *Lonicera fragrantissima*, is now well in flower, as also is the allied *L. Standishi*, and a good opportunity is thus afforded one of noting the points of difference between them. For covering a fairly high wall *L. fragrantissima* is to be preferred, as it is more of a climbing habit than *Standishi*'s Honeysuckle, though in the case of a low wall this last is equally desirable. The other respects in which they differ are that *L. Standishi* has ovate leaves that are when young hairy on both surfaces, while when mature the upper side is almost smooth. It is also nearly, if not quite, deciduous, while *L. fragrantissima* will often retain many of its leaves during the winter. This last has also quite glabrous foliage. The third winter flowerer is *Chimonanthus fragrans* and its variety *grandiflorus*, whose starry blossoms are so deliciously fragrant, that when the plant is trained near the dwelling-house, their scent may be readily detected indoors, especially during sunshine. A very desirable combination is furnished by planting *L. fragrantissima* and the winter-flowering *Jasmine* in close proximity to each

other, so that the branches of the two will become intertwined, and flowering as they do both at the same time, a very pretty winter picture is thus formed.—H. P.

Dwarf early-flowered Rhododendrons.—There are a few early-flowering forms of *Rhododendron* that from their dwarf habit and the profusion in which their blossoms are borne are especially valuable for flowering under glass during the first months of the year. One of the best is *R. præcox*, that produces comparatively large blossoms of a pale lilac tint. This *Rhododendron* is the result of intercrossing the pretty little purple-flowered *R. dahuricum*, which is a native of Europe, with the Himalayan *R. ciliatum*. Both of these last-named are also very ornamental under glass at this season, the little *R. ciliatum* bearing its blush-coloured bell-shaped blossoms in great profusion, while the European *R. dahuricum* is represented in our gardens besides the typical form by the variety *atrovirens*, the flowers of which are deeper in colour than those of the species. Another of the same class is *R. Early Gem*, raised in Messrs. Veitch's nursery, Coombe Wood, its parents being the hybrid *R. præcox* and the dark-coloured form of *R. dahuricum*. In *Early Gem*, the flowers, which are produced in the greatest profusion, are of a bright rosy-purple colour, and are of a large size for the plant on which they are borne. Though only noted above as desirable subjects for flowering under glass, these *Rhododendrons* are very beautiful for blooming in the open ground, or rather in a spot where sheltered from sharp frosts, as from their early-flowering qualities the spring frosts often injure the blossoms. The shelter afforded by neighbouring bushes or trees will often do much towards saving the flowers from injury.—H. P.

FERNS.

BRITISH FERNS AS TOWN PLANTS.

ALTHOUGH there are no more useful plants in existence for decoration than our hardy British Ferns, yet, singular as it may appear, they are not valued as they should be. They are the best of all plants for town gardens, in which their graceful fronds keep fresh and green where ordinary bedding plants could not exist. The usefulness of Ferns in a cut state is admitted, else they would not be brought to market so largely. It is, however, to their value under cultivation that I wish to direct attention. In stands in sitting-rooms, even in the darkest streets, British Ferns will remain fresh and continue to throw up their cheerful-looking green fronds year after year. Small gardens, too, even though surrounded by high walls or fences (as in the annexed illustration), might be made attractive simply by the introduction of a few Ferns. The great drawback to British Ferns appears to be that they can be bought cheaply, or can be had for the trouble of carrying home after a day's ramble among country lanes. In nearly every house the inmates of which are fond of flowers will be found a Wardian case, or a pan covered by a bell-glass, in which a few exotic Ferns are vainly striving to live and look healthy. Such Ferns receive every attention; their glass covers are now and then removed to give them air, and yet, in point of freshness and greenness, they cannot be compared with hardy native Ferns which only require a little water to keep them in good health. For small stands, the best suited are *Asplenium Adiantum-nigrum*, *A. marinum*, *A. Trichomanes*, *Blechnum Spicant*, and *Polypodium vulgare*. These are all dwarf kinds which make very effective table ornaments if placed in 10-inch seed-pans, the surface of the soil being covered with fresh wood Moss. Should an ordinary pan not be considered sufficiently orna-

mental, one of a rustic character, which is generally covered by a bell-glass, may be obtained.

For window boxes, varieties of a more robust growth than those just named should be chosen, say such kinds as *Athyrium Filix-femina*, *Polystichum aculeatum*, *Lastrea dilatata*, *L. Filix-mas*, *Polystichum angulare*, *Osmunda regalis*, *Scolopendrium vulgare*, and others of a similar character. These look well placed in halls, and are not readily injured by the draughts to which they are there subjected. The roots of such Ferns as these, though lifted from a hedgerow, and planted even in some London back-yard, push up fronds in spring as fresh as if they had never been disturbed. Most Ferns in the growing season require plenty of water, though even on this point they are very accom-

modating. I have seen plants of *Asplenium Adiantum-nigrum* growing so near the edge of water that their roots have been in it, and I have seen it also on hillsides growing equally well, overhung by rocks, which must have screened it even from rain. Out of all the Ferns just enumerated the one which revels in dampness more than any of the others is *Asplenium Trichomanes*. Of this elegant little Fern I have seen some fronds quite a foot in height when growing near water. Amongst other kinds the Parsley Fern (*Allosorus crispus*) should not be forgotten. It is dwarf in habit, has bright foliage, and even when planted in a pan has an excellent effect. Townspeople, who do not find ordinary plants thrive with them so satisfactorily as they could wish, would do well to obtain a few hardy Ferns from the country to take their places. Were they to do this, I feel

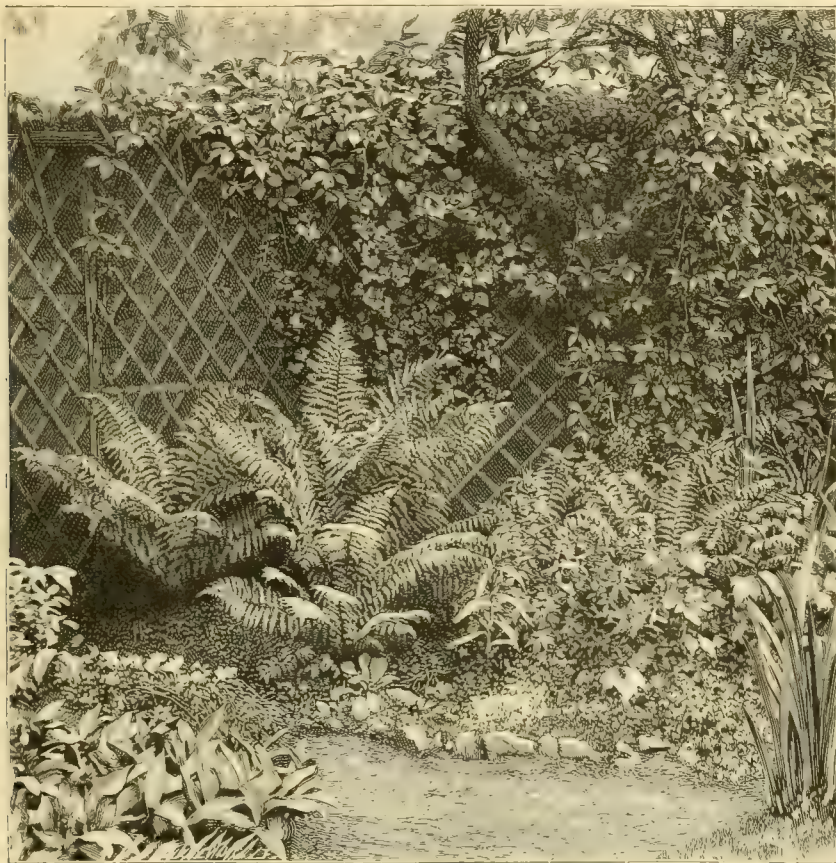
ARRANGING THE HARDY FERNERY.

A COLLECTION of hardy Ferns is interesting at all seasons of the year. The deciduous species are all dormant now, of course, but the evergreen varieties, in a sheltered fernery, never altogether lose their effectiveness. In arranging the positions for the different kinds of Ferns, their requirements as to soil, shade, moisture, or exposure should be well thought out, so that each plant may have a suitable position. This matter is often lost sight of when planting the Ferns, and the delicate kinds perish in con-

hedges, where they thrive, increasing and multiplying year after year without disturbance, unless some wandering collector discovers their habitat, and carries them off to town to convert them into money. I have seen ferneries very prettily arranged without a single stone or clinker. Where there is plenty of scope in some partially shaded spot, quiet and secluded, banks may be thrown up varying in height, suitable positions as regards soil and aspect may be easily created, intersected by winding walks with rustic steps leading from one elevation to another. Rustic bridges may span the chasms and help to create cool, shady spots for those varieties which require such positions. But in making the groundwork, keep the good soil on the top and the bad stuff at the bottom. I always think, where there is scope enough, the arrangement of the plants in family groups is the most satisfactory way, as it enables one to make suitable positions as regards soil that will be of a more permanent character. It is easy enough, of course, to make a hole a foot or so or over, and fill it with suitable compost for any particular plant; but other plants soon rob it of its nutriment, and if this were not so, the continual action of falling showers will carry away the special value of the prepared soil, or at any rate it would not possess that permanence of character that a good bed of such material would have. Hence, from my point of view, the system of grouping in families is the most natural, as well as the best one to meet the requirements of the plants.

In arranging the stones in the construction of a rockery, it is better to study the well-doing of the plants than to make a puny attempt to imitate Nature. Very few people really do this well, but it is a comparatively easy matter to arrange the stones so that they will be useful as shelters to the Ferns, and at the same time look more or less picturesque. In the annexed list I have not given the names of many of the varieties of the Lady Ferns, Hart's-tongues, and others which have branched off into many forms from seeds, but it would be very interesting to gather together full collections and grow them side by side, and as there is no finality in anything, probably other curious and interesting forms would be evolved.

LIST OF HARDY FERNS FOR MASSING.—*Athyrium Filix-femina* (Lady Fern), *A. F.-f. Fieldiæ*, *A. F.-f. grandiceps*, *A. F.-f. plumosum*, *A. F.-f. Victoriæ*, *A. F.-f. multifidum*, *A. F.-f. coronatum*. A damp, but not wet, rather shady position suits this family. Plant in a bed of good loam and leaf-mould. *Lastrea Filix-mas* (Male Fern) is a robust growing species and will succeed anywhere; its varieties are very interesting. The following are among the best: *Lastrea Filix-mas cristata*, *L. F.-m. furcans*, *L. F.-m. Barnesi*, *L. F.-m. polydactyla*, *L. F.-m. crispa*, *L. F.-m. Pindari*. To a large extent the above are evergreen, but there are *Lastreas* which are deciduous. The Marsh Fern (*Lastrea Thelypteris*) is a deciduous species, as is also *Lastrea montana*. These do best in a damp situation. *Blechnum Spicant* (Hard Fern) is a dwarf, handsome Fern, always fresh and green. The species is very common. I have found it wild in many counties in woods and in deep shady country lanes. I have also found it growing freely on open exposed banks, so that it is not particular as to position. The following varieties should be grouped with the type: *B. S. cristatum*, *B. S. concinnum*, *B. S. heterophyllum*, *B. S. imbricatum*, *B. S. projectum*. I find I have omitted to mention *Lastrea dilatata*, rather an interesting form that has already produced several varieties, and some-



Hardy Ferns in a London garden.

sequence. All Ferns with two or three exceptions grow best in a deep loamy soil, more or less lightened and enriched with peat or leaf-mould. The exceptions will be referred to later on in the list I propose giving. In arranging the positions, those kinds which require special treatment should be grouped together. In a district where large pieces of sandstone can be easily obtained they may be freely used, not only for their picturesque effect, but also for the assistance they give to those plants which thrive best in a stony soil. I dislike the white, glaring flint stones sometimes employed, neither am I partial to clinkers or vitrified brick, although I am sometimes, for want of better materials, obliged to use them. Many British Ferns grow naturally on the banks in country lanes, sheltered and shaded by the growth of the overhanging branches of the

thing more might be looked for if all are grouped together; *L. d. cristata*, *L. d. lepidota*, *L. d. Chanteriae*. Plant in loam and leaf-mould on a shady bank. *Lastrea spinulosa* should be added. *Osmunda regalis* (Royal Fern), is a very striking species. To have this in really fine form it should be planted in a bog, but I have seen it do well in a bed of peat with a layer of clay beneath. Where a plentiful supply could be had near, the crested form, *O. r. crispa*, should be grown, though hardly so effective as the type. There are two distinct classes of *Polypodium*, one deciduous and the other evergreen. *Polypodium Dryopteris*, *P. Phegopteris*, *P. calcareum*, and *P. alpestre* are deciduous, and should be planted in loam and peat in a cool partially shaded situation. The evergreen *Polypodies* are varieties of the common species, and will grow freely on old stumps of trees or among stones in good loam with just a dash of leaf-mould. Among the most distinct are, *Polypodium vulgare cambricum* (Welsh *Polypody*), *P. v. cristatum*, *P. v. crenatum*, *P. v. omnilacerum*.

The *Polystichums*, or Shield Ferns, are among the most interesting and beautiful. *P. angulare* is a most useful species, and has produced a large number of varieties, as *P. a. cristatum*, *P. a. proliferum*, *P. a. grandiceps*, *P. a. gracile*, *P. a. imbricatum*, *P. a. lineare*. Plant in good loam, and work in a few pieces of sandstone on a bank where they will be shaded from the midday sun. The *Scolopendrium* (Hart's-tongue) is one of the most interesting groups. The finest specimens are found in good soil near water, overhanging it as it were. *Scolopendrium vulgare crispum*, *S. v. ramosum majus*, *S. v. subcornutum*, *S. v. contractum*, *S. v. digitatum*, *S. v. multifidum*, *S. v. Kelwayi*; *Asplenium Adiantum-nigrum* (Black Maiden-hair), *A. a. acutum*, *A. fontanum*, *A. refractum*, *A. Trichomanes*, *A. T. cristatum*. Plant the *Aspleniums* in loam and leaf-mould rather high up on a bank in a well-drained position. *A. Trichomanes* will grow on an old wall. I have had it in great abundance on the wall of a Haw-haw. *Cystopteris fragilis* and its varieties are very pretty, and should have a special position made for them, with peat and loam and plenty of stones and grit introduced in the shale. *Allosorus crispus* (Parsley Fern) is a very pretty dwarf species; treatment like the preceding. *Ceterach officinarum*, plant among stones in stone brash mixed with peat. There should always be some means of obtaining water in a fernery. It might be so arranged that a rill could be led from one of the highest points, circling round the banks till it fell into an irregular basin at the lowest point, where bog plants and aquatics could be planted or plunged in pots. E. H.

Wallflowers as pot plants.—When visiting a suburban market garden the other day I was somewhat surprised to see an unusual number of Wallflowers in pots. These, the owner informed me, were grown chiefly for local purposes, as the demand in the neighbourhood was becoming almost insatiable. Owners of small gardens, with a greenhouse or conservatory attached to their residences, had the last year or so taken a strange liking to the Wallflower as a pot plant, and to supply the demand a large number of plants had to be grown. So much for small gardens; but why are Wallflowers not more extensively grown in large establishments as pot plants? Surely the quantity of bloom, useful for a variety of purposes, they produce repays for the labour bestowed upon them. The plants require no further attention after they are potted in the autumn and placed in cold frames, beyond an occasional watering, until they are transferred to the greenhouse in early spring. They will never fail to bloom freely,

and half-a-dozen plants will fill a house with a delightful fragrance, which, mingled with that from the Hyacinth, Mignonette, and other sweet-smelling flowers, is really charming.—C. L.

STOVE AND GREENHOUSE.

APHELANDRAS.

THESE shrubby stove-flowering plants are fine features in any collection when well grown. When in the form of specimen plants they are very effective during the months of September and October, and well repay for the trouble bestowed upon them. *A. cristata* is usually one of the earliest to flower. I remember to have seen this fine kind with seven or eight of its terminal heads of flowers in full beauty at one time, thus making a fine display. It was this kind which Mr. Ross showed so well from Pendell Court during the past autumn. It is two or three shades darker in colour than *A. aurantiaca*, which is well calculated to succeed it during October. *A. aurantiaca* Roezli is especially adapted for later flowering than the type. I often wonder why this beautiful dwarf plant is not more grown than it is. It does not appear to be so well known now as it was ten or fifteen years ago. Had I to provide a quantity of choice plants again during the winter months for decoration in a small state, I would grow it by the dozen. Taken all in all, it is one of the best of its genus for growing in quantity, as its season of flowering may be advantageously prolonged. Old plants will come into use during the month of December, whilst younger ones will prolong the season until the end of January, or even later. I have succeeded best with this *Aphelandra* when growing it from seed, which can be obtained in sufficient quantity from one or two healthy plants. A close watch must, however, be kept upon the seed vessels when arriving at maturity, for they will when fully ripe burst open and scatter the seed, which, unless it falls upon congenial soil for germinating, will be lost. The best plan is to cut off the old spikes to save this loss, and lay them out upon a sheet of paper sufficiently large to catch the seed when it falls out of the small pods. The seed when ripe should be sown to secure a good season's growth, the plants afterwards pricked off, and when large enough transferred to small pots, and eventually flowered in 4½-inch pots, or smaller if preferable. These young plants should be kept near the glass, otherwise they are inclined to become more drawn than in the case of old cut-back plants. Well-grown plants of this species make beautiful subjects for small vases when they are in flower, the orange-scarlet colour of which associates so well with the silvery-grey suffusing their leaves, which should, if the plants have received no check, clothe the plant to the rim of the pot. *A. nitens*, with foliage of a deep metallic green, is quite a contrast to Roezli's variety. The plant is not quite so compact in habit, yet it is well worthy of being grown. Its flowers are of a glowing scarlet, and make a good display during the dull season of the year. A later introduction is *Aphelandra chrysops*; this variety is more robust than either of the two preceding kinds; its foliage is beautifully variegated, whilst the inflorescence, both bracts and flowers, is of a bright yellow colour. This kind was introduced from Brazil, while the others named are chiefly from Mexico and the West Indies.

PROPAGATION.

I have already alluded to propagation by means of seeds. Where these are not to be

had, cuttings should be taken after the plants have been started into growth in the spring and struck in a brisk heat, but not one that is too heavily charged with atmospheric moisture, yet this must be well provided for in the soil. These cuttings should be struck singly in small pots to save them from a future check at the root, and then be potted on when well rooted. The old stools should, after flowering, be kept somewhat dry at the root, and also be placed in a cooler position where they will be safe if the temperature does not fall below 55°. Before starting into growth they should be pruned hard back, just as one would do with a *Poinsettia*, otherwise they will become leggy. When repotted, the old balls should be reduced and the plants placed in smaller pots, giving one shift for a medium plant, and two for larger ones afterwards. Firm potting with the hands (not with a stick) will suit them well. They prefer a soil composed of good turfy peat and loam in about equal proportions, with silver sand or old mortar rubbish added thereto. The mealy bug, amongst insects, will be their greatest enemy, but this can be overcome by dint of continual perseverance. J. H.

Callas from Sewardstone.—Under the above heading in THE GARDEN, January 18, you ask for a few cultural details of how we grow Callas here, and I willingly comply with your request. Having to grow them for conservatory decoration, I prefer to grow them as specimens, as they are more effective and do not take up so much room as single crowns. About the middle of May I turn the plants out of the pots, reducing the ball and removing some of the suckers, so that they may be potted up in the same sized pots. I use 14-inch pots for the largest. Having been shaken out, they are planted in a border under the shade of a wall with a north-east aspect, this position seemingly suiting them better than a more open one. They need but little further attention, an occasional watering, if the season is dry, being all they require. I pot them up early in September in loam, leaf-mould, and a little well-rotted manure, and stand them in the shade for a few days. Stimulants are given three times a week, liquid manure from the farmyard answering well. With this treatment the plants will flower for three months. For the decoration of the drawing-room, if the spikes are cut with long stalks and arranged with leaves in a deep vase, the effect is most pleasing.—J. NICHOLSON, Sewardstone Lodge.

Violets in frames damping.—In the vicinity of towns there are many complaints heard this season of the failure of double Violets in frames. It has become the fashion hereabouts for the owners of nearly every garden where there are any frames or pits available to fill two or more lights with the *Marie Louise* every autumn, and in some instances *Comte de Brazza's* white is also grown. This season's experience, however, will considerably damp their ardour, as failures are far more numerous than successes. Each time I have been consulted about this much to be regretted collapse, for that is what it amounts to in some cases, I have ventured to express the opinion that the Violets have been coddled, or in other words not nearly enough air has been admitted to the plants. If all accounts are true, this would not appear to be the true cause of failure in some instances, but in others I think it must be attributed to not raising the plants well up to the light, or nearly close to the glass in the first instance, and omitting to give abundance of air whenever the weather permitted. Some of the town failures are clearly traceable to a long spell of foggy weather and the inevitable accompaniment of an impure atmosphere, coupled with the somewhat weakly or soft growth of the plants before they were transplanted to their present quarters. When the mildew, or whatever it may be termed, once sets in, it is no easy matter to prevent it spreading right through a whole frame or pit of plants. The foot-stalks first collapse and then the decay quickly affects the hearts. The only apparent remedy is to

pull out the few plants first affected, this sometimes effectually stopping the spread of the disease, but a close look-out has also to be kept for any trace of the disease in those reserved, the affected leaves being picked off and destroyed directly they are seen. We have about a dozen large lights filled with Violets, and these are not placed in the best of positions, yet we have not lost a dozen plants, while fine flowers are now abundant. Our plants are not so strong as usual, but being planted high, given good soil and plenty of air whenever this can safely be admitted, and sufficient protection from frosts afforded, they have, on the whole, done and are doing well. It must in fairness be added that our garden is situated well away from any smoky town.—I. M. H.

A NOTE ON CORREAS.

WHEN the various hard-wooded greenhouse or New Holland plants were in full popularity the different Correas were then extensively grown, their value as flowering subjects being enhanced by the fact that they bloom during the winter and early spring months. Since that time, however, in common with many other plants of similar requirements, they have gradually almost dropped out of cultivation till within the last year or two, when the demand for them seems to have increased, and therefore hopes may reasonably be entertained that we may before very long again see many representatives of the Cape and Australian hard-wooded plants occupying a better position in our gardens. Of all the Correas the first place must be given to *C. cardinalis*, a species with a profusion of bright scarlet blossoms, tipped with light green. The one great drawback in the culture of this Correa is the fact that it is very liable to run up thin and naked, and to obviate this as far as possible the plants should be freely stopped during their earlier stages, while they should at all times (but more especially during the winter) be thoroughly exposed to the light. Despite the many severe articles condemning grafting that have from time to time appeared in THE GARDEN, this Correa forms a more satisfactory specimen when grafted on the free-growing *C. magnifica* than it does on its own roots. I have also seen *C. cardinalis* in very good condition when planted out in a prepared bed in the greenhouse; indeed, many things so treated display their true character much better than when grown in pots, though such a mode of culture is seldom carried out. The late Mr. Joad, of Wimbledon, some few years since used to be very successful with many difficult subjects when treated in this manner. The Correas need a good open soil, and a compost consisting principally of sandy peat just meets their requirements. In potting them thorough drainage should be ensured, and the soil pressed down firmly, while as the roots are by no means vigorous care should be taken that the pots are not too large. To propagate them from cuttings the shoots should be taken during the spring, just as they become slightly woody, and being cut off clean at a joint and the bottom leaves removed, they should be dibbled into a prepared pot or pots and covered with a bell-glass till rooted. Where it is intended to graft the weaker varieties it should be carried out towards the end of spring or early in the summer, the stocks employed being young, free-growing plants in small pots, and if side-grafted near the ground, a perfect union will soon take place. H. P.

Fog and indoor flowers.—*Primula floribunda* had been flowering with me for a long time even in the smoke of London till about a fortnight since, when a few days of dark foggy weather completely destroyed the foliage, while the flowers were almost uninjured. The plants, however, received so severe a check, that many of them have already died; indeed I think very few will survive. The Japanese *P. obconica* resists fog better than its Himalayan relative, though even it suffered a good deal. Besides the above the fog injured many other greenhouse plants, among those most affected being the different Indian *Azaleas*, that in many

cases lost the greater part of their leaves and a large quantity of flower buds. The leaves appeared as if they had been badly scorched, and have continued to drop up to the present time, while in the case of many subjects that were showing flower the unopened buds were totally destroyed.—H. P.

VALLOTAS FROM SEED.

In reply to "M. E." (THE GARDEN, January 18, p. 68), Vallotas are easily raised from seeds, but I have found that they rarely come up if not sown as soon as ripe. Vallota seeds seem to lose their vitality more quickly than those of anything I have had to do with, although I think that in the case of all bulbous flowers, whether hardy or tender, it is of the highest importance that the seed should be sown as soon as ripe. There is a rule with this class of flower that the seeds come up just at the time when the parent bulbs start into growth. This fact should guide those who wish to raise young plants from seeds, which it is evident should be in the soil in readiness to sprout when the natural growing time of that particular bulb comes round. Thus Daffodils sown in September are now through the soil, just in the same stage of growth as old bulbs in the open ground. The Vallota belongs to a class of plants that has but few representatives in cultivation. It blooms in autumn, and the pods swell all through the winter in a low temperature, ripening off with the advent of fine spring weather. The two hardy Cyclamens, *europæum* and *hederacifolium*, are of the number. Their seed pods are now plump, and the seeds will ripen off when the fine weather comes, and it is the same with Vallotas. In a cool house the pods are green and continue to swell slowly all through the winter months, which fact is a positive proof of how wrong it is to dry this bulbous flower off. If the roots shrivel and the leaves turn yellow, the seed-pods will also shrivel up, and thus the ends of Nature are defeated. It is the nature of this plant to form its seeds when most things are at rest, and it is therefore unnatural to deprive it of moisture at that time.

I have at the present time a number of pods that are swelling up and that will ripen about March. They are in a cool house, but in a temperature of 50° they would of course be more advanced. I do not, however, advise putting the plants in warmth in winter, as I think that they like several months' complete rest. As soon as the capsules open the seeds should be sown in light sandy soil, covering the surface with Moss and putting a piece of glass on it. They come up in the course of about a month in a temperature of 60°. If the seeds are stored away for several weeks only, the chances are that they will not come up.

J. C. B.

Spiræa astilboides.—The specimens of this *Spiræa* exhibited at the last meeting of the Royal Horticultural Society showed that this *Spiræa* can be forced into bloom early in the year, but for this purpose it is very unlikely that the newer introduction will be so largely grown as *S. japonica*, which is to be met with in every garden. *S. astilboides* is still an expensive plant, while *S. japonica* may now be obtained at a cheap rate, being imported into this country every year in large quantities. *S. astilboides* is seen at its best when growing in a moist spot outdoors, and it also forms a grand specimen for flowering under glass if strong clumps are obtainable. They should not be forced, but with the protection of a frame or greenhouse fine spikes of bloom will be developed somewhat earlier than on plants in the open ground. This *Spiræa* is slowly, but surely making its way in favour, having been first exhibited by Mr. Bull in 1882, and distributed by him two years later.—H. P.

Uroskinnera spectabilis.—This native of Mexico is a plant of a half shrubby character, that in this country requires the temperature of a stove or intermediate house, where it flowers during the early months of the year. The oblong-shaped leaves are about 3 inches or 4 inches long, and are

densely covered with whitish hairs, while the flowers, which are borne in terminal clusters, bear a considerable amount of resemblance to those of a *Pentstemon*, being about 1½ inches in length and three-quarters of an inch across the mouth. The colour of the blossoms is a deep mauve on the outside and white within. It is by no means a novelty and is quite a rare plant in gardens, yet it forms not only an interesting, but a showy subject. It is of easy culture, and can be readily propagated from cuttings of the young growing shoots taken anywhere during the spring months, and if grown on freely afterwards they will bloom the following year. A mixture of loam, leaf-mould, and sand will suit it perfectly.—T.

BILLBERGIA SANDERIANA.

I RECENTLY noted this species flowering in a private collection. The plant was, I believe, imported by Mr. Sander, of St. Albans, some few years back and named by Mr. Morren in his honour, although it appears to have been first discovered at an earlier date. This plant is another illustration of the great beauty exhibited by the genus *Billbergia*, and affords another example of the richness in species of its native country, Brazil, this having been found in the province of Rio Janeiro. It is a plant of robust habit with strap-shaped obtuse leaves, which are arranged in a rosulate fashion; they are bright green on the upper side, slightly scurfy beneath, and strongly armed on the edges with stout slightly recurved blackish spines. The spike rises from the centre and is pendent, bearing many flowers which are mostly arranged in groups of two and three together, and are surrounded with medium-sized pale rose-coloured bracts; the flowers are long and tubular, the calyx greenish-white tipped with pale blue, the tube of the flower greenish-yellow, the apical expanded portion being of a somewhat deeper blue, the stamens orange-yellow. A great field is open to British gardeners to make these plants a speciality. At present we have not a single garden in the country where these plants are grown and tended with any care. Each plant should stand out distinctly and be made a speciality of, as they may be seen in many of the collections in Belgium, and we sadly want a few amateurs in this country to interest themselves in *Billbergias*, as many have done with *Orchids*. Then we should see what a fine show these plants would make at all seasons; one or another species would be blooming, and when flower was not forthcoming to attract the eye, some species of the family possess variegation of the most exquisite description. A house of *Bromeliads* would be quite as diversified and as interesting as the same space devoted to *Cattleyas*. Then why have we not one amongst us who makes a speciality of them? In this family, too, there is a large field for the hybridiser, some of the most beautiful kinds in cultivation being the result of French and Belgian efforts in this line, but there is abundance of room left for others. W. H. G.

Pavonia Makoyana.—By some writers this species of *Pavonia* is included in the genus *Goethea*, and it is usually regarded as more of a summer than a winter-flowering plant, yet where growing freely it will bloom more or less continuously throughout the year. Although the blossoms are not showy they are interesting. Like so many of its allies, this *Pavonia* is an erect growing, rarely branching shrub, for even if pinched back during its earlier stages it seldom pushes out more than a single shoot. The flowers, which are borne in terminal corymbs, are very singular, being composed of bright rosy red bracts, while the protruding calyx and corolla are of a blackish purple tint. Another feature is furnished by the bright blue anthers, which are crowded together in a cluster at the contracted mouth of the flower. The second species, *P. Wioti*, of which a coloured plate was given in THE GARDEN, August 4, 1883, differs from the last in the bracts that surround the blossoms being cut up into narrow strips, and they are also brighter in colour, while the entire flower is of a lighter hue. This last remark also applies with

equal force to the foliage. The cultural requirements of these Pavonias is by no means exacting, for they are readily propagated from cuttings after the manner of their allies, the Abutilons, and will grow freely with ordinary soil and treatment. The leaves towards the base of the plant are very liable to drop, and this tendency is greatly hastened if they are attacked by red spider, which is the principal insect pest to guard against. Liberal syringing during the growing season is the best means of keeping them in check.—T.

Pepinia aphelandræflora.—This is a brilliant flowered species which is quite unlike a Bromeliad, the leaves being narrow, drooping and deep green; the flowers are erect, borne in terminal clusters, tubular, and brilliant scarlet, with the exserted stamens rich yellow. It thrives best in small well-drained pots. I noted it flowering last Christmas, and I hope the plant may be preserved. It is one which has been greatly neglected in this country; whereas it should be largely grown. It is a native of Peru.—W. H. G.

Flowering of Camellias.—So far as I have observed, in Cornwall at all events, the attempt to force Camellias, referred to by Mr. Muir in THE GARDEN (p. 51), has generally proved a complete failure; the buds either drop off before they are scarcely open or the young flowers are most imperfectly formed. The smallest possible amount of artificial heat answers best. In Cornwall, however, where they are in flower either in the open air or in an unheated conservatory from autumn until early summer, the necessity for forcing at all is consequently greatly diminished. I can also corroborate what Mr. Muir says at the end of his note: "A gentle fire-heat to start the plant is very beneficial, but a week or two of this will be found quite sufficient."—W. ROBERTS.

Aquilegia cærulea for the greenhouse.—Very lovely indeed is this Columbine in pots. If gardeners would but purchase seed, sow at once in pans, get up as quickly as possible, and when fairly strong dibble out 9 inches apart into good soil, they would have a fine lot of plants to lift for potting in the autumn. All could go into 4½-inch pots, as the variety is not a robust grower, and some might about the end of the year have the assistance of gentle warmth to push them and others coming on in ordinary greenhouse temperature, whilst some planted outdoors would be later still. A score of these lovely blue and white-flowered Columbines in pots about 16 inches to 18 inches in height would be charming in a greenhouse.—A. D.

Chevallieria Germinyana.—This is another beautiful species which I saw when paying a visit to the gardens of the Comte de Germiny at Gouville, near Rouen. The plant has the habit of a stout growing *Echmea*, and a near relative of this is the *Echmea Veitchi*, but not having access to any good modern book upon these plants I am obliged to take the names as I find them. It has long, recurved, strap-shaped leaves, which are armed at the point with a stout spine, and at the edges with a closely set row of fine spines; the spike rises in the centre, producing on the top a dense and highly coloured mass of deep rosy red, closely imbricated bracts, which are recurved slightly and finely serrated, forming a beautiful cone. When the plant has two or three growths and all flowering, the beautiful effect is considerably increased.—W. H. G.

Rhododendron arboreum roseum.—The typical form of this Himalayan species is fairly well known in some of the more favoured parts of this country where it thrives out of doors. It is a very variable plant both in foliage and in the colour of its flowers. There is now flowering in the temperate house at Kew a rather uncommon variety, the first of the Himalayan section to open its flowers, to which the name *roseum* has been given. Instead of the bright deep red of the type the flowers are of a soft delicate rose. The plant is 3 feet high and about as much through, and bears over a score of heads of flowers, the fully expanded blooms measuring nearly 6 inches across. From

fifteen to twenty-five of the closely packed, bell-shaped blooms occur in each head, and each flower is 1½ inches across. The best idea of the beauty of such a plant may be obtained by turning to the issue for July 20, 1889, of THE GARDEN, where a coloured plate is given of *R. nilagiricum*. This is now considered to be a variety of *R. arboreum*, and indeed it differs from the above only in the presence of crimson spots on the corolla and in its later flowering season. At one time the ferrugineous tomentum, which is on the under side of the leaves of both, was made a distinguishing mark between them and *R. arboreum*, but intermediate forms and general structural resemblance show them to be no more than variations of that species. An interesting feature of the plant under notice is its small size. The whole of the kinds in the arboreum group of *Rhododendrons* are very shy bloomers in a small state, that is, if grown from seed. The Kew plant, however (which is grown in a pot) is a grafted specimen, the scion having probably been taken from an old flowering shrub. If plants of this size could be relied on to flower this variety would certainly be one of the most useful and beautiful of winter-flowering greenhouse plants.—W. B.

MIGNONETTE.

MIGNONETTE being such a general favourite it should receive more attention than is usually given it. In addition to the perfume of the flowers, the improved varieties are attractive, if not particularly showy in appearance. Although there are now a great number of varieties offered, there are only two types worthy of consideration, viz., the white and the red. In the former the petals are large and the anthers inconspicuous, while in the latter the red anthers are prominent, and the petals are smaller and of a greenish colour. It would be superfluous to give names, as the best forms have been rechristened so many times. Among market growers the dwarf red variety finds most favour, yet I think the white is equally deserving of culture, and a point in its favour is that it seems to flower better during the winter, the only drawback being that the white varieties are all inclined to grow taller than the red.

Provided a good strain of seed is secured, there is not so much difficulty in growing Mignonette in pots as is generally supposed. A good rich compost, regular attention to watering, and plenty of light and fresh air are the chief points towards success. Where seed was sown late in the autumn the young plants should now be making growth, and where it is desired to bring them on as early as possible, the best position will be on a shelf as close to the glass as possible, and where there is a free circulation of air. Later on the pots should stand on a moist bottom, but until the sun gets more powerful they will take no harm if stood on a dry shelf. Mignonette is very impatient of artificial heat, especially while there is not too much daylight. A very little warmth will cause it to run up spindly and weak. Watering is perhaps the most important matter connected with the culture of Mignonette, and while the plants are small great care must be taken that they do not become saturated; in fact, it is best to keep them rather dry than otherwise. As the plants increase in growth more water will be required, and by the time they begin to come into bloom they will require a good deal of water. Liquid manure may be used freely, commencing as soon as the plants are about 2 inches high, using it rather weak at first, and gradually increasing its strength as the plants advance in growth.

The first week in February is a good time to make the first sowing of Mignonette, and this will come into flower early in May. In preparing the pots it is a good plan to mix a little soot with the drainage, and, as previously stated, a rich compost should be used, two-thirds good loam and one-third manure, with a little lime or old mortar rubbish added, and if the loam is heavy some sand may be used. The pots should be filled to within about half an inch of the top, pressing the soil as firmly as possible.

The seed must be well covered with soil, which should be passed through a fine sieve. Thinning should be attended to as soon as the plants are well up, and it is best not to thin them too much at first in case of a few going off. They may be gone over a second time after they have made a good start, leaving from six to eight plants in a pot. Mignonette is sometimes pricked off, but it generally succeeds best when grown on and flowered, without being disturbed at the root, from the time the seed is sown. F. H.

LITTONIA MODESTA.

I AM asked the proper time to pot this plant. Littonias are tuberous-rooted plants, having the habit of the *Gloriosas* and being nearly allied to it. If they are about to start, pot at once, using a mixture of peat, light yellow loam, and leaf-mould in about equal parts, to which may be added a fair share of sharp sand and some good old manure, but they should not be watered until they show signs of growth. If the tubers are not yet showing any indications of pushing, which they should not do if not wintered too warm, still keep them cool, and try and maintain them dormant until about the middle of March, when they may be potted and stood in a warm part of the greenhouse, and in which they may be grown. If growing at the present time they will require to be placed in a cool stove. I like to put Littonias in their flowering pots at once, as I have found much advantage from this plan with *Gloriosas* and *Sandersonias*. Give them large pots, well drained, and pot them in the soil named above and place near a rafter or pillar, for upon these the plants present a far better appearance than any other. Water carefully and well until the plants have attained some size, when some weak cow manure water should be given them about twice a week, which will greatly assist them. My reason for adopting the single shift with these plants is this—they are all climbers, and most of them are furnished with tendrils at the ends of the leaves, which cling round anything. If these are not kept straight and trained in the position they will be required to occupy they will present a tangled and confused mass, and this cannot be unfurnished, but if trained upon a wire placed round the rafter they make a bright show. The shoots should be carefully trained, each one upon a separate wire, and kept from straying from it. The leaves are pale green, terminating in a tendril, and the flowers spring from the axils of the leaves in great profusion; they are bell-shaped and deep orange. Although not so beautiful as the allied genus *Gloriosa*, it is a lovely plant, which should be found in every garden. After the blooming season is over, the plants may be taken down from their positions and the shoots tied round about some sticks, and in this condition they may be placed in some position in the house out of sight until all the leaves have fallen. The pots may then be turned on their sides and kept so until the soil becomes quite dry, when the tubers may be knocked out and stored for the winter in dry sand, choosing for their reception a cool, but dry place. I have known growers who prefer to allow them to remain in the old soil until spring, but then the large pots remain about all the winter. W. H. G.

SHORT NOTES.—STOVE AND GREENHOUSE.

Tillandsia Lindeni.—This beautiful species I recently observed flowering in Sir Trevor Lawrence's garden at Burford Lodge; it is one of the finest of the whole family, having large violet-blue flowers, which afford a delightful contrast of colour when arranged with other flowers.—W. H. G.

Cryptanthus Beuckeri.—This is an exceedingly pretty Bromeliaceous plant which I have frequently noticed in the gardens at The Woodlands, Streatham; it is a dwarf plant with petiole leaves, which are of a greenish red hue, and transversely marked with blotches of green; on the under side they are plain. As a flowering plant it has, however, little to recommend it, as the flowers are small and white. It is a valuable plant for edging and for planting in rockwork. It comes from Brazil.—W. H. G.

Freesias.—In reading over the note by "F. G." (GARDEN, Jan. 25, 1890), I find that he omits something that is, to my mind, very material in starting *Freesias* in autumn, namely, covering them when potted with cocoa fibre refuse. This or some other plunging substance is necessary if *Freesias* are to have an early start.—W. H. BLAIR.

Camellia Lady Hume's Blush.—A very fine plant of this, fully 15 feet high and as much through, is growing in the conservatory at Rooksbury Park, near Fareham. It annually produces a capital crop of pale pink or deep blush flowers. Being a strong growing sort, it always produces wood enough to admit of some being cut with the flowers, thus prolonging their lasting properties, and rendering them much more useful for room decoration than where the growth is so slight, that the blooms can only be picked off.—P.

Variegated Moneywort.—What a lovely little plant is the variegated *Moneywort*, and how rarely one sees it now-a-days. We have lately seen it used with striking effect in a cool greenhouse in the form of a trailing plant in hanging baskets. It has a charming appearance, the graceful stems clothed with green and white variegated leaves, kidney-shaped, with lobed margins. The flowers are quite inconspicuous, and are produced from the axil of the leaves, and instead of falling off when over, are persistent, remaining long on the plant and giving it a rusty-brown appearance. It seems easily damaged by giving water overhead, but if the baskets or pots are dipped in a pail of water and the foliage kept dry, we anticipate no difficulty in its management, even in smoky London.—K.

Outdoor Camellias.—As further evidence of the extraordinary mildness of the present season comes the note of Mr. F. Barry (p. 72) of having cut a *Camellia* bloom from an outdoor plant. We have all heard of the outdoor *Camellias* at Glen Eyre, Southampton, which is farther south, and probably the soil is very suitable for them; hence their very successful cultivation at that place. When at Sundridge Park, Kent, some twelve years ago, we had a few planted outdoors; one, the largest, was a red variety which bloomed profusely, and was the picture of health, if fine dark green shining foliage was any criterion. I say this because there has lately been some difference of opinion as to the cause of *Camellia* buds dropping, it being inferred by some growers that bad health, consequent on bad root action, was the principal cause, while in other cases plants with the best of foliage, usually indicative of the rudest health, also cast their buds. The plant above referred to had the same trait of bud-dropping, but still produced a good crop of flowers. It was planted in sandy soil at the base of some rockwork in a sheltered position and the drainage was good, but the blossoms were sorely damaged by wind and rain. Probably the main cause of bud-dropping is that more buds form than the plants are able to carry when they approach the flowering stage.—PATHFINDER.

Russian Violets not flowering.—If A. W. Fitzwilliam had given fuller particulars of the failure mentioned on page 91, it would have been much easier to have solved the difficulty. It is not stated whether the plants are under glass or in the open, but seeing that "some Neapolitan Violets planted at the same time, and treated in exactly the same manner" have been a great success, we may reasonably conclude all are under frame or pit culture. My reasons for arriving at this conclusion is the fact that Violets generally in the open ground have been much crippled by frosts this season, and that too in districts where they are not often so badly cut up. What few plants of any of the varieties belonging to the Neapolitan section that we left in the open have not suffered so very much from frosts, but they have yielded but few flowers since the early part of November. The Russian Violet can be successfully grown under glass, but it is not so amenable to frame culture as the Neapolitan, being more given to produce leaves than flowers. In the open the plants flower freely during the autumn and winter, nothing but severe frost checking them, but directly warm, spring-like weather sets in, leaf

growth commences and flowering ceases. If when placed under glass they are planted in loose rich soil or kept rather warm, this inevitably causes early leaf action and few or no flowers are produced. The remedy, then, is to plant firmly in rather poor loamy soil, this being well raised up to the light. Abundance of air must be given in all but the most severe weather both night and day, the lights being drawn right off on all fine fairly mild days. If this treatment fails, then I do not know what will succeed. It is hardly possible to grow the Neapolitan, being prepared for frame culture, too strongly, always supposing the plants are kept well clear of each other, but the case is very different with the Russian. These should have fairly good loamy soil, which should be made quite firm. Russian Violets succeed far better on high ground, a steep bank suiting them well. Unless planted under conditions conducive to stout growth, the plants are neither hardy nor very free flowering—at least such is my experience—and I hold it to be wiser to try for a long and abundant succession of medium sized blooms rather than risk failure for the sake of having extra fine ones.—I. M. H.

GREENHOUSE DRACENAS.

WITH the exception of *D. congesta* (which can be struck like *D. gracilis*) and *D. rubra* (the latter already included in the stove kinds for the sake of a more rapid growth), these are best calculated to do good service when of fairly good size to commence with, then onwards they gradually assume noble proportions and are fit associates for the finest of the Palms as permanent decorative plants for the conservatory. They can thus be grown in pots or tubs as well as planted out. Where there is plenty of head room the latter plan may be adopted with advantage, as the foliage becomes much finer and is retained in a healthy condition for a greater length of time. *D. indivisa* is one of the best known of its class and a plant of elegant outline. *D. indivisa lineata* is a variety of the preceding with a much more robust habit. This variety is often imported in well-established plants from the Continent. *D. australis* is of smaller growth than either of the preceding, but distinct. *D. Rumphii* partakes more of the *Yucca* style of growth, this and *D. Draco* lasting a long time in good condition. The first named in this list (*D. congesta*) is one of the hardiest of its race as well as one of the best for room decoration in small vases, keeping better than *D. rubra* under those conditions. I have propagated these strong growing *Dracenas* from the fleshy roots and also from the tops. With large plants having heads of extra size, the latter plan is best done gradually. Start with cutting the stem half-way through close up to the foliage, then bind a little Sphagnum Moss over this incision to retain the moisture; afterwards a pot of suitable size, from 6 inches to 8 inches diameter, should be sawn asunder, the drainage hole made larger, and the pot then fitted together again around the stem and secured with copper wire. A support underneath can be afforded by fixing a piece of stick crosswise; then some good peat and loam should be firmly pressed down all around the stem till the pot is nearly full. Keep the soil well moistened, especially after young roots have issued into this rooting medium. Later on, when the roots have well filled the pot, another pot two sizes larger should be placed around the stem in a similar way, enclosing all the roots and providing room for further increase of the same. By this time the stem may be cut half way through below the pot, having in some way secured the top of the plant from toppling over. If the top be very large, another pot of larger size may be added later on in preference to removing the top entirely when the second pot is well filled with roots. In the meantime the stem should be gradually severed, thus compelling the top of the plant to rely upon its newly-made roots for sustenance. This is a somewhat tedious process, but it well repays the trouble bestowed upon it in order to save a fine head of foliage when the plant has grown too tall for its accommodation. Frequent syring-

ing and plenty of water at the roots, with shading from the sun, are necessary after the plant is taken off entirely, and if a little extra heat can be given for a few weeks so much the better. Of new *Dracenas* a prominent place must be given to *D. Doucetti*, a variegated form to all appearance of either *D. australis* or *D. indivisa* (probably the former). The plants thus far shown have only been of small size, but I think sufficient has been seen to predict its extensive cultivation when better known. Its foliage has a silvery margin throughout the entire length, and gives to the plant a very light and pleasing effect. If this variegation is retained as the plant increases in size it will prove very useful, as indeed it is already, being much sought after for vases. J. H.

THE CAMELLIA HOUSE.

I DO not remember to have seen the *Camellias* so full of flower and bud as they are this season, and they are much earlier than we usually get them from a cool house. We have only aimed at a minimum between 35° and 40°, and, in fact, very little fire has been used, except to keep out frost or to dry up the house quickly after watering the beds. The first blooms were cut early in December, and there is every prospect of an uninterrupted supply until the end of April. From a market point of view, the *Camellia* has been of little value for the last few seasons, and the gradual change of the public taste from formal flowers has prevented it from entering largely into house and table decoration. Still, it is a useful flower, and very acceptable during the dull months of the year, and in all places where there are some old-established plants one is never at a loss for a plentiful supply of cut blooms. He who plants *Camellias*, plants indeed for his heirs, and it seems difficult to form any idea as to the length of time they will continue in health and vigour. The majority of our plants have been in their present quarters more than eighty years, and they seem to gain health and strength with each succeeding year. These old varieties lack the faultless form and outline that belong to the later introductions, but they are none the less acceptable in a cut state, and, indeed, the countless shades and markings of colour that are assumed by some of these old sorts are in themselves an additional recommendation. This is the case with a very old variety, that is always our earliest, known to us as French White, and from which we can cut during the season all shades of colour between a bright pink and a dead white, some flowers having quite a clear dividing line to separate the colours, while others in this same matter of colour are almost indistinguishable from *Lady Hume's Blush*. It is also known under the name of Edouard Guillion, and is very like, if not identical with, an old variety called *pomponia japonica*. Old as it is, I can thoroughly recommend it for planting where a quantity of cut bloom is required. The old *Donkelaari* is too well known to need any recommendation. It is far from being a perfect flower from a florist's point of view, but it is a useful old sort for cutting, vigorous in habit, handsome in foliage, very free, and almost as erratic in its colour as the above-mentioned French White. Another old variety, somewhat in the way of *Donkelaari*, but considerably larger both in flower and leaf, is *conspicua*. Our plant is noteworthy as having come from the garden of the house that was the birthplace of Buonaparte. The old *alba plena* is very little behind the French White this year in the matter of earliness, and is just now full of flower. This is one of the few varieties that is still of some use as a market flower, but for home decoration it is not so acceptable as *Lady Hume's Blush* or *Cup of Beauty*. Both the latter have very delicate flowers, but the plants are not so robust in habit as the other inmates of the house. *Woodsi* and *Rubens* are two good old varieties in the pink and red shades. They are later than the sorts previously mentioned, and will not be in flower until the end of February. Where plants occupy a position close to the paths of the house and annual growth is strong, it is necessary sometimes to cut back rather hard to keep them within bounds, and it is advis-

able to do this immediately each variety is out of flower, for if left until the sun is powerful, I find that the back foliage, brought into prominence and directly under the sun's rays by the removal of the forward growths, is apt to be blistered and permanently injured. There is, however, little fear of such injury if the necessary pruning is seen to as early as possible and the ventilation receives careful attention, especially for a time after such pruning or after a heavy overnight syringing. The Camellia house does not require shading in any shape or form if all these little matters are remembered and the plants themselves are in full health and vigour. I was in the habit of giving the plants a heavy mulching of cow manure immediately after pruning, but finding a stimulant at such a time had the effect of promoting a sappy and undesirably strong growth, have for the last two seasons simply mulched very lightly with a little long litter at this particular time to prevent the rapid drying of the beds under the direct influence of the sun, and reserved the stimulant until the buds are well developed. Disbudding is an important operation in the Camellia house, and does not always receive its due attention, for by a judicious performance of the same, the season can be both anticipated and prolonged. Some varieties, *alba plena*, for example, show a wonderful number of buds, sometimes as many as nine or ten being on shoots 5 inches long, five of these being terminal buds. If all the latter, except the most prominent, are removed, and only the smallest of the back buds left, the large terminal bud will develop quickly and expand, leaving the other for successional flower. Such a profusion of buds is, however, only noticeable in one or two varieties. The only enemy that troubles us at all is black fly; this we grapple with at once, and two or three fumigations given in succession until the fly is all killed, followed by a good washing with the garden engine (done thoroughly, but not with sufficient force to bruise the young and tender foliage), will keep the plants clean during the greater part of the growing period.

Claremont.

E. BURRELL.

THE VINE.*

CROPPING AND THINNING.—The cropping of Vines is one of the points in Grape culture that is perhaps more frequently abused than any other. Many succeed well up to this stage and then fail through not having the courage to remove a sufficient number of bunches. I once heard a good gardener say he thought it would be best if we asked our friends to do this work for us. There is something in this, no doubt; still we should be able to judge of the ability of our Vines by anticipation, and thus relieve them of all superfluous bunches early in their growth before harm has been done to the Vines. Vines, when they are vigorous, will show three and four bunches on each shoot; it is best to remove all but one when the stopping is being done. Never leave two on a spur when finally reduced to the number each Vine is to carry; better have a smaller bunch on another growth than resort to this. I like to see only a few left over and above the required number when they are in flower. Those kinds that are somewhat doubtful setters should have a few more left on them than in the case of others to fall back upon. Yet not too many, or the possibility is the object aimed at will be defeated through the weakening effects brought about by the very quantity itself. In the final selection, which should be made at the first thinning, the preference should be given to the most compact bunches having the stoutest footstalks, and these should be selected from the shoots possessed of the greatest amount of vigour. Some bunches have a shoulder attached to them that causes them to be of unequal proportions. I prefer to remove this in most cases to give symmetry to the bunch when fully developed and ripe. The number of bunches allowed to ripen must entirely depend on the strength of the Vine,

the length of the rod itself, the size of the bunches, and last, but not least, on the nature and quality of the soil in which it is grown. I could not depend upon Vines in the average soil of this district to carry such heavy crops to perfection as it would be possible to do in some parts of the country. I remember visiting a well-managed garden on two occasions; each time there was a very heavy crop of Grapes coloured to perfection—such a crop as we could not get half coloured even in our soil about here. The nearest guide as to quantity that I can with safety give is to allow one bunch only to every two shoots; thus there is the possibility the following season of getting a good bunch from the other spur. If a Vine is possessed of say 20 spurs, 10 bunches should be a safe crop to carry if they are of average size. Growers who cut all their fruit as soon as ripe can afford to crop rather more heavily than those who, to suit the requirements of their case, have to allow them to hang for several weeks after being well ripened. No plant with which I am acquainted is so disposed to exhaust itself by its prolific fruit-bearing character as the Vine. I wonder sometimes what would be the result if we left all the bunches that show upon young Vines. That they would not arrive at perfection is quite certain; in all probability they would not be any better than wild Grapes. The best of treatment that could be given would not compensate for the heavy strain thus put upon them. No doubt if allowed to carry all their fruit they would quickly run out the tether of their existence. When we consider the amount of bunches removed in the earliest stages, those later on, and the berries cut off the bunches that are finally left after thinning is finished, we have but a very small proportion left for the Vine to ripen to perfection, even when it is in its fullest vigour. The Vine being of such rapid growth, and its wood not of such a solid nature as that of many fruit-bearing plants, accounts no doubt for its becoming exhausted more quickly.

THINNING should closely follow upon the blooming period, and may be commenced in the case of those varieties which can be best relied upon as soon as the berries are of the size of pigeon shot. Some may urge the plea of want of time by reason of the pressure of other work; this should not be allowed, for the thinning can be done much more expeditiously when taken in hand early. It is best to do the work without touching the bunch with the hand, thinning the central part well out the first time over and the smallest of the outer portions. Soon after a house of Grapes is thinned the first time it will be needful to go over the work again to remove those berries which are not so well placed as the rest, and probably again afterwards where the bunches are extra large. Some kinds that produce berries of extra size require to be thinned more severely; to this class belong *Madresfield Court*, *Gros Colman*, *Gros Maroc*, and *Duke of Buccleuch*, using more caution with the last named kind. I have often said of *Madresfield Court* that to thin it enough the best way was when the thinning was "finished" to commence to thin it again. Some kinds need to be left a while longer than others before being thinned, such, for instance, as *Muscat of Alexandria*, *Alnwick Seedling*, *West's St. Peter's*, and *Lady Downe's*. These have all of them a tendency at times to produce berries that are stoneless or poorly developed, even when under good cultivation. When the thinning is being done some growers adopt the practice of slinging the shoulders, taking a lot of pains to spoil a bunch. This I consider is far better left alone altogether, for the more compact a bunch is the better will it look when cut and placed upon a dessert dish. During the thinning process I advise that the operator should wear either a light cap or tie a handkerchief over his head, so that his hair does not come in contact with the berries, or the result may be a disfigurement similar to the rust; this is especially the case with those who perspire freely; these, too, should be cautious not to touch the berries with their hands. The best time for Grape thinning is early in the morning and after the temperature has declined in the afternoon sufficiently for the work to be done with comfort, which is not possible in bright sunshine.

VENTILATION.—This should be done with care, judgment, and common sense, avoiding both the extremes of too much or too little. If the temperature stands in the morning at about the night standard for the time being, and there is a prospect of a good rise during the day, a little top air should be put on before there is a rise of many degrees. During hot weather the air-giving should be in anticipation rather than by force of circumstances, a little being left on all night. In the spring-time the effects of easterly winds have to be carefully guarded against; ventilation then needs to be seen to with the greatest caution. At such times there will be needed a goodly amount of heat in the pipes, yet it should not be so excessive as to force up the temperature with the aid of sunshine to too great a height, thus causing more air to be admitted than would otherwise have been required. It is always safest to have a little air on during mild weather when cloudy; it will do good, and prevent a too rapid rise before perhaps attention can be given after an outburst of sunshine.

SCALDING generally occurs after a period of dull weather when the skin of the berry is more susceptible to injury, and is brought on more often than not from non-attention to air-giving at the proper time. As colouring commences rather more air should be given, the same being gradually increased as it progresses. This is more needed for black Grapes than for white ones, and especially so where *Madresfield Court* is grown to prevent that well-known failing of this Grape, viz., that of the cracking of the berries. I believe that by giving more air the berries are checked from swelling too rapidly, which they would otherwise do if in any way encouraged in that direction. The extra amount of air somewhat checks leaf-development and tends towards the ripening of the wood, which without doubt also is an important aid to the proper ripening of the fruit, for every bunch of Grapes is better finished if the wood is ripened well above the bunch itself, and also keeps far better in good condition. When the weather is favourable and mild I prefer to have a little top air left on all night, and a crack of front air also; it assists in keeping the atmosphere more buoyant and congenial to proper colouring and ripening. One point in ventilation needs to be carefully avoided after the Grapes have stoned, and more so after colouring has commenced: it is that of never allowing the bunches to "sweat." This is caused by non-attention to air-giving in proper time by a condensation of moisture on the berries. The rapid rise of temperature without any air precipitates this artificial dew upon the cooler surface of the berries, and if repeated many times, will result in the bunches being deficient in bloom even if they are fairly well coloured, having a shining appearance when ripe. Ventilators in the back wall, or those on the roof which lift by ventilating gear, assist to prevent this fault happening so frequently, as they can be left open a little way without any fear of harm.

TEMPERATURES.—With respect to this subject I am in favour of a moderate course, and do not believe in either one extreme or the other. High temperatures I consider are exhausting to the Vine and offer extra inducements to the red spider, whilst low temperatures expose the Vine to mildew and are preventive of proper ripening of the wood. When Vines are started extra early a slightly higher temperature is needed to induce them to break away freely; whereas, when their natural season of growth is near at hand they will perform the same in a temperature of 5° less. If a house is closed for forcing, say on Dec. 1, which date I consider is quite soon enough for anyone to attempt to force Vines in close proximity to smoky London and its fogs, I prefer to keep a night temperature of 50°, which may gradually advance until 55° is reached at the end of the first month, when the Vines would be swelling their buds. By the end of the second month a night temperature of 60° may be maintained, by which time the Vines should be growing freely. The temperature should gradually advance till 65° is reached by the time the Vines are in flower, when if the weather is

* A paper read at the Ealing Gardeners' Mutual Improvement Society, November 27, 1889, by J. Hudson, Gunnersbury House Gardens.

favourable another slight advance may be given, taking 68° as the highest temperature, except in very mild weather, the only exception being made in favour of Muscat of Alexandria and a few other kinds, for which 4° more on an average may be added in fine weather whilst they are in flower, but gradually brought down a few degrees afterwards. All Grapes that are designated as shy setters should have the bunches gone over carefully every day about noon whilst they are in flower with a camel's-hair brush, or, failing that, a rabbit's tail will answer as well. This will cause a more equal distribution of the pollen grains; the points of the bunches, especially if they be long ones, often fail to set well. If time cannot be spared for this operation, then I advise that each bunch have a tap with the thumb and finger for a few days, or at least give the rods a smart shaking with the hand. Vines started after the new year do not require quite such a high night temperature as just advised, and for those which break of their own accord in a natural manner a few degrees less even will suffice. In the latter case great caution will be necessary to avoid injury from damp if the weather be unfavourable, especially with such as the Alicante, the downy nature of the young shoots and leaves of which are very susceptible to injury from excess of moisture. Where, therefore, a low temperature is, as in some instances, unavoidable, it is a good plan to tap the rods several times during the twenty-four hours to throw off this moisture from the foliage. When the point of colouring is reached the temperature should not be increased, but rather keep it a trifle lower than during the previous few weeks. It is no use to attempt to hurry the Grapes at this period of their development. The day temperature should range 5° to 10° higher than the night scale by fire-heat and 15° when the sun shines, or 20° even will do no harm provided there is little or no heat in the pipes. These quotations of temperature must not be considered as entirely binding, for if a severely cold time is being passed through, then the temperature should be a few degrees less rather than resort to an unnatural temperature by excessive heating of the pipes. On the other hand, a compensating amount of gain may be secured when the weather is mild and less artificial heat necessary to maintain the temperature a few degrees above the average.

ATMOSPHERIC MOISTURE.—This is essential to the healthy development of the Vine; a dry atmosphere is not congenial to a vigorous growth. Assistance must be given by artificial means, but not to the same extent in every case. Where a great part of the surface of the house is taken up with an inside border so much damping down is not needed as in the case of a house where there is more brickwork or staging and little or no border. When Vines are started into growth a bed of leaves and stable manure is beneficial. This, if kept humid every morning and well moistened will be almost sufficient with the addition of syringing the Vines until they are fairly on the move. If the room is of too much importance to be spared in this way more damping down will be necessary, and evaporating troughs may also be employed. The amount, however, must be regulated according to the state of the weather. If mild and less heat in the pipes, then less artificial moisture is necessary; if cold and the pipes hot, more is required. I believe the warty appearance on the under sides of Vine leaves is occasioned by too much moisture in mild damp weather. I am not partial to steaming the pipes in the usual course of treatment, but rather prefer to keep the floors moist. When the Grapes are in flower the atmosphere should be kept drier, but do not make too much difference. As colouring progresses less moisture is needed, and it should be withheld altogether when the Grapes are ripe unless the weather is excessively hot. After the Grapes are thinned I am in favour of damping down in the evening with liquid manure water from the farmyard. It should be used diluted in water at first, but the strength in a week or two may be almost or quite as taken from the tank. I believe it is a great help to the Vines from that time up to the commencement of colouring, when

it should be withdrawn entirely. I have never been in the habit of syringing Vines when in full leaf and fruit; in fact, it would not do with our hard water to practise it about here. Rain water only should be used when it is attempted, to ensure the berries from the water mark, otherwise unavoidable by the deposit left upon them. I do not think it is necessary in any case where the Vines are healthy; it might assist to get rid of the red spider where there has been a bad attack of that pest. After all the Grapes are cut, then I believe in giving the Vines a thorough good syringing on frequent occasions; and where the aforesaid insect has been troublesome, I would mix some sulphur with the water, leaving it on for a few days.

INSECTS.—Having just alluded to the red spider, I cannot do better than follow on with insects. The red spider proves at times most troublesome, and spreads so rapidly at an inconvenient period of growth. I have been less troubled with it since I took to using the manure water, just alluded to. When it is first seen, and if it has not spread far, sponging the leaves is a good remedy when done carefully. If it has made considerable progress, the better way will be to make the pipes extra hot and then apply sulphur to them pretty freely, after it has been made to the consistency of paint, either with water or milk, the latter is preferable, because it prevents the sulphur from coming off so easily. When this is done the temperature for a few hours may range at 90°, if it can be attained, and the pipes frequently steamed to assist the sulphur in throwing off its fumes. It is not safe to resort to this plan before the Grapes are half grown, and even then I would only adopt it as an extreme resource. Preventive measures are best, and can be named in a few words: avoid a too dry atmosphere; be careful not to let the Vines suffer for want of water; do not overcrop nor otherwise ill treat the Vines, nor grow other plants in theinery that are subject to red spider.

MEALY BUG.—This is, like the foregoing, a very old acquaintance of gardeners, and about the greatest enemy, too, with which they are troubled. In my case, I am glad to say, it is a very old acquaintance, forgotten almost, for we have not been troubled with it for the past twelve years. I bought it back again once or twice, at least the plants with it upon them; considering, however, that the bug was by far the dearest, the plants may be passed over as of but little value, and only considered as a medium of conveyance. To thoroughly eradicate this pest is no little trouble, especially when found in nearly every house under one's charge, but I firmly believe that with constant unremitting attention it may be eventually beaten and given final notice to quit. I found it at Gunnersbury when I came in nearly every house, conservatory not excepted, and it was only by sheer hard work that we at last overcame it; but we did so, and have since been well repaid for the extra labour then expended. The old Vines under my charge had it on them, but we had about got rid of the bug when we found out we had the Phylloxera, and so the Vines were destroyed. The weapons I used, and would use again, were sharp eyes, persevering labour, combined with patience and a determination not to be beaten in the fight. The insecticide I used was the "Chelsea Blight Composition," which answered every purpose when we had gained experience in its use. The Vines with the bug upon them were watched almost daily, and every nook and cranny looked into. We well know the young wood comes away clean and free from it, but the danger is that after the bug has had a rest in the old spur it will come forth with fresh vigour. To check this, we used to paint around the young shoot, as soon as we dared, with the above composition straight from the bottle, after that had been well shaken. For the purpose we employed a small tin mug and a little brush, not too stiff; thus we kept it from the bunches, and in twelve months could hardly find a bug. The leaves were watched also, as a matter of course, for any stragglers, and where they had got thus far, marks were made for extra attention another day. When the Vines were at rest they re-

ceived a good dressing; after the loose bark had been removed in a careful manner, the rods were scrubbed with water as hot as the hands could bear it; this prepared them well to take in a solution of the composition about half diluted. After that the usual mixture of soft soap, sulphur, and tobacco juice, with sufficient clay and water to make it work well was made up, and the Vines painted and tied up again. If the Vines attacked with bug are not in full vigour and the rods somewhat exhausted, the better way will be to cut them down and start a fresh cane from each; in this way there is a better and easier chance of getting rid of it entirely. If the case is a very bad one and the Vines aged, the trouble taken would not pay; it would be far better to root them out and make a fresh start with clean stock.

THRIPS.—These insects are well known and cause a lot of annoyance if not stopped in time. Overcrowding the vineries with plants brings on this source of trouble. When it is first seen, syringing the leaves will greatly check it. If the foliage has become fairly well hardened, then fumigation may be resorted to; it should not, however, be done too strongly. Three times on successive evenings will destroy most of them, if not all. After ainery has been fumigated over-night, extra care will be necessary the next day should the sun shine to guard against scalding of the foliage. The best safeguard for a few days after fumigating is to shade the house; this can be done very quickly with whitening and water, applied to the glass outside with a syringe, the top lights being closed meanwhile.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS IN JAPAN.

DR. HADJIME WATANABE, an official of the Japanese Agricultural Service, delivered an interesting address on the Chrysanthemum at the recent celebration in Berlin of the centennial of the plant's introduction into European cultivation. According to the report of his words, published in *Gartenflora*, the Japanese divide Chrysanthemums into two groups—"Nogiku" or wild single, and "Ni-wagiku" or double cultivated flowers; and the latter are sub-divided into four kinds—the ordinary autumn-blooming sorts, the summer-blooming, the winter-blooming, and those which bear flowers at all four seasons. The single flower is not neglected by the horticulturist, but is prized for its very simplicity, and is usually planted at the foot of rocks, intermingled with Grasses, to give a landscape design a naturalistic air. In treating the double-flowered plant when it is desired to produce individual flowers of the largest possible size, then all the branches but one are gradually removed, and on this one only an isolated blossom is allowed to mature. On the other hand, when as many flowers as possible are sought without regard to conspicuous size, the main stem is brought to the greatest possible development, and all its branches are preserved until the blooming season arrives, when those that do not show any buds are cut away. The sturdiest possible plants are chosen for this purpose, and the speaker referred to some upon which more than 300 flowers had been counted. Two forms are in favour for these many-flowered Kikus, one of which gets its name from its resemblance to a thick broom, while the other is a more artificial, fan-like shape. A Japanese proverb says "it is easy to grow the flowers of the Kiku, but difficult to grow its leaves," and the speaker declared that the plants are judged from this standpoint. The amateur's Chrysanthemums are usually "very poor and faulty in foliage, although they may bear fine flowers; but those which one sees at an 'art-gardener's' are clothed from top to bottom with leaves regularly disposed and of a beautiful fresh colour." The most common method of propagating the plant is by root-division, but several others are employed. In one, a single leaf with a bud at its base is plucked, lightly covered with earth and laid in a shady place, where it eventually

takes root. Gardeners who own rare varieties therefore forbid the visitor a near approach to their plants, as it would be easy to pick a leaf of the proper kind and conceal it in the pocket for future planting.

Chrysanthemum Improved Ralph Brocklebank.—Two years ago Mr. Winkworth, gardener at Childwall Hall, Liverpool, obtained from the variety Ralph Brocklebank, which also originated with him in 1886, another sport a shade deeper in colour than its parent, but yet not sufficiently distinct to separate the two varieties. He at first named it Mrs. Bevan Edwards, but now purposes sending it out in the spring under the above name. Those who prefer a yellow of a deeper shade to a pale yellow Chrysanthemum will now have an opportunity of suiting their fancy. Ralph Brocklebank is at the present time a favourite, and no doubt when well known the new variety will also become popular.—E. MOLYNEUX.

Chrysanthemum roseum superbum.—I am glad to see a favourable note on this fine plant (GARDEN, Jan. 18, p. 52). In its colour it has no equal, and but few can surpass it in the freedom of flowering. It may not be an exhibition variety, I freely admit, but where grown for home decoration (and that, after all, is the chief point) it will be sure to hold its own, its colour being so attractive and the form of its flowers so pleasing, with an almost entire absence of formality in outline, if they have not been spoilt by artificial dressing. It is one of the finest kinds for growing in the form of standards with informal heads. I have seen it shown well under this mode of culture, being, generally speaking, the most attractive of any in the collections so shown. It will but rarely produce imperfect flowers, like some kinds; even the smallest can be turned to good account in a cut state. This alone is a good recommendation in itself had it no other point in its favour.—J. H.

Chrysanthemum Mme. de Sevin.—In the present craze for flowers of excessive size, this beautiful variety might possibly be passed over by some growers as not being up to the mark. It is one of the best kinds for decoration in its colour, this being rosy amaranth shaded lilac. I have found its constitution one of the very best, and it is equally well adapted for striking late in the spring, to be flowered in 6-inch pots (or even smaller ones if struck very late), as it is for striking at the usual season of the year, after flowering, and grown on eventually into large plants. It flowers rather earlier than many of the Japanese varieties usually grown for large blooms; hence probably it is not so highly prized as those later kinds. I have found it to be at its best during October. It therefore needs to be housed sooner than the main stock. By so doing, its outer or guard petals will be preserved from injury either by wet or the early frosts. Small plants, from 1 foot to 2 feet in height, will be found excellent for vases. For small plants no staking is required, the sturdy and compact growth being quite sufficient to support the flowers.—J.

TRUE AND FALSE DRAWING.

TO THE EDITOR OF THE GARDEN.

SIR,—It seems a pity that those who find fault with your drawings could not prevent the demise of the *Floral World*. If that periodical could have stood on its legs until now, they might have seen the way clear to have developed it, and thereby remedied the defects that to your friend's mind are apparent in the engravings of THE GARDEN. In the beginning of my gardening career I became a subscriber to the *Floral World*, but found that one of its writers, by way of being original and I suppose funny, deemed it proper to make use of slangy expressions, as after having said something brilliant he wound up with the words, "and what do you say to that, my cat?" What an expression for a gardening editor; that was burlesque indeed, and where was the editorial elimination? Probably the writer had just been reading some "comic," and had caught the funny infection. Some years ago

you gave us a page of Hibberd cuts in THE GARDEN. Those engravings were entitled to be called burlesque, they were so exceedingly funny, one of which was a cairn that might have been placed on a mountain; it was certainly as ill fitted for a garden as for a niche in the Temple of Fame.—GEO. POTTS, JUNR.

ARRANGEMENTS OF CUT FLOWERS AND PLANTS.

JUDGING from what floral decorations were carried out at Canford Manor when the Prince of Wales was visiting there, simpler, yet bolder methods of arrangement are likely to become far more fashionable than heretofore, and this it must be conceded is a step in the right direction. The old indiscriminate mixtures with little or no variation have long been condemned in the pages of THE GARDEN, and it may be that the frequent illustrations of simple, yet most pleasing arrangements given have not been offered in vain. Be this as it may, there is no mistake about the results of the exercise of a better taste, as displayed in the interior of Canford Manor when I had the good fortune to inspect it. Nothing in the shape of an haphazard mixture was to be observed, and in the case of numerous comparatively small vases one variety of flower only was used. Very pretty were those filled exclusively with either white, red, or yellow Tulips, these being cut off close to the bulb, having, therefore, as a rule, plenty of their own foliage, though in some instances the elegant tops of *Cyperus laxus* were mixed with the flowers. In some cases, where Roman Hyacinths were used in connection with one other coloured kind, both stiff spikes and others with much longer stems were employed, the latter, therefore, hanging gracefully over the sides. Nothing could well have been more beautiful than a flat vase having a groundwork of Lily of the Valley with its own foliage, out of which sprang several good spikes of richly coloured *Calanthe Veitchi*. Maiden-hair Fern and *Calanthe vestita* were also effective. Other equally charming combinations could be given. The smaller vases were freely used in the smaller rooms and boudoirs, but the very large and most imposing drawing-room was decorated in a very different style. This required and received bolder treatment, the decorations including about eight large trumpet-shaped vases. These, not less than a yard high, were arranged at intervals round the room against the walls. All were similarly filled, having a background of four or five handsome plumes of Pampas Grass accompanied by some of the foliage of the same. With these were associated long flowering branches of *Salvia gessneriæflora*, Gorse, and large heads of Poinsettia with some foliage, long wreaths of Ivy draping down to near the base of the vase. These could not by any means be termed expensive vases, but it is doubtful if they could be improved upon for the position.

Much the same simplicity prevailed on the dining table. This was of considerable length, or suitable for about thirty guests. Only four large branching candlesticks were used on the first night, and between these, or through the centre of the table, were arranged two good Kentias in silver vases and eight large and rather flat silver vases. These latter all had a base of Maiden-hair Fern of a deep healthy green colour, and spreading out from this were ten or more large, well-flowered spikes of *Calanthe Veitchi*. Interspersed among the dessert dishes were other small silver vases, six on each side, these also being filled with Maiden-hair Fern and small spikes of *Calanthe*. Forty or more bunches of Marie Louise Violets, in small fish globes dotted through the table, added a delightful perfume to the room and completed the decoration. The next night the principal materials used were an abundance of long, freely-flowered branches of *Libonia floribunda*, these, lightly arranged in rather tall, flat-topped silver vases, "lighting up" beautifully. Another arrangement consisted largely of Arums, Poinsettias, and Lilies of the Valley, and these not being overdone were an excellent change; while a yet more striking change was effected by carelessly disposing *Calanthe* spikes and Fern fronds on the cloth, a few elegant fine-foliaged plants serving to

relieve what might otherwise have been a somewhat flat arrangement.

Mixtures of pot plants and tiny groups in small stands were also avoided. In the larger rooms were to be seen fine specimens of *Areca lutescens* and other elegant Palms, the pots of these being well surfaced over with plants of Maiden-hair Fern, this being a great improvement on the orthodox bed of dirty Moss. Numerous other single specimens, both large and small, of flowering and fine-foliaged plants were dotted about the rooms, all of which would bear inspection, heavy or common plants being rigorously excluded. The only two banks I observed were on each side of the principal staircase, arranged so as not to hide beautifully carved Oakwork at the back, and at the same angle as the rails. These were composed of Arums in quantity, there being several dozen flowers open, and among these were interspersed a number of well-grown Poinsettias. Viewed from above the effect was striking and novel. W. I.

DESTROYERS.

DISEASED CARNATIONS.

COULD you kindly tell me what is wrong with my Clove and Carnation layerings? I have a splendid lot of layers of the old red Clove and some other Carnations that were put out in a border carefully prepared by digging in sand and mud scrapings last September. Nothing could have looked better until the last few days; in fact only to-day I noticed that the Grass has been gradually eaten away into round holes. It begins with a black spot and gradually spreads until the hole extends nearly across the Grass. I enclose you a few bits of Grass showing the various stages, and should be much obliged if you would help me as to what to do and what the disease is. The roots and shoots appear perfectly healthy. I have had a thin coating of coal ashes round and about them to keep off slugs. All I have done at present is to sprinkle with sulphur.—LOXWOOD.

* * The leaves are affected by what gardeners term "spot." It sometimes appears on plants grown in pots when they are kept in cold frames with the lights too close, and if the frames are in a confined place and the plants over-watered. If the plants are out of doors the disease generally appears in wet seasons, and if they are in wet, undrained soil. I have never tried to cure it in any other way except by cultivating the plants well. I never heard of a cure for it, as it comes in a mysterious manner, and disappears when the plants have a dry soil in winter. I would in this case place a good layer of lime or mortar rubbish over the surface of the ground, break up the larger pieces, and work the whole into the ground a little way by stirring up the surface with a hand-fork. Lightly dusting the plants with quicklime would check the further progress of the disease. Flowers of sulphur is an excellent remedy for all fungoid diseases, but if much of it gets into the soil it is injurious, while quicklime is not. Next season dig mortar rubbish into the soil before planting out the Carnations.—J. DOUGLAS.

The winter moth.—I see Mr. McLachlan, before the scientific committee, January 14, says of this moth that the females are capable of depositing eggs for many generations in succession without the intervention of the male. Is not this a mistake? Do the females live to see many generations? My experience with the wingless females of all the Geometrae is that the female dies soon after laying its first and only batch of eggs, and I cannot see why this particular one should differ in its life-history from the others.—W. H. G.

Wireworms among Carnations.—The wireworms are often very troublesome among Carnations, especially on new land, or where new soil has been brought in to form a fresh broken-up pasture. I like to work a little fresh loam into the beds when it can be done with safety, but if there is any suspicion of wireworms, the new soil had better be kept out. There is no better dressing for Carnations

than old hotbed manure that has lain long enough to get mellow; but for light soils old cow manure is excellent, but it should remain in a heap at least six months before using it. Beds intended for Carnations cannot be stirred about too much at this season, provided it is done in fine weather when the surface is dry. If there should be any wireworms or other injurious insects in the land, frequent stirring will give the birds a chance to find them. A sprinkling of soot will be beneficial in freeing the land from insects and cleansing it from fungoid spores or anything else of a deleterious character. This preparatory work will save a lot of trouble after the plants are set out. Trapping with bait of Carrot or Potato is the best remedy during spring and summer should any wireworms remain after the plants are set out.—E. H.

Abortive Mushrooms on Mushroom bed.—I am sending you a specimen of the fungus that is covering our Mushroom beds, and should be glad if you can give me any information as to its cause and remedy. We had the spawn in the early part of last year, and had most excellent crops of Mushrooms, both in quantity and quality. The last beds in the year were affected much as they now are, and we had no result at all. We complained of this in ordering more for this season. The nurseryman could not account for it, and sent directions for making the beds which my gardener has carefully observed, with this most vexatious result. The first bed produced a thick crop of these fungi.—A. ELLIS.

*** With the note was forwarded a densely compacted mass of strong-smelling, white, globular fungoid growths, varying in size from that of a pea to a small marble. The Mushroom bed appears to have produced an enormous number of these growths, all close together. On making sections of the larger examples, it is not difficult to find the cap and gills of the fungi in a small and abortive condition, and it is probable that each of these innumerable small white objects represents a true Mushroom. The spawn is not at fault, but the manner of making the bed. The bed is possibly too rich, but without particulars I cannot say. Mushrooms are very sensitive to their surroundings and more often do badly in a too rich than in a too poor material. Various other fungi occasionally grow in the style of our correspondent's Mushrooms, and the change is always brought about (as far as I know) by something wrong or peculiar in the habitat or surroundings. Mushrooms sometimes grow—when a bed is exhausted—as simple white clubs with no cap.—W. G. S.

Sulphide of potassium.—In answer to "E. H. K." (THE GARDEN, January 18, p. 68), I must confess that I was not aware that the sulphide acted in the manner described by him on woodwork. It has happened that I have never employed it for plants growing near the roof, and consequently have had no opportunity of observing this peculiarity, which will undoubtedly in some measure militate against its use. In the case of pot plants, however, it may be used without any such disagreeable effect, as they can in a general way be laid on their sides when syringed, and in many instances, especially in the case of large plants, they can be taken outside. As this anti-mildew chemical appears to injure paint so badly, one would naturally think it would have the same effect on the foliage. When the plants are syringed there remains for a day or two a bluish tinge, but this disappears, and, so far as my experience goes, leaves no stain on the leaves. Neither have I ever known a leaf to be in the least injured, even when hot sun strikes on the plants, which I cannot say for sulphur. I should not have recommended the use of anything that I had not tried, and can only repeat that at the rate of a quarter of an ounce to the gallon I have found it safe and efficacious.—J. C. B.

The Veitch Memorial Fund.—At a meeting of the trustees of the Veitch Memorial Fund, held on the 23rd ult.—present, Dr. Robert Hogg (in the chair), and Messrs. T. B. Haywood, G. F. Wilson, and H. J. Veitch—it was decided to give four prizes,

consisting of four bronze medals, and £5 each, at the Chrysanthemum Centenary, which opens on Nov. 11; and also a special silver medal each to Mr. Bruce Findlay, of Manchester, and Mr. David Thomson, of Drumlanrig, in recognition of their valuable services to British horticulture.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

Annual Meeting.

THE annual general meeting of this society was held on Monday evening last at Anderson's Hotel, Fleet Street, when there was a large attendance of members, Mr. E. Sanderson being in the chair.

The first business was the reading of the report and balance-sheet. The report showed that the past year was one of unusual activity and progress, not only as regards increase of members and affiliated societies, but also the exhibitions, which throughout have been a marked success. The provincial show at Hull was evidence of the power the society has now assumed, the quality and quantity of the exhibits, and the attendance of visitors exceeding general expectations, and the January show was one of the best yet held. From the reading of the balance-sheet it appears that the receipts were £871 10s. 8d. and the expenditure £852 9s. 11d., leaving a balance of £19 9d., with a reserve fund invested in 2½ Consols of £100 9s. 9d. The adoption of the report and balance-sheet was then carried. Mr. Starling, the treasurer, hoped to see the reserve fund larger.

A long list of members in arrears with their subscriptions was read, and it was proposed and seconded that their names be erased from the books.

A gratifying announcement was that the sum of £159 10s. had already been promised towards the Centenary Fund, which the chairman hoped will be largely increased.

As there was no alteration in the rules they were taken as read, and the same list of officers as stood last year was proposed for re-election. An auditor to fill the place of Mr. Drain, jun., was elected, Mr. Robert Cannell being nominated to the post; also Mr. Crane, who again offered his services. The officers for the ensuing year are therefore: Treasurer, Mr. J. R. Starling; chairman of committees, Mr. R. Ballantine; vice-chairman of committees, Mr. E. C. Jukes; honorary secretary, Mr. Wm. Holmes; and foreign corresponding secretary, Mr. C. Harman Payne.

A warm tribute was paid Lord Brooke, M.P., for the ability with which he filled the chair at the annual dinner, and it was considered a great advantage to have secured his services as president of the society.

Mr. E. C. Jukes, who proposed the re-election of Mr. Holmes as hon. secretary and superintendent of shows, said it was difficult to say anything new with regard to Mr. Holmes, to whom the success of the National Chrysanthemum Society was in great part due, and expressed his sincere hope that he would soon recover his health, that had been failing for several months. Mr. Sanderson said he felt all the members present would subscribe heartily to what Mr. Jukes had said. In the course of returning thanks Mr. Holmes said it was his intention, if the members were willing, to accept office for one year more, and he had given this notice so that the society might be prepared to then relieve him of the work of secretary. His ambition was to see through the centenary year, which should be the most successful in the annals of the society, but that must be his last year in office, for the reason that during the past few months he had suffered in health, and from the increasing demand on his time that the work required.

According to the rule, one-third of the members forming the general committee retire in rotation each year. Sixteen candidates were nominated, and the following gentlemen elected: Messrs. Boyce, Crane, Dean, Gibson, Gordon, Jones, Laing, Mardlin, Sanderson, Stevens, Wright, Wynne and Mr. Briscoe Ironside.

Applications for affiliation were received from the Sevenoaks and the Taunton Chrysanthemum Societies.

Mr. Jukes proposed that some acknowledgment be given to Miss Holmes for her services to the society, as it was well known that to her a considerable share of the work fell, and he felt it would be a graceful and feeling act to show their appreciation for it. He thought that a sum of money should also be set apart to obtain paid assistance for Mr. Holmes.

The following resolution was then proposed and seconded: "That Miss Holmes be requested to accept from the society the sum of £10 as a grateful recognition for the services she has given, and that the committee be authorised to set aside such a sum of money as will procure efficient assistance to Mr. Holmes."

Votes of thanks to the officers for their services during the past year and to the chairman for presiding were passed.

OBITUARY.

DEATH OF MR. WILDSMITH.

JUST before going to press we heard with great regret of the unexpected death of Mr. Wildsmith, for many years gardener at Heckfield. He was one of our best gardeners, and thorough in various ways in the flower as well as in the fruit garden. People accustomed to criticise the press often say they never knew a good gardener who was a writer—a foolish statement, which some of our best gardeners from W. Thomson, of Chiswick (author of the "Practical Gardener"), to W. Coleman, A. F. Barron, T. Baines, and many other men of our own day disprove. Mr. Wildsmith is a bright example of the same kind, as what he knew as a gardener he was able to convey well to others. For years he has been one of the best writers on THE GARDEN. Heckfield, where could be seen some of the best examples of flower gardening possible in a formal garden, has often been described by us. Of late years he had begun to use many hardy flowers, and was much pleased with the result. Mr. Wildsmith was one of our best fruit growers, having sent fine examples both of indoor and outdoor fruits to the shows of recent years at Kensington and Chiswick. His collection of Pears at the Chiswick Congress was one of the best there.

Ivy banks and borders.—Much more might be done with Ivy in working out details in the designs of ornamental gardening. I should like to see some of the steep Grass slopes that get so brown in hot summers planted with Emerald Green Ivy. There would be a great saving of labour, as these turf banks, apart from their rusty appearance in dry seasons, are difficult to mow and keep in order. This is a good season to plant Ivy, and if rooted cuttings are planted and pegged down, their foliage will soon hide all the soil. How charming these Ivy banks might be made with cheap common bulbs in early spring, or rather, I might say, winter, as the Snowdrops and Daffodils will blossom amid the shelter of the Ivy leaves very early.—E. H.

Names of plants.—J. Berry.—1, *Angraecum eburneum virens*; 2, *Chimonanthus fragrans*.—J. J.—*Corylopsis spicata*.—B. E. C.—1, *Cupressus Lawsoniana argentea variegata*; 2, *Cupressus Lawsoniana*; 3, *Juniperus Sabini*; 5, *Thuja gigantea*; 5, *Thujopsis dolabrata*; 6, *Cupressus* sp. (send better specimen).—Northumbria.—1, *Hedera Glymi*; 2, *H. angularis*.

Names of fruits.—Anon.—3, Court of Wick. We are unable to name the others at this late period of the season.—Mrs. Hyde.—Apple Rymer.

WOODS AND FORESTS.

MANAGEMENT OF DEER FORESTS.

NATURE has done much to provide shelter for animal life, and in the absence of trees it is interesting to watch the red deer as they leave the open plain and wind-swept hillside and betake themselves to the corries and recesses of the hills for the sake of the protection which they afford during a gale. The white mountain hare, unlike the red hare of the low country, excavates a burrow for itself below the fragments of rocks and boulder-stones where it finds a cosy retreat from the inclemency of the weather. In bare parts of the forest the deer have no alternative but to retreat to the rocky fastnesses in the vicinity. Were it not that Nature has provided these places of shelter many of the animals would perish during a prolonged period of hard frost and snow. When the storm, however, is of long standing the animals repair to the wooded parts when pressed by hunger to browse upon the twigs and bark of the stems and branches of young trees and scrub which happen to be within their reach. Many of the deer forests in the highlands of Scotland could be much improved by the judicious grouping of trees here and there at well chosen points to secure shelter. Belts of trees have sometimes been recommended for this purpose, but as far as I have observed belts are most suitable for the low country, where the ground is of more value and principally under a state of tillage. When trees are growing in dense blocks at high elevations they not only thrive better than when planted in belts, but likewise afford better shelter, as the animals can always shift to the lee side of the group during a gale. In places where I have introduced the grouping system in the deer forest, the influence of the trees for shelter when thoroughly established can be felt at a distance of fully two miles from the base of the plantation. These groups should consist principally of the Scotch Fir, although I have occasionally used the hardy Mountain Pine (*P. Pumilio*) with advantage either mixed with the former or in groups by itself. Although *P. Pumilio* does not attain a large size, yet from its closespreading habit it forms a more dense covert on exposed situations than any other tree of the Pine tribe. In this country *P. Pumilio* produces abundance of fertile seed, which may either be sown in a nursery and the progeny planted out where they are to remain, or the seed may be sown at once in the forest, the only difference being that in the latter case it takes some years to establish covert, and besides many of the seedling plants are apt to be eaten over by vermin. I prefer raising the plants in the nursery, and after they have attained some considerable size they can be transferred to the forest with better prospects of success. In addition to providing shelter, wet places in the forest can be much improved by cutting surface drains to allow the water to run off. By doing this the natural Grasses and surface herbage are much improved. In some cases I have found it to be an advantage to sow the seeds of different species of hardy Grasses to stock bare places and improve the pasturage. Draining and planting can be carried out in open weather during winter, but the Grass seeds should not be sown sooner than April or May.

J. B. WEBSTER.

Rabbit netting is more efficient if, instead of being buried vertically in the ground, it be bent at right angles and placed just beneath the soil, say 2 inches deep. Take galvanised netting 3 feet high. Have 2 feet 6 inches above the ground, and

6 inches bent at right angles, towards the side where the rabbits are, just beneath the soil. The rabbits, if they begin to burrow close to the netting, are at once stopped by the wire. It never occurs to them to start a foot or so away from the wire fence. This method has been proved far superior to burying the wire perpendicularly. The height above ground that I name is, I think, sufficient, provided ordinary supervision is exercised.—W.

EARTHING ROUND TREE STEMS.

PLACING earth round tree stems is a practice frequently adopted where there is surplus soil to be disposed of, and it cannot be too often nor too strongly condemned, either by those who take an interest in trees for their beauty, or by those whose pleasure, happiness, and even health are in some degree dependent on the existence of trees in the vicinity of their homes. In many instances, in order to save time and expense, rubbish is conveyed into the plantation close at hand, where it is levelled down, and perhaps sown with Grass seeds, and thought no more of until the shrubs or trees against whose stems it has been laid show unmistakable signs of weakness and debility.

There are innumerable instances of such errors having been committed in such situations, the results of which are but too evident to the most casual observer.

Conifers invariably root near the surface, and are therefore very liable to injury by having their roots disturbed. They also appear to have a special dislike to soil being placed against their stems, or over their roots, except to a very limited extent. Consequently, wherever the excavator has encroached too closely on their territory, debility is apparent; but where they have been allowed to remain unmolested in their primitive state, with their two appropriate companions, Bracken and Broom, they still maintain their pristine beauty.

If soil must be disposed of, it should be as nearly as possible of the same texture and composition as that in which the trees are growing, and then placed only to a very limited depth, so as not to destroy, even for a short time, that natural porosity of the surface soil which is so largely produced by the roots themselves. In respect to those trees which are not so easily injured by this practice, and which will bear any reasonable amount of soil being laid over their roots, I still think the same rule in respect to the texture and composition should be, as nearly as possible, adhered to, and if placed near the stem, a cavity, quite round the tree and down to the base, should always be left, and of sufficient width to allow a free circulation of air, and also to admit of being cleared of any matter which may and does frequently accumulate in it. The sloping bank system answers well in some situations, and has the advantage of showing more of the trunk, but if the surface of the ground inclines to that particular point, or the soil be very tenacious, or if the ground be not of a thirsty nature, evils may accrue from an accumulation of too much water in the soil, which would be highly detrimental to the welfare of the trees.

T. C.

Roots choking drains.—Deep as drainage may be laid, it is never altogether free from the possibility of being put out of order by the roots of trees, which may penetrate the drains, and check the free passage of the water through them. The roots of the Elm, Ash, Willow, and other trees are known to enter the pipes, and even pass through the ground for several yards to reach them, as if they were attracted by the moisture and air which they find in the pipes, and by the nourishment afforded them there. To obviate this difficulty, it is advisable, where it occurs or is apprehended, to use socket-pipes jointed with cement, or to lay the pipes as far as possible from the trees. Embedding the pipes in lime, mortar, or concrete has frequently prevented them from being choked, although close to trees which it was impossible to avoid, and has kept them clear

for some years. Some substances give the drainer a vast amount of trouble by obstructing pipes. Ochreous water, depositing oxide of iron, is a common source of obstruction. It appears to harden and consolidate as it receives air through the pipes, and ultimately chokes them. It is best to get at the source of the spring or springs, and conduct the water away by large pipes independent of the general system. Another source of trouble is the percolation of sand into the pipes, which necessitates patience and care in taking them up frequently after being first laid and relaid, until all the water has run out of the bed, and then laying them in straw and on strips of wood.—X.

Elongation of tree trunks.—I have ample evidence to bring forth in substantiation of what Mr. Miller says regarding the elongation of the trunks of different trees did I think that such was necessary. It is not the first gate I have had lowered when the fencer unthinkingly hung it on a living post—a tree stem. One I know of is now nearly 2 feet from the ground. This when hung fully fifteen years ago could hardly be opened, from the lower bar coming into contact with the road. A twig of *Abies Pinsapo* was grafted on the outer branch of a Silver Fir at breast high or a little more some years ago; unfortunately, I cannot say how many, and now that twig stands out conspicuous at fully 12 feet from the ground level.—A. D. WEBSTER.

Hemlock Spruce hedges.—I have often wondered how such fast-growing evergreen trees as the Hemlock Spruce and Lawson Cypress were not more frequently employed as evergreen hedges. I had several Lawson Cypress hedges made here for sheltering a nursery, and they soon got to the size required, and bore well the cutting and clipping to which they were subjected to keep them in shape. Hemlock Spruce would answer the same purpose, and when tried, both in the case of it and the Lawson Cypress, young plants should be selected so as to start with a bushy form. The soil should be trenched, and if necessary enriched with peat or leaf mould so that the plants may have a good start, when success would be certain.—H.

Varieties of trees.—It frequently happens that what may be called, from a botanical point of view, a mere variety, is of as great importance for our gardens as the most distinct of species. In gardening the question of form is second to no other, and frequently valuable deviations from ordinary forms characterise what are called mere varieties. Thus such varieties of hardy native trees as the Weeping Wych Elm and the Weeping Beech are more precious for the garden landscape than most new species of hardy trees; this must be clear to all who have seen these varieties in a mature state. All interested in trees would do well to observe accidental deviations from the normal type in gardens under their care. A stray shoot or sucker showing a habit different from the type may, if separated and increased, perpetuate constantly its peculiarity. He who observes and increases it may render as great a service to the gardens of Europe as was rendered by those who secured for us the Upright Yew or the Weeping Ash.—V.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

OVERCROWDING IN THE GARDEN.

THE man who makes two blades of Grass grow where only one grew before, may or may not be a public benefactor. It depends in a great measure upon what space there is to fill. There are places where a dense impenetrable jungle may not be inappropriate, but as a rule the best results are obtained where each plant, shrub, and tree has its own allotted space to fill, and fills it well and worthily. At this season an overcrowded conservatory or greenhouse can only be made presentable by bringing all the plants to a face; but what a beggarly array of bare stems there is if one peeps behind the scenes, and it requires a good packer to make the most of such stuff. It may not be the gardener's fault; he is probably compelled to have regular supplies of many things for cutting, and his only chance for getting them is to crowd his houses from floor to roof with plants of some kind in the hope that they will throw a few blossoms for cutting. It is weary, unsatisfactory work. So far as appearance goes, a few specimen Yuccas, Dracenas, Aloes, Palms, &c., to form centres in these large dark conservatories, round which the flowering plants might be grouped, would look better, and would require a smaller stream of fresh plants to keep the thing going. How we miss now the specimen Oranges that were so common in conservatories thirty years ago. The ripe golden fruits were always attractive, and the perfume of the blossoms was never altogether absent. All changes are not for the best, and the Orange trees are badly missed in many establishments. Those who do not care to go to the expense of the specimen Palms, &c., might plant a few Acacias and other similar plants as rallying points in the borders and fill in around with the plants in pots. The variegated Reed (*Arundo donax variegata*) is a charming background plant in a lofty conservatory where it has plenty of room. Several of the Bamboos are excellent for cool houses, and their growth is nice for cutting to mix with flowers in large vases, and where there is plenty of graceful foliage the flowers need not be densely packed in, and a more economical arrangement will be made. I have occasionally discovered a crowded garden that does not grate so harshly upon one's senses of what is right and proper. Last summer, during a short holiday ramble, I found a grand old-fashioned garden where all the beds and borders were completely filled with flowering plants and shrubs, including fruit trees. Besides the plants that were actually in sight, the ground was filled with many kinds of bulbs, the common and the choice being mixed together in the wildest confusion. It was a chaotic mass, but the guiding spirit of the place was not without taste in his arrangements, although he would not be bound by any of the recognised canons governing such matters. All the plants in the garden were hardy, with the exception of a few annuals, and the plants grew, flowered and struggled with each other for light, air and space to develop. Scarlet Thorns threw their branches over the walks; climbing Roses, Honeysuckles, and other climbers rambled among the branches of the fruit trees; Everlasting Peas wrestled with and overcame their supports, but all seemed happy in their wild luxuriance. It formed an

interesting picture, but in such a crowd, in the struggle for life many must perish, and, but for the continual replenishment of choice delicate things that is continually going on, the strong plants would in the end have the place to themselves. Other overcrowding may be viewed with less indulgence. On the crowded fruit tree, if it bears a crop at all, the fruit is of an inferior description, and the overcrowded plantation or shrubbery sooner or later tells its own tale of ruin and death.

E. H.

TOWN GARDENING.

ONE is sometimes tempted to ask, Is the growth of plants in dwellings in our populous cities and towns on the increase? I think it is, and I draw my inference from one prominent fact, that in the case of many of the huge blocks of buildings erected about London as workmen's dwellings there is to be seen in many of the windows and rustic balconies constructed outside of them plants that are apparently carefully tended and valued as subjects worthy a devoted care. This is an assuring sign of the times, which the social reformer may contemplate with satisfaction.

One main impetus which is given to the culture of plants in London by the labouring classes is the flower shows that are held. Plants can be cultivated inside and on the outsides of windows, on balconies, parapets, on the flat roofs of houses, and other places. When the City flower shows were held, the very best specimens of Fuchsias produced were grown upon the roof of the Guildhall, and they were bloomed much better than could have been expected.

The position of the window, its aspect, and the character of the plant cultivated have much to do with the measure of success. From some of the close alleys used to come plants that had evidently been tended with the greatest care, and were well grown on the whole, but they rarely carried a single flower. Everything almost appeared to have been done to bring the plants on in a satisfactory manner, but the most loving attention could not produce flowers; an open position, sunlight, and a clear atmosphere were wanted to do this. The best plants came from open, airy spaces, like Finsbury Square or Finsbury Circus, and I thought when these City flower shows were held that sufficient stress was not laid by the judges upon the difficulties the poorer classes had to contend with in getting these plants into exhibition form.

I am afraid city and town flower shows are on the decline, and yet when rightly managed they can be made of great service in raising to a higher level the home life. There are so many school-rooms about the metropolis which can be utilised for the purpose at a small cost, and the expenses attending upon such an exhibition are so small—a little money judiciously expended going a long way—that it is a pity more of these shows are not established.

R. D.

Agapetes buxifolia.—This is perhaps the prettiest of the *Vaccinium* family grown under glass. It is an uncommon plant in gardens, but should occupy a place in the greenhouse to the exclusion of many others that are now grown there. It was discovered between thirty and forty years ago on the hills in Bhotan at an elevation of 3000 feet. There it is said to grow—as many of the Himalayan *Rhododendrons* do—on the trunks of trees, forming a bush with a large tuberous base to the stem. The flowering branches are long and slender, clothed thickly with small dark green leaves, and on the ripened portion with abundant flowers. The blooms, each over an inch long, tubular, and bright red, are produced singly on short peduncles from the axils of the leaves. An additional recommendation is the beauty of its fruits, which are milky white, and about the size of the hews of the Dog Rose. Notwithstanding its epiphytall nature, it grows exceedingly well potted in sandy peat or planted out in beds of the same material. Treated in both ways it is now flowering

in the temperate house at Kew. It can be easily increased by striking the points of the half-ripened shoots in a mild bottom-heat, using fine peat and sand in equal parts.

FERNS.

LOPHOSORIA PRUINATA.

THIS is a rare Fern, and one I have not seen since the Messrs. Rollisson's collection was dispersed eleven years ago. I received specimens of this plant which had been gathered by Capt. Toppin some few years ago in Jamaica, where it occurs. It is also found in Mexico, and along through the American Continent to Chili. It is also said to be found in the island of Juan Fernandez. It was first known and described by Swartz under the name of *Polypodium pruinatum*, and by Schkuhr under the name of *Polypodium griseum*. It is a handsome Fern, much more attractive when in a barren state than when fertile. By some this species is still considered a *Polypodium*, but in 1847 Presl separated it from that genus under the name adopted here, whilst Hooker places it with *Alsophila*. It forms a short arborescent stem which is quite destitute of spines, but which is, however, furnished with a more or less dense coating of tender soft hair or down, more especially near the base. The fronds are stout in texture, each some 3 feet or more in length, deep green on the upper side, but beneath as white as *Cyathea dealbata* or *Gymnogramma calomelanos*. Whilst barren they have a beautiful appearance; when fertile, however, the underside becomes very hairy and the whiteness is hidden, and hence its beauty is lost. This plant requires the warmth of an ordinary stove, and takes the place of the Silver Tree Fern of New Zealand in the greenhouse. It, however, does not require so much space, as it is slow in growth, taking a long time under cultivation to reach what appears to be its ultimate size—6 feet to 8 feet. It should be grown in a mixture of peat and loam made sandy, and the pots well drained.

W. H. G.

Lomariopsis heteromorpha.—I am asked by "C. C." if this species is a climbing plant. Hooker says it climbs lofty trees in New Zealand, and I have specimens of this plant gathered in New Zealand about twenty years ago, and which, bearing fertile and barren fronds, appear to have been stripped from trees. The fertile fronds are each a foot long and pinnate, the pinnae narrow, contracted, and more than 3 inches long, whilst the barren fronds are of about the same length. This Fern has obtained the name of *Stenochlæna heteromorpha* in some gardens, but it is the old *Lomaria filiformis* of Allan Cunningham, and is said to be of frequent occurrence throughout both the Northern and Middle Islands of New Zealand. This plant as far as I have seen has not yet developed into its natural habit with us. Perhaps the atmosphere has not been moist enough, but if "C. C." has a strong plant of this species, and gives it the facilities for climbing, and keeps a very humid atmosphere, by the end of the season it may perhaps establish itself in its position as a climber.—W. H. G.

Llavea cordifolia.—This is a beautiful Fern, found near Oaxaca, in Mexico, but much as this part has been visited by Orchid collectors, I suppose the majority of them have never thought of collecting Ferns, or we should have had this plant sent home more frequently. I believe this is the only species of the genus known; this, however, has not saved it from being named by various authors. Thus it has obtained the names of *Ceratodactylis osmundioides*, *Allosorus Karwinskii*, and *Botryogramma Karwinskii*, but under whichever name it is grown it should be carefully cultivated, as in every greenhouse it will be found a most

acceptable and charming plant. It is of tufted habit, from 1 foot to 18 inches in length, or even more, the base of the stems scaly, the fronds bi- or tri-pinnate, the upper portion fertile and pendent, the lower barren. This plant I have not found to germinate freely from spores, perhaps because they had not been properly matured. This Fern should be potted in a mixture of peat and loam, made tolerably sandy, and the drainage must be good, as it likes an abundance of water during the summer season. It requires only moderate heat, and will thrive well in an elevated cranny in the rockwork in the temperate house.—G.

CHRYSANTHEMUMS.

CHRYSANTHEMUM LORE.

To thoroughly know and grow the Chrysanthemum is an infatuation inexplicable to the ordinary admirer of the plant as a flower. Every little intricate detail is not only a daily, but at times even an hourly observation. The growth of the plant, the bud setting, the unfolding and lasting properties of the flower, as well as the colour, build, make and shape of the individual florets that help to build up the flower, are all points of very great interest to him, but it must be confessed size has been the standard of perfection aimed at, for the prizes offered at exhibitions were to encourage high-class cultivation, and size was considered an example of this.

It is to be regretted, however, that size alone has taken first place in the estimation of many who grow for exhibition only. If the varieties that are to be measured by inches only were to be encouraged, it would prove very detrimental to the class as a whole, to the great regret of many who can see beauty in all their various sizes and forms. I fear the favour for large blooms would oust very many beautiful forms from cultivation. The large blooms have created wonder and excitement among many who had never before seen them. But as societies increased the fruits of their labours became manifest by the increasing love and knowledge of the flower by the public, and the oftener public exhibitions are visited, so will the rows of large blooms become more monotonous, and the various societies will find that they must make some fresh features in their exhibitions to keep the interest of the public from flagging. Here, at Ryde, which is the leading show in the Isle of Wight, baskets and vases of Chrysanthemums, collections of flowers arranged in trays or shallow boxes filled with sand, with their foliage, are encouraged. A most striking feature is the class for twenty-four triples. All these break the monotony of the rows of bloom that are in the principal cut classes, and many very beautiful varieties are utilised that would be entirely lost singly on a show board.

I am well aware of the usual strong arguments that are brought forward in committee when any innovations in the schedules are threatened. The first, and to some the most valid is, "Will the funds admit of it?" Another and certainly the weakest is, "We have done very well up till now, and I do not see why we want any fresh features." Similar arguments were used when the two classes for six of any one variety were brought forward at Kingston, but happily the majority were induced to give them a trial, and my anticipations have been more than realised, for the first year the Japanese class brought out six of the finest blooms of Mme. C. Audiguier that have been exhibited, and ever since there has been very strong competition, making the classes, both of incurved and Japanese, a very attractive and instructive feature. It will not do in these times to be too

reluctant to depart from the stereotyped classes, for the great flower-loving public, who may not be exhibitors or admirers of large blooms, but to whom societies, trade, and others look for support, must be taken into consideration. Perhaps the majority would be more than delighted for the first two or three years, but if there were no fresh features the rows of large blooms would cease to be attractive, the novelty would wear off, and the exhibition become monotonous. To the practical cultivator every new form, whether of an old-established or newly-introduced variety, is an attractive feature, but the general public, who is not so well versed in all this, cannot be expected to have the same deep interest, and whose only gratification is the sight of Nature's gems in all their varied and fantastic forms. To the former, a large or full Brocklebank, a very fine Baron, or deep Avalanche would be the very acme of perfection, while to the latter they would be regarded as so many overgrown monstrosities. It may be a question of sour grapes in some cases, but with many I think it a question of taste entirely, and a stand of triples of small, but perfect blooms of Aimée Ferrière, Prima Donna, Little Harry, Enamel, Dupont de l'Eure, Annie Salter, or others of similar character would be more a type of beauty in their eyes if set up with foliage, as the pompons are mainly shown. I do not think their tastes ought to be ignored, as there are so many types and varieties in existence now. Happily, there is room for all to be gratified in the many different forms of the Chrysanthemum now cultivated.

Bembridge, I.W.

C. ORCHARD.

PUBLIC GARDENS.

VANDALISM AT HAMPSTEAD.

THE following excellent letter from Miss Octavia Hill appeared in the *Daily Graphic* of January 31, and the importance of the subject justifies its insertion:—

"The land adjacent to Hampstead Heath, comprising 265 acres, lying between Hampstead and Highgate, has been recently purchased by the first combined effort of the municipal authorities, the parochial charities, and voluntary donors. As one of those whose duty it was to receive the subscriptions of the London public, I can bear witness to the great enthusiasm inspired by the idea of preserving for the people, in perpetuity, some of the few lovely meadows and field-paths within walking distance of the large centres of population. From the great landed proprietors, who gave £3000 each, to the hard-working servant, who gave her shilling or half-crown, there was evidence of the real desire to make personal sacrifice to secure so great a boon for London.

"The land was well-known to hundreds. It was the walk on Saturday afternoons and fine Sundays, and on Bank holidays, of numerous groups of happy pedestrians. There you might see the father leading two little children by the hand, the boys fishing for tadpoles in marsh or pond, the children filling their little hands with Buttercups or Sorrel. There the overworked professional man would find his quietest walk at sunset; there one might climb the hill—from the dust of road and noise of wheels—the great city with all its traffic and noise, lying in the distance below. Certainly the hopes of most of the donors were that they were preserving a space which should be kept in its rural beauty for those who were least able to get far away into the real country, and who wished for something more unconventional and quieter than the London park.

"A portion of the land has come into possession of the London County Council. It is the strip which goes by the name of East Heath Park. With the view of letting this land for building, and in order to afford approach to the villas which

should be erected, a wide road had, previous to the sale, been begun by the vendor, and had been carried across a brick viaduct. For many years the scheme had lain in abeyance, and the road, which had never been completed at either end, was covered with Grass. What was the amazement of those who knew the spot to find that the first act of the London County Council was to give orders for carrying this wide road to either extremity of the new land, to prolong it at both ends over the Heath, and to widen a small agricultural road—practically little more than a footpath—diverging from it on the east, and stopping short at a stile and hedge which bounded the rest of the land recently purchased, but which will not be handed over to the Council till the end of this year. This viaduct road is now daily being continued; it leads to no populous district, it connects not even one group of houses with the Heath. Yet the devastation it is causing is pitiable to see. The wild beauty of Nature is destroyed by a formal black, wide road—the soft slopes of turf are cut away—a formal footpath runs parallel to it. Stakes are to be seen across the Heath, marking out where it is proposed to carry even further the ghastly length of desolate road. It was understood that the London County Council contemplated the formation of an additional road, taking the place of the much frequented, but still perfectly rural footpath, leading from the east Heath to Highgate. Happily, this land, however, is not yet in their possession, and I am pleased to learn from a letter published in the *Standard* on the 28th ult. that the consideration of the formation of this road has been postponed till the end of the year. Doubtless this is in consequence of the very strong local feeling against this road which exists in Hampstead and Highgate. In the shops there are cards bearing the heading, 'Save the meadow paths,' and stating that petitions against the road are lying ready for signature. I have little doubt that the formation of this particular road will be abandoned. But the destruction caused by the viaduct road is daily progressing. London may wake up to find, too late, that the quiet and beauty of the fields are marred by the construction of a wide, hideous, and useless road.

"The portion of St. Pancras lying south of the fields requires good approaches to them. A good entrance will, I conclude, be made close to the Gospel Oak Station, near Gordon House. Any other approaches by foot-bridges over the railway, or the formation of any road on the south which may be possible, are much needed. But neither of the roads proposed by the County Council would benefit St. Pancras in the smallest degree.

"Nor does it appear to me that it is in any way desirable in the interest of the people to cut up the land so dearly bought—so valuable from its quiet and beauty—by allowing driving roads to cross it.

"I remember hearing that Dean Stanley had said, 'Have any number of trams to Westminster Abbey, but don't run your tram road through it.' Surely our few acres of quiet meadow land which may recall to the people their childhood's home in the country, or familiarise their children with natural scenery, to which they are strangers; surely a place of peace, of silence, and of beauty for those who desire to leave the noise of London might be kept by our representatives undisturbed.

"The late Metropolitan Board, in deference to popular feeling, left Hampstead Heath unfenced, and in the main wild and undisturbed. Cannot our new representatives realise in time that they will earn the gratitude of Londoners by doing the same with this great trust handed over to them? Cannot they understand that what people who go as far as Hampstead seek is, not the formality of the London park, not the wide roads, not the kerbstones, not the gas-lamps, not the levelled footpaths, but something of a freer space, where the wild flowers and meadow slopes may be seen in their natural condition? Would it not be well if some such guiding general plan were adopted as is embodied in the following suggestions?

"1. Let all driving roads stop short at the boundaries of the new land.

"2. Let no fences or formal entrances be constructed. Hampstead Heath and Wimbledon show that this is feasible.

"3. Where the land is bounded by gardens, or should it be necessary to protect it from the railway, let it be done by low, irregular hedges of Hawthorn, wild Rose, Bramble, and Holly, widening into thickets here and there.

"4. On the northern boundary, where Lord Mansfield has stipulated that a fence be erected, let Oaks, Hawthorns, and wild Rose in irregular clumps be planted, in order to conceal it quickly.

"5. Let the footpaths follow the slopes and hollows as heretofore. Where they are muddy let them be made thoroughly dry. Let their edges be informal and irregular, even where they have to be widened.

"6. Let there be no draining of marshes, except where a footpath crosses them, for the sake of the marsh flowers and the delight of the boys in the tadpoles.

"At much sacrifice this land has been rescued from building. Let us do what we can to preserve it in its full beauty. It is a mistake to think that rural scenery is enjoyed only by the artist and literary man. Many working people have a keen appreciation of it, even some who would find it hard to put the impression into words. There are plenty of places for those who love broad roads. This land was purchased mainly for the pedestrians of all classes. It is too small to be traversed by roads, which would cut it into fragments."

Fences in public parks.—The attempt sometimes made by the authorities to shut out the beauty of a park by a tall ugly wooden fence is usually strongly resisted by those who wish the open space, bought for the enjoyment of the public, to add a charm to the district impossible when encircled by a fence that effectually shuts out a view of the trees, Grass, and flowers. The newly-acquired Ravenscourt Park, in Hammer-smith, was shut in by a close wooden fence several feet in height, impossible to see through, and completely shutting out the beauty of the park, but a strenuous opposition against the beauty-destroying woodwork has proved successful. A light iron and low fence has taken its place, sufficient to prevent cattle from entering. Ravenscourt Park is one of the prettiest in the outskirts of London; 32 acres in extent, and with a noble avenue of Elms leading up to the free library at the northern end, formerly a private residence. We are pleased to see that the broad expanse of turf which takes up the greater portion of the park has been left untouched, not dabbled about with flower beds or intersected with narrow gravel walks that spoil many otherwise beautiful spots.

Sudbrook Park.—A deputation recently waited upon Sir Nigel Kingscote, Commissioner of Woods and Forests, to urge the Government to withdraw Sudbrook Park from the building market and to preserve it as an open space and an appropriate appendage to Richmond Park. Mr. Shaw-Lefevre and other speakers urged upon Colonel Kingscote the injury which would be inflicted upon Richmond Park should Sudbrook Park (which is separated from it only by an open wire fence) be converted into a building estate, and the value of Sudbrook as a place of recreation. The rapid growth of Richmond and the great need of additional playing fields in the near neighbourhood of London were referred to; and the comparatively slight gain which would result to the revenue from building operations was contrasted with the serious injury which the public would suffer in the loss of an open space and the disfigurement of the views from Richmond Park. The Commissioners were urged to maintain Sudbrook Park in its present condition, and thus give time for any further steps which might be necessary to secure its permanent dedication to the public. Sir Nigel Kingscote, in reply, stated that he considered himself bound by his office to obtain the best revenue in his power from Crown lands in the position of Sudbrook Park; but he promised that if he should find it is duty to submit to the Treasury any proposal to

build upon the park, he would at the same time call attention to the arguments and considerations which had been placed before him.

NOTES OF THE WEEK.

Moutan Pæonies are in demand. At the sale held by Messrs. Protheroe and Morris on Wednesday high prices were realised, as much as 28s. for a lot of seven and eight plants.

Anemone fulgens is remarkably early this season, and before January was out several beds of it were in full bloom in the nursery of Messrs. Barr and Son, Long Ditton. The rich scarlet flowers were of remarkable brilliancy when the winter sun shone upon them.

Cypripedium Sedeni.—I send you a fair example of this. A plant of this variety has been flowering here for the last six months. The fine, soft colour renders it a great favourite with the ladies, and mixed with coloured Orchids, it tones down their often too gorgeous shades.—J. F. W., *Highlands*.

Narcissus minimus is one of the earliest of its race in bloom, and a dainty gem it is in the open ground, as at Long Ditton, where in Messrs. Barr and Son's nursery it hides the ground with its profusion of small exquisitely shaped yellow flowers. The bulbs increase freely, and require not the slightest protection.

Iris gibraltarica.—It seems a pity that this is not more largely grown. Its half-hardiness may, perhaps, partially account for this; but with a little artificial warmth it makes a most valuable late winter and early spring flowering plant. I have some fine corymbs already expanding their beautiful pale lilac blossoms.—W. E. NICHOLSON, *Leves*.

A group of Chorozema Chandleri elegans in the greenhouse at Kew brings to mind a pretty, elegant, and useful indoor flower, of which we see too little in English gardens. The Holly-like leaves and graceful stems of orange-yellow and pea-shaped flowers give the plant a charming freedom and beauty. It is just the thing for the greenhouse in winter.

Violet Marie Louise.—Herewith I enclose a sample of Violets (Marie Louise) grown in a cold frame. We have been picking since November, although we are not free from London fogs. Red spider is a fruitful cause of failure in Violet growing, usually caused by drought, the plants requiring abundance of moisture at all times.—D. C., *Kingston Hill*.

* Beautiful flowers of this Violet, large, and well coloured.—ED.

Hibbertia dentata brightens the greenhouse at Kew with its yellow flowers made richer by the luxuriant mass of bronzy-green leafage. The plant encircles one of the rafters, and as there is usually a constant repetition in ordinary greenhouses of one or two plants of the same character, it would be well to introduce this, of which a coloured plate was given in THE GARDEN for July 28. It should be more common, as it was introduced from Australia as far back as 1816.

Rhododendron Countess of Haddington is one of those choice greenhouse or conservatory plants we never tire of, and a specimen in the greenhouse at Kew is smothered with flowers which are of tubular form, flushed with pale rose on the outside, but almost white within and delicately scented. It is of hybrid origin, the result of a cross between *R. ciliatum* and *R. Dalhousiae*, and it will be found that the flowers vary in colour, occasionally coming almost white. It can be easily struck from cuttings.

Clivia miniata.—I send you a spike of this old, but serviceable plant, which we have now in full flower and hope to again bloom in the month of August. I find the flowers are very useful for cutting. Anyone having a greenhouse can have it in flower once a year, and with a little extra heat it may be had in bloom a second time, and with strong bottom-heat it may even be flowered three times in one season. The soil I have found it succeed best in is plenty of rough peat, sand, and fibrous loam with pieces of charcoal added. It requires copious supplies of water during the growing season.—J. F. W., *Highlands, Gloucester*.

Dendrobium endocharis is one of the many good things that have been given us by Mr. Seden, who raised this charming hybrid from a cross between *D. aureum* and *D. moniliforme*, both handsome Dendrobiums. We were pleased to see a specimen of *D. endocharis* in The Dell collection at Egham the other day growing in a basket suspended near the light, and smothered with a mass of flowers, pure white except

for a deep purplish centre to the lip; their sweet fragrance scents the whole house. It is one of the most beautiful hybrids yet raised.

Exportation of bulbs from Japan.—According to a note in the *Revue Horticole*, as many as 1192 cases, containing 700,000 bulbs, were exported from Yokohama to the United States and Europe during the months of July, August and September last. Probably the majority of the bulbs were those of *Lilium auratum*, which the Japanese grow in fields and export in large quantities.

Japanese Camellia Mikado, flowers of which have been sent to us by Mr. Gordon, of Twickenham, is very beautiful—full, waxy, mottled and splashed with a crimson colour on an almost white ground, the yellow stamens clustering in the centre giving an additional charm. Although not double, this race of Camellias is quite different from the usual flimsy single varieties, the flowers having a compactness and fulness peculiarly characteristic.

The Daffodils, like all other spring flowers, are three or four weeks earlier this year than usual. *N. pallidus præcox* (collected bulbs) has been in full flower for a week past in the neighbourhood of London. Old-established clumps of *N. minimus*, as well as *N. Bulbocodium* (*nivalis* being the most noticeable), are also showing flower. Minor, as also many of the *Tazettas* against a south wall, are just bursting their buds.

Odontoglossum Edwardi is one of the most striking of its genus, and should be grown by everyone in search of a distinct and noble species. The flowers are produced in bold, thyrsoid panicles, which carry hundreds of small, deep violet and sweetly-scented bloom, inconspicuous when alone, but of remarkable colour in the mass. A noble spike was just bursting into bloom in The Dell collection at Egham the other day.

Epidendrum macrochilum album.—A coloured plate of this Epidendrum was given in THE GARDEN of October 22, 1887, and we noted it in full bloom the other day. It was introduced from New Grenada and Guatemala, and grows well in the cool end of an intermediate house. The sepals and petals, curled inwards somewhat at the apex, are of a rich bronzy brown colour on the inner face, the lip white, blotched with deep lake near the base, the anther cup yellow. It is one of the best of its genus.

Angræcum pellucidum is one of the old-fashioned Orchids now overshadowed by the great race of hybrids and introductions of late years. It was introduced as far back as 1842 from Sierra Leone, and a large plant, carrying upwards of fourteen spikes, in Baron Schroeder's collection was a pleasant surprise. It is grown in a suspended basket near the light, the racemes of white, almost transparent and glistening flowers, hanging quite one foot in length, having a peculiar distinctness, by reason of their transparency and finely fringed lip. In the eagerness to acquire novelties, or so-called novelties, as not a few of the Cypripediums, we are neglecting many interesting plants that were introduced years ago.

Primula denticulata.—The flowers of this in sheltered spots in the open air are now fully open, and, beautiful as they always are, they are certainly very welcome on February 1. *P. denticulata* is a most useful plant in a spring garden, and can be increased very easily. Our plan, and one which we have found to succeed well, is to take the largest crowns and cut them into pieces. These planted in good rich soil give us abundance of bloom the following spring. The several forms may be treated in the same way; indeed the only really strong plants we have yet seen of the variety *alba* had a full share of this rough treatment. The latter is a very handsome form, and sure to become a favourite when its merits are better known.—K.

Spring gardening at Kew is extending each season, and we are pleased to see that a good use is now made of the many beautiful bulbous flowers that appear early in the year. The gardens can find many spots for their growth, and just now the Winter Aconite studs the rockery, Rose beds, and odd spots with its yellow, Buttercup-like flowers, while on the mound near the Cumberland Gate entrance are breaks of Snowdrops and Lenten Roses, to be followed in due season by a host of hardy flowers, both common and rare. Crocuses are in full beauty in beds that have a standard Rose or Rhododendron in the centre, and the rich yellow blooms peep up at the foot of the venerable

Araucarias, suggesting to the thousands who visit the gardens the good use that our hardy bulbous flowers can be put to in early spring, when the garden is usually thought to have nothing to interest.

Iris chinensis (Morea fimbriata).—In THE GARDEN, January 25 (p. 71), was a notice of *Iris chinensis*, or *cerulea*. Having had the plant many years and only flowered it once, I shall be glad to know what treatment it requires. The gardener under whose care it bloomed has died, and I cannot ascertain from any of the men that it met with especial treatment. We keep it in an Azalea house on a shelf near the light. It grows and flourishes, but shows no sign of bloom. It was exquisite when it did bloom, and I begrudge it this long interval of repose.—Mrs. RAWSON, *Millhouse, Halifax*.

The *Epiphyllum* is worth a note at Kew, where there is a large mass of the common truncatum hanging from the spiny growth of the *Pereskia aculeata* on which it has been grafted. The stock encircles the rafter with its growth, and on it, high up, has been grafted the *Epiphyllum*, producing the curious, but beautiful result, as the rich green growth is now enriched with a number of the brightly coloured carmine flowers. The *Epiphyllum* is usually seen in pots, but it might be also used in the way suggested by the specimen in the Cactus house at Kew.

Brownea grandiceps, a magnificent tropical flowering tree, is now in flower in the Palm house at Kew, where there is a noble specimen some 25 feet in height. *Brownias* are of no value, except for large conservatories, where free growth can be permitted, but for such buildings they are well suited, as the pinnate leafage is elegant and the flowers of marvellous character. *B. grandiceps* is one of the finest of its race. The flowers are produced in an immense globular head, like those of a *Rhododendron*; the colour orange-red, enriched by the gold-tipped protruding stamens. It comes, with the other *Brownias*, from South America.

Gardeners' Orphan Fund.—At the monthly meeting of the committee, held on Friday night last, Mr. G. Deal in the chair, the following special receipts were announced: From a concert at Work-sop, £56 4s. From *Chrysanthemum* shows at Reigate, £50; Edinburgh, £5; and Market Harborough, £1 1s. From money boxes—Mr. Cannell, Swanley, £1; Mr. Herbst, Richmond, £1 2s.; Mr. Vallance, Bristol, £1 11s. 6d.; Mr. Hughes, Birmingham, £5 8s.; Mr. Dodds, Herringswell, Mil-denhall, Suffolk, 5s. 8d.; Mr. Tubb, Minley Gardens, Farnboro', £1 5s. 1d.; total, £10 12s. 3d.; making an aggregate amount during the month of £122 7s. 3d. A vote of condolence on the death of Mr. Wildsmith, who was a good supporter of the Fund, was directed to be entered on the minutes and sent to Mrs. Wildsmith.

Narcissus viridiflorus.—Perhaps some of your readers can give me some hints as to the successful cultivation of this interesting plant. A short time ago I received from a friend some bulbs from Gibraltar, or rather from the low-lying ground between the rock and the mainland of the Spanish Peninsula. I placed them in a pot with light soil and free drainage, and kept them well watered until the foliage showed signs of dying away in the early summer, when I placed them on a shelf close to the glass in a light house in order to ripen the bulbs. I am afraid that this latter treatment must have been injurious. I carefully repotted the bulbs in September and expected soon to see a rich harvest of at least leaves, as the flowers generally appear in October or November. In this, however, I was doomed to disappointment, as no sign of vitality appeared up to the end of November. All this time the bulbs were kept in a cool house without the aid of any fire-heat, but in the early part of December I moved them into a house with an average temperature of 60°, and soon two out of the six bulbs sent up one leaf apiece. But this is all they have done, and I am anxious to know what treatment I should adopt in order to ensure success another season. Has anyone succeeded with this

bulb in the open air? Perhaps with a little protection it might do better than in pots.—W. E. NICHOLSON, *Lewes*.

Pears.—The unusual development of bloom buds seen on Pear trees just now is certainly causing some amount of uneasiness. It is not possible to note the buds shedding their winter scales and threatening to burst into bloom within a month without a feeling of distrust. The more the buds swell now the greater the danger of their suffering should cold sharp weather yet come. I am not referring to wall trees, but to ordinary standard trees on free stocks—Williams' Bon Chrétien, Beurré d'Amanlis, Nouveau Poiteau, Ne Plus Meuris, and others. Black Currants are covered with stout green buds almost ready to burst. If the check needful does not come soon, I fear it will come too late to save Pear bloom from great harm.—A. D.

Hyacinthus azureus is certainly a most welcome addition to the hardy bulb border, as just now, undaunted by the severe weather, it is in full flower on the lee side of a huge boulder in the rockery. It seems at last to be thoroughly settled among the *Hyacinths*, although it has been described as a *Muscari*, a *Bellevallia*, and an *Amphobolis*, and may possibly be best known to some of our readers under one of the latter names. It was found long ago on the Caramanian Taurus by Mr. Elwes, and on the Cilician Taurus by Mrs. Danford, and will stand uninjured the severest exposure. The bright azure *Muscari*-like flowers appear along with the purplish-green leaves towards the end of January, and continue until March. It increases very slowly, but seeds freely, and this may, after all, be the best means of multiplying the stock, the bulbs in three years being of sufficient size to flower. As it flowers so early, and of necessity runs the risk of the blooms being destroyed, it will be better to give as sheltered a spot as possible. A coloured plate of this was given in THE GARDEN, August 10, 1889 (p. 126).—K.

MacNab Memorial Fund.—From a circular addressed to us, we learn that an influential committee has been formed for the purpose of raising a fund to afford relief to the family of the late Professor MacNab, Professor of Botany in the Royal College of Science, Dublin, who, it will be remembered, died suddenly on December 3, 1889. Circumstances, not owing to lack of energy or to mismanagement of his affairs, have precluded the possibility of any further provision for his widow and five children than a life assurance policy of £1100, the interest on which alone will be available for some years to come. Subscriptions will be gratefully received by Professor W. N. Hartley, hon. treasurer, Royal College of Science, Dublin, and Mr. Greenwood Pim, hon. secretary, Easton Lodge, Monkstown, Dublin. Upwards of £300 has so far been received towards this deserving fund, which should receive substantial assistance from all who knew the untiring zeal and devotion of the late Professor in the work he had so much at heart.

Rodgersia podophylla, a native of Northern Japan, is a fine, stately herbaceous plant, a near ally of the handsome *Saxifraga peltata*, and in conjunction might be used with no small advantage on the borders of lakes or running streams. It proves perfectly hardy, no instance being on record, so far as we are aware, where it has suffered even in the most severe winters. Its hardness, as well as its robust and handsome appearance when in flower, eminently fit it for positions of this kind, and although the flowers, which resemble those of the *Astilbe*, are insignificant individually, they make quite a feature when produced in any quantity, which is not unusual in warm summers. It has proved very accommodating with us in dry summers, flowering vigorously, even when the supply of water at its roots must have been very small. *Saxifraga peltata* deserves much the same eulogy as the *Rodgersia*, its fine nearly round leaves and bunches of pale purple flowers being very striking in the vicinity of water.—K.

Ranunculus rutæfolius is just now throwing up its beautiful glaucous green deeply-cut leaves, which

always remind us of common Rue. When in rich tufts it is very interesting and pretty all through the spring months and until the flowers appear in June and July. It seems to be rather a scarce species, and rarely seen doing well, the secret of which, in our case at any rate, is the destruction caused by slugs from which this Crowfoot, more than any other, seems to suffer. Unless we guard our tufts with care, we inevitably lose all the leaves. It is found plentifully in some spots on the European Alps, extending to Siberia, and grows both in calcareous and granitic formations. We find, as in the case of *R. anemonoides*, that broken lime rubble suits it very well, as it makes vigorous growth and produces its rather large white flowers very freely. When grown in shady places the flowers often resemble pale Buttercup blooms, the yellow at the base tinging the whole flower. When grown fully exposed the white and yellow are well marked, and are very effective.—K.

Chrysanthemum Golden Gem.—We cannot give sufficient praise to this lovely variety. A spray received from Mr. Iggulden justifies the good words that have been said for it. The stem sent had been cut from a plant unstopped, and bore ten flowers of average size, all fully developed and beautifully coloured—rich, yet soft yellow shading, with a reddish tint in the centre—a rare contrast. The elegance and refinement of this *Chrysanthemum* when unstopped and unfed by unwholesome condiments should make it a favourite with all, even those who seem wedded to the big blooms and lumpy specimens.

Milla Leichtlini.—The flowers of this species are now fully open, and though not so striking as those of some of its near allies, they are very welcome, opening, as they do, almost in the depth of winter. It is a native of the Southern Andes, and seems perfectly hardy in the open air. There are two to three flowers to an umbel and two to three umbels to a root. The flowers, each about an inch in diameter, are pure white, with a very conspicuous green keel down the back, and fragrant. It is nearest to *M. biflora* and *porrifolia*, and was first imported by the indefatigable Herr Max Leichtlin, of Baden-Baden.

Primula Sieboldi.—Here so early as the end of January, and in the open ground with a somewhat northern aspect, these beautiful Japan Primroses have made growth 2 inches in height, and in one or two sorts, notably the deep red *laciniata*, I can see the bloom buds in the centre of the leafage. If the weather continues as it now is we shall have these Primroses blooming early in March, and yet under all ordinary conditions the crowns should not yet have made a start. That we shall have an early spring is assured unless some very cold dull weather should intervene, and if biting east winds also prevail, the pretty spring flowers now so plentiful will suffer very much. Whilst it is a common thing to have hardy Primroses in bloom in midwinter, I have never seen *Primula Sieboldi* making growth outdoors so early as this year.—A. D.

Ranunculus anemonoides.—This is a most charming species, and one that is easily managed, either on the open rockery or in pots in the frame or corridor. The great difficulty with plants of this class is the getting them in sufficient quantities to make large groups or pans. Beautiful as the single plants are, it is only when in groups that they are effective. The present species is found plentifully in the Alps of Tyrol and Styria, and is certainly amongst the most beautiful of the alpine kinds. It is said to grow on calcareous soils, and we have found a little old mortar mixed with the soil at planting time very beneficial. It dislikes being disturbed. The position should be fully exposed to the sun and the soil well drained, as this *Ranunculus* likes plenty of moisture during the growing season. The flowers, which are larger than a shilling, are pale rose or salmon-coloured, the foliage Fern-like, and glaucous all over. In pots or pans it is a splendid addition to the cool conservatory, requiring very little attention, and, provided the slugs are kept at bay, a certain bloomer.—K.

TREES AND SHRUBS.

PICEA CONCOLOR VIOLACEA.

THE soil and climate of Castlewellan, Co. Down, having proved so favourable to the Himalayan and Japanese Conifers, engravings of which appeared last year in THE GARDEN, it is by no means surprising that the Earl of Annesley has been most successful with the best species and varieties from the colder regions of North America. Although some of the European and Asiatic species of the Silver Fir are considered less hardy than the Spruces, the New World family being large, quite hardy, individually handsome,

extensively planted on all soils and sites in this country. But spreading over the wide region extending from the Southern Rocky Mountains, through California, as far north as Oregon, at elevations ranging from 3000 feet to 7000 feet, it is by no means surprising that seeds sent home by different travellers and named by the recipients should produce trees varying in character, and that to an extent which would cause much confusion. This confusion has existed, but, fortunately, it has been pretty well cleared up, not only by botanists, but also by private planters, who, like myself, bought this Conifer under the names of *P. grandis*, *P. amabilis*, *P. Lowiana*, *P. Parsonsii*, and, as a matter of course,

met with in England, reminding one of the beautiful *P. bracteata* when planted where it can have plenty of light and ample room for the sweep of its base branches. Why this lateral growth, the caretaker, I have no doubt, can explain, as I noticed the same style of development in the *Juniperus recurva* and *Cryptomeria japonica* engraved last season. One of the most promising specimens I have seen was planted by my lamented friend Mr. Wildsmith at Heckfield Place, Winchfield, Hants, and there so far it bears out Messrs. Veitch's statement that it will not attain the dimensions of the type; also that the leaves are shorter, more pointed, much closer together, and covered with a dense bluish-grey glaucousness. This enchanting colour, in some degree due to the warm and rather too dry sandy soil at Heckfield, quite justifies the definition, although I believe it is called *P. c. violacea* from the fact that the small cylindrical cones are of a deep violet-purple. As glaucous Conifers, including *Abies Douglasii* glauca, *Abies pungens* glauca, *A. Englemanni* glauca, *Cedrus atlantica* glauca, the frosted Silver *Picea nobilis*, several of the Lawson Cypress family, and the tree under notice, are perfectly hardy, the modern planter may, if he will, make a most perfect picture of his pinetum, especially if he works in the rich golden tints now so plentiful amongst Yews, Junipers, and *Retinosporas*. The planter who thinks he has finished, most certainly will be induced to enliven the deep sombre green of other trees by their introduction, and he will not omit *Picea concolor violacea*, as it is destined to form one of our most perfect lawn and park specimens. W. C.



Picea concolor violacea. Engraved for THE GARDEN from a photograph sent by the Earl of Annesley.

and good, the painstaking planter has found ample materials for his use in the most exposed parts of Britain. Indeed, notwithstanding the fact that the timber, commercially, is of little value, so graceful and so beautiful are the Silver Firs, that they now form one of the most prominent features in nearly all the large collections, whilst there is hardly a villa lawn in the kingdom which does not support one or more specimens.

Picea concolor, better known as *P. lasiocarpa*, the most widely distributed of all the North American Silver Firs, was introduced in 1851 by Messrs. Veitch under the name of *P. grandis*, and, proving perfectly hardy, it has been most

P. lasiocarpa, which we now find is not the true *P. lasiocarpa* of Sir W. Hooker, but *P. concolor*. To planters whose space was limited, the discovery that they had half a dozen duplicates of the Californian species was disappointing, as much valuable time had been lost, and in not a few instances the most suitable spots had been filled up by handsome vigorous trees too good for removal.

Over *Picea concolor violacea* from Colorado, the variety herewith figured, there can be no mistake, for, as compared with the Californian type, it is as distinct in all its parts as it is in colour. The Castlewellan tree, which I have not seen, appears more spreading than those

PERNETTYAS.

FEW, if any, of our hardy shrubs are more beautiful than the *Pernettyas*, and their attractive features are not confined to any particular season of the year, as the freely-produced, bell-shaped flowers are in the spring and early summer wonderfully pretty, while equally beautiful, or perhaps more so, is the autumn and winter display of fruit, added to which the rich deep green glossy foliage forms a pleasing feature at all seasons. Even in the open ground the plants retain their berries plump and fresh for months, while under glass in a cool greenhouse or conservatory they will remain on throughout the entire winter, and as there are now so many forms differing widely in the colour of their berries, some of the most distinct are extremely useful for greenhouse decoration, more especially owing to the fact that the newer and improved varieties are dwarfer in growth than the older kinds, and, therefore, more suitable for pots. In common with most of the *Ericaceae*, the *Pernettyas* are peat-loving plants, but it is by no means absolutely necessary to their well-doing, as I have found them thrive even in stiff clayey soils, and also in that of a directly opposite nature, viz., in sand, on a subsoil of gravel, but this last was slightly moist. The *Pernettyas* may be planted under varying conditions, but I think they are seen to the greatest advantage when forming a clump on the Grass, as if thoroughly established, the suckers are pushed out freely in all directions, while the arching shoots droop over gracefully, and in this way form a perfect edging, as the lowermost branches are in contact with the ground. For the larger arrangements of rockwork again they are well suited, but in planting them care must be taken that there are no delicate subjects in close proximity, as when established the *Pernettyas* are very vigorous. The typical *Pernettya mucronata* is a native of the extreme southern part of S. America, viz., around Terra del Fuego and the Straits of Magellan, and, as might be expected from the bleak, inhospitable character of that region, our winters have no effect upon it. The newer varieties, characterised by variously coloured fruits, the great profusion in which they are borne, and in most cases by a more compact habit of growth, have all been

raised by Mr. Davis, of Hillsborough, Co. Down, Ireland, who devoted a considerable amount of attention spread over a long period of years in raising these *Pernettyas*. The result of his labours was first brought prominently before the public during the autumn of 1882, when a great number of varieties were exhibited at one of the meetings of the Royal Horticultural Society, half a dozen of them then receiving first-class certificates. The varieties now in cultivation have berries ranging in colour from deep blackish-maroon to almost white, but as far as my experience extends seedlings from any particular variety cannot be relied upon to perpetuate the peculiar characteristics of their parents, though seeds from white-berried forms produce a preponderance of light-coloured varieties, and *vice-versa*. Where there is a considerable demand for cut flowers to furnish vases and for similar purposes, the long sprays of the *Pernettya* when laden with their myriads of wax-like blossoms are in early summer extremely useful, one great merit being the length of time they retain their beauty. Their propagation is a simple matter, as seeds are produced in great quantity, but, as above indicated, should it be desired to propagate with certainty any particular variety, other means than that of raising seedlings must be resorted to. In this case the most effectual method is by layers, and owing to the habit of the plant this can be easily carried out. Very frequently some of the suckers form roots of themselves, or if a specimen is planted rather deeply it is often possible to detach many shoots which are already rooted, but, of course, where it is needed to increase any particular kind to the greatest possible extent, layering must be resorted to. It matters little at what season of the year this is carried out, the principal consideration being to make an incision in the part of the stem that is to be buried, and thus form a tongue after the manner of layering Carnations. Besides this the stems must be held securely in position by means of a peg or pegs, and should the soil in which the plants are growing be of a heavy nature, the layered portion should be surrounded with a little sandy peat or some other compost suitable to the formation of roots. An occasional watering when necessary will also greatly assist the action of rooting. In sowing the seed the one great essential is to keep the soil in a regular state of moisture, and this is far more readily done if the seeds are protected by a frame than if sown in the open ground. The berries being of a pulpy nature, they should be rubbed up with some dry sand, which will cause the seeds to become detached from each other, when they can be readily sown. Where there is a frame at hand suitable for the purpose, about 6 inches of sandy peat may be placed in the bottom, and having been made level, the seed should be sown thereon and just covered with the same compost sifted fine. T.

SHORT NOTE.—TREES AND SHRUBS.

Garrya elliptica.—This plant seems to be flowering freely everywhere. A hedge of it with a north-east aspect at Bannockburn, Stirlingshire, grows freely and flowers profusely every year. For a archway, where the pendulous catkins can hang down clear of the foliage, it proves very useful. For covering old buildings, and ruins especially, this plant is admirably suited.—T.

Pyrus Maulei.—Those who admire a handsome, hardy, free-flowering shrub should make a note of this. If planted and trained, as with us, against a warm wall (a Pine house), it will be now just about to expand its lovely orange and scarlet flowers in great profusion. Moreover, it afterwards sets and ripens a good crop of handsome, Pear-shaped, Quince-looking fruits of a deep orange colour, which are said to make a useful preserve. I fear this valuable plant is not so much utilised or known as it deserves to be.—W. CRUMP.

Evergreen Clematis (*C. cirrhosa*).—Where protected by a wall this *Clematis* has been flowering for some time, and with the number of unopened buds it promises to continue in bloom for a considerable period. It is a native of Southern Europe, from whence it was introduced nearly 300 years ago, yet despite the popularity of the *Clematis*

as a garden flower, and the fact that out of the vast number of hardy species and varieties this alone flowers during the winter months, it is even now quite a rare plant, and one that might be sought for in vain among most lists of this popular flower. The blossoms are by no means showy, being of a greenish white tint, and on the exterior covered with silky down. Individually they are rather less than an inch in diameter, but are borne in considerable numbers, and the setting of prettily cut, deep bronzy green leaves serves to show the blossoms to the greatest advantage. This species is strictly evergreen in character.—H. P.

GOWEN'S CYPRESS.

(*CUPRESSUS GOVENIANA*.)

THIS is one of the rarer Conifers, at least not a commonly cultivated tree, for the specimens of it to be found in English parks and gardens are few indeed. Of handsome appearance and being by no means difficult to cultivate, it may seem strange that so distinct a Cypress, and one that was sent home to us nearly forty-four years ago, should be so little known as it is at present. Its rather diminutive stature and absence from the majority of our good nursery lists may, perhaps, to some extent account for so ornamental a member of the Cypress family being so great a stranger amongst us. From information that I have collected, it would appear that Gowen's Cypress succeeds admirably when planted near the coast; indeed, there is as bright and healthy a specimen as anyone could wish for growing amongst scores of other uncommon Conifers not far from the seashore on the wind-swept Isle of Man. There it has formed a neat and handsome tree, or, more correctly speaking, large-sized shrub.

Another, and by far the finest specimen I have yet seen or heard of, occupies a very conspicuous spot on the lawn at Churchill, in the north of Ireland. This is a handsome and well-furnished tree, and whose deep green and plentifully produced foliage impresses one with the idea that both soil and surroundings suit it. Other specimens that I have seen of late, though far short of the proportions of the Irish tree just referred to, are so healthy and of such free growth, that I can hardly think otherwise than that this particular Cypress is peculiarly well suited for planting in England or Ireland, but Scotland I cannot vouch for, statistics from there being few, and not very promising in their details.

Gowen's Cypress is somewhat after the style of a dumpy or dwarfish specimen of the better-known *C. Lambertiana* or *macrocarpa*. It, however, does not attain to the size of that species, but usually presents a bushy and dense habit, and with bright green foliage, the leaves scale-like and imbricated.

Like *C. macrocarpa*, the present species bears cones in great quantity, and it is quite a sight to see some specimens scarcely 12 feet in height loaded with the pretty and richly-tinted cones. Male or pollen cones, too, are borne in such quantity as to impart to the tree in spring an appearance that is foreign to it at any other time. In this respect it favours the Chinese winter-flowering Juniper. From notes of the quality of the soil in which some of the largest and healthiest specimens of this Cypress are growing, I cannot say that it appears to favour that of any particular quality, although the best tree I know is growing in ordinary loam, but I have seen another that seemed to revel in a peaty mixture that was rendered very porous by the addition of sharp sand and rocky debris. Where space is confined, Gowen's Cypress is one of the trees that should be planted, it being of small growth and of a rich foliage tint. A breezy situation is all the better, but it will not long stand full exposure to east or north winds.

There is a pretty glaucous form of this Cypress, but it is rare. In my opinion it is, for ornamental purposes at least, far more desirable than the parent. It has a hoary, glossy blue tinge of foliage, not unlike that seen in that pretty form of the Savin known as *Juniperus tamariscifolia*. Altogether, Gowen's Cypress deserves to be cultivated

if not for its graceful outline, at least for the bright green tint of its abundant foliage. A. D. W.

Corylopsis spicata.—This pretty shrub was introduced by the Messrs. Veitch, of Chelsea, from Japan some twenty-five years or more ago, but it is not much seen in our gardens, where its flowers are doubly welcome from the time of year they appear. For the information of those who do not know this shrub I may state that the growth is slender, twiggy, and bears quantities of drooping spikes of bloom, and each bloom is furnished with a large bract; the flowers and bracts are soft yellow, and the fine stamens of a deep red, the spikes of bloom being some 3 inches or 4 inches long and slightly fragrant. When in leaf the shrub is very interesting, having broad, strongly nerved, cordate leaves, which are serrate at the edges, light green on the upper side, and clothed with a downy white beneath. It is a very handsome shrub and should be used largely.—W. H. G.

Hamamelis japonica.—I think that your correspondent "T." in his paragraph in THE GARDEN, Jan. 25 (p. 79), is under a misconception as to the identity of the above-named interesting and beautiful winter-blooming shrub, which, according to the editor of the *Botanical Magazine*, is synonymous and identical with *Hamamelis arborea*, as figured on plate 6659 of the 108th volume of the above-named work, and not the pale, lemon-flowered and later-blooming form described by your correspondent, the correct name of which I believe to be *H. Zucariniana*, under which I have grown it for many years past. Curiously enough, Sir Joseph Hooker does not recognise this form at all, as he states that the family of *Hamamelis* consists of only two species, this Japanese form and the American species known under the name of *H. virginica*, and yet *H. Zucariniana* is quite distinct in colour of flower from either. By far the finest specimens of *H. arborea* or *japonica* I have ever seen, and the only ones really deserving the names of trees, were in the beautiful shrubberies of Colonel Capelcure at Badger Hall, near Bridgenorth.—W. E. GUMBLETON.

KITCHEN GARDEN.

TOMATOES.

RECENTLY I have collected much reliable and interesting information concerning Tomatoes, and am pleased to note that some of the largest market growers both in the Channel Islands and in Sussex take a much more hopeful view of their culture than they did at the beginning of 1889. Then they had but poor hopes of being able to cope with the destructive disease known as *Cladysporium*, and which had in several instances during the year 1888 completely ruined the crops, in the larger houses especially, and appeared to be getting worse each season. Now, however, some have discovered that the disease increases in virulence up to the end of the third year, after which it assumes a milder form, and it is thought may disappear as mysteriously as it came. Hitherto it had defied the most extraordinary measures taken with a view to stamp it out. Everything short of charring the interior of houses from which affected plants had been cleared has been tried by those whose livelihood depended principally upon the Tomato crops, but all efforts failed, the germs apparently surviving somewhere, as plants newly introduced into these disinfected quarters were soon as badly overrun with the fungus as those previously got rid of. The latest news from a friend is to the effect that he has at last discovered a remedy, and, judging from the various samples of the leaves I received, it would appear that such is really the case. We must not be too sanguine about the matter, but should the concoction used

prove to be efficacious, it will be duly advertised and sold. I, too, fancy I have mastered the disease, as our plants, which in the autumn were badly diseased, are now nearly free of it. In this case a powerful mildew-destroying composition was used, but the disease is so treacherous and persistent, that I shall wait and see the result.

It may be that the adoption of what I term precautionary measures may have had much to do with the prevention of the further spread of the disease, and seeing that these are also favourable in any case to the production of heavy crops of fruit, those who are well advised will also follow them. The disease spreads most rapidly when a very humid atmosphere is maintained, and the larger, therefore, the houses are in which the Tomatoes are grown the more destructive it becomes. With plenty of fire-heat it is possible to admit air at the top of the house both night and day in dull weather, or when it is most wanted, without lowering the temperature of the house much. The dry atmosphere thus maintained, in addition to checking the disease, also tends to render the growth harder and more fruitful. In warmer weather front air should be admitted during the hottest part of the day, after which there is usually less need to resort to artificial impregnation to ensure a good set. The foregoing alone will not, however, check over-luxuriant growth, and other preventive measures are therefore advisable, this being especially the case when the plants are put out into a border of any kind. In small houses where, perhaps, only a ridge of soil is formed for the plants to root into, this may well be enclosed in loose brick walls, and it can then be rammed as firmly about the roots as in the case of Melons. A rich compost ought always to be avoided, little besides fresh loam, turfy or otherwise, or say the top spit of a pasture or newly broken-up building ground, being all that is needed. An unlimited supply of this even, or say the whole inside border of a house in which the Tomatoes are planted thinly and trained singly up stakes, this being the most general practice with market growers, will cause a much too rank growth unless it is rammed almost as hard as a road, but no one need hesitate about doing this. While I am penning this I have before me a photograph (sent from Guernsey) of a house of early Tomatoes, and the plants that have produced this extraordinarily heavy crop of fruit were growing in a border formed of fresh turfy loam, over which a heavy garden roller had been repeatedly passed in order to make it as solid as possible. In this extra firm root-run the plants grow very sturdily, very little superfluous growth being formed, but, on the other hand, they are both exceptionally fruitful, and to a certain extent disease-resisting. Intelligent market growers are also of opinion that Tomatoes rooting in a rather large mass of soil require very much less water than was at one time thought to be the case. Dryness at the roots, especially at the outset, would appear to greatly promote free flowering, and, what is even more worth knowing, tend to favour a much surer set. When a heavy crop is swelling off, this of itself will effectually check over-luxuriance, and if there is no disease to contend with, water, and if need be liquid manure may be much more freely applied.

The foregoing facts ought to be welcomed by desponding growers as well as the more numerous class who consume Tomatoes whenever they can be had at a reasonable price. It would also appear that private growers are soon to be in a position to grow Tomatoes with very much less trouble than formerly, owing to the intro-

duction of varieties that are supposed to require no stakes, and which form little or no superfluous growth. The natural height of these novelties is said to be about 3 feet, each plant being certain to produce a heavy crop of fruit. This is really too good to be true, but I give it for what it is worth. Candidly, I am afraid those varieties already in the market will prove disappointing to those who try them. It is not claimed for the Lorillard that it is a self-supporting variety, but the woodcuts, which in the autumn of 1888 were distributed among British seedsmen, conveyed the idea that it was wonderfully sturdy and remarkably fruitful. I gave this variety a fair trial and found it nothing out of the common. Dwarf Champion is claimed to be the "future king of Tomatoes," as it is "very dwarf and sturdy, stands heavy manuring, and requires no stakes." The illustration given of this wonderful variety is most startling, far surpassing anything of the sort ever attempted before, which is saying a good deal. My experience with this variety was somewhat disappointing, especially after having seen the illustration just alluded to. It is certainly of distinct and sturdy habit and fairly productive, but in this instance the strength of the plant seems to be expended on the production of stout foliage and stems rather than side shoots. On the whole, it is a doubtful gain.

W. IGGULDEN.

Parsley during winter.—It seems almost incredible that there should be a scarcity of this useful herb during winter if enough has been sown and properly attended to the previous summer and autumn. I think failures often occur from the plants being too thickly grown, thus becoming tender for want of light and air. If the soil is rich and not well drained failures must take place. Denuding the plants of gross outside leaves during the autumn should not be overlooked. Last March I saw some very fine Parsley which had been sown as an edging. It was growing on soil hard, but not very dry, and near the margin of a sluggish river. The ground seemed quite innocent of manure, and not a plant had apparently suffered. The cottager whose plot it was had no experience of the matter previous to the season in which he had sown the seed. Those who fail may try poor and very firm ground for a change, removing gross leaves when they show themselves. —T., N.B.

Garden refuse for Potatoes.—It has been my practice here for many years to collect garden refuse, such as short Grass, leaves from under shrubs, sweepings, &c., throughout the year into one large heap with ashes from burnt refuse, and also coal ashes from the house and garden fires. In November this is all turned over, well mixed together, and carted, in frosty weather, to the extent of forty or fifty cartloads per acre, to a field where I have grown Potatoes with no other manure for many years in succession. I generally get very good crops (1879 was our worst year) of excellent quality, much superior and less affected by disease than when we used farmyard manure. The sorts I grow are Beauty of Hebron, Schoolmaster, Scotch Champion and Wormleighton Seedling, only sufficient of the last-named for a very late supply, when the Scotch Champions turn a dark colour. I am always particular to cultivate the land in dry weather only, which keeps it in a well pulverised condition. The soil is a red loam resting on volcanic rock, and is therefore perfectly drained. —JOHN GARLAND, Killerton, Exeter.

Brussels Sprouts for winter and spring.—"Cambrian's" remarks (THE GARDEN, Jan 18, p. 59) on this vegetable may be of value in some kinds of soils, but for land of a heavy, wet, cold nature he would find it better, if he wanted a good supply of close sprouts through the winter, to sow early and have the sprouts

mostly matured in September. On light land it may do to sow the seed in April and plant out as late as June or even July. I find it necessary to sow the seed in a cold frame about the middle of February, pricking out the plants into light soil in a frame or roughly contrived pit when the seedlings are large enough to handle, finally planting them out in drills in well prepared land when they are, say, 4 inches high. We have from plants treated in the way described abundance of sprouts right up to the time the plants commence to run to seed in the spring. Large breadths of Brussels Sprouts are grown hereabouts for market during the winter, and the method of treatment here described is carried out with excellent results. I have often noted the difference in the appearance of our plants as compared with others in the same neighbourhood, which I knew were both late sown and equally late planted out. It will never do for everyone to follow the advice laid down by "Cambrian" where he says that "time and glass should never be devoted to Brussels Sprouts." Circumstances vary so much that success in one district may mean failure in another. —E. M., Hants.

NOTES ON PEAS.

For the past few years it has been my practice when visiting gardens to make notes or collect information as to the various merits of the most popularly grown Peas in any special locality. In doing this I find the numerous varieties vary considerably in point of earliness. For example, William the First, sown on a south border in a Yorkshire garden, March 10, was ready to gather June 18, while the first dish of Day's Early Sunrise, from seed sown the same day, was not gathered until July 1—nearly a fortnight later. In several other gardens I have noticed that this variety is somewhat later than varieties sown at the same time and grown under similar circumstances, and, therefore, it cannot justly claim the title of an early, or rather first crop Pea. It is, nevertheless, an excellent variety, being a prodigious cropper and growing not more than 3 feet in height.

Locality, season, and treatment have, of course, a great deal to do with the earliness of Peas, but apart from these it would be interesting to know which really is the best early variety to grow for general cultivation. Ringleader a few years ago was grown in most gardens as one of the earliest Peas, but of late years it has given place to more recent introductions.

William the First is a popular variety with many gardeners, and taken from all points it deserves the attention that has been bestowed upon it. It is a good cropper and of excellent flavour. As has been said, seed of this variety sown in a Yorkshire garden March 10 produced Peas ready for the table on June 18, while in Northumberland, from a sowing made February 23, Peas were gathered June 23. In the latter instance, as in the first, the seed was sown on a south border well protected by a high wall. Earliest of All was, a few years ago, considered a very early Pea, but so far as I can ascertain it is by no means so extensively grown as was expected. It appears to be a selection from Sangster's No. 1, and from pods I had submitted to me last season, I must truthfully admit I failed to see a distinction between the two, although the grower assured me that he had procured the seed as two distinct varieties. Be that, however, as it may, the Earliest of All, if rather inappropriately named, is worthy of a place in gardens where early Peas are desired. William Hurst is an excellent wrinkled variety, being very productive and dwarf in habit, while the now well-known American Wonder is of a similar character; neither of these exceeds 1 foot or 18 inches in height, and they are therefore well adapted for growing in pots or frames. As regards earliness, it has been said that American Wonder is ready before William Hurst, but from a trial I saw last year I observed that the difference between the two is hardly noticeable. Seed of both kinds was sown on a warm border the same day, and the first pods were gathered from each at the same time, although it

is only fair to say that those of American Wonder appeared to be the best filled. Emerald Gem, from what I have seen and heard of it, is likely to become a favourite among growers of early Peas. It is hardy, a prodigious cropper, and of excellent flavour when cooked. Another early variety that seems to be getting popular is Chelsea Gem. This is very dwarf in habit, barely exceeding 18 inches, and produces a magnificent crop of well-filled pods when given proper cultivation. Scarcely less can be said of First Crop, Kentish Invicta, Dickson's Favourite, and McLean's Little Gem, all worthy of a place among early Peas.

For forming a succession to the above kinds there are numerous varieties to select from. Among these Duke of Albany is, in my opinion, one of the best. Although comparatively new, this fine Pea is already universally grown, gardens without it during the season being the exception rather than the rule. As is well known, it is an excellent cropper and invaluable for exhibition, the pods being of immense size, fully 6 inches in length, and filled with fine Peas of excellent flavour. This kind, sown in a northern garden March 27, was ready for use July 1. Prodigy, although a tall grower, is an excellent variety. The pods are large in size and fairly well filled. Sown on April 1, the first dish was gathered from Prodigy June 24. Wordsley Wonder, sown at the same time, was ready for use June 26, while the first dish of Dr. McLean was gathered June 21, the seed being sown on the same day and under equally favourable circumstances. Dwarf Mammoth Marrowfat must be regarded as a Pea of high quality, being of a delicious flavour and an excellent cropper, while nothing less can be said of Sutton's Matchless Marrowfat. Both varieties are dwarf, rarely exceeding 3 feet or 4 feet in height, and well adapted for exhibition. The last-named, I believe, was certificated by the Royal Horticultural Society in 1886 under the designation of Heckfield. President Garfield, again, is deserving of more than a passing notice. It is a robust growing variety and a heavy cropper. The pods are large and well filled with Peas of good flavour. As a main-crop variety it is well worth a trial by those who hitherto have not grown it. Another variety worthy of mention is Satisfaction. I have never tested its merits as a main-crop, for which it is generally used, but as a second early I can confidently recommend it. It is robust in habit, rarely exceeds 3 feet in height, and produces a magnificent crop of well-filled pods. The Peas, moreover, are very large and of a delicious flavour—the chief desideratum in Pea culture.

Main-crop and late varieties we have in plenty: Anticipation was one of the best mid-season varieties I noted last year, and this in a northern garden. It attains the height of about 3 feet and is a most abundant cropper, the pods being well filled with light green Peas of good flavour. Challenge the World can hold its own against any variety so far as flavour is concerned. The pods may not be as large as those of many mid-season varieties, but the Peas are of a good size, dark green in colour, and most delicious in flavour when cooked. Telephone and Telegraph are two well-known and extensively-grown kinds, and therefore may be passed without further comment; while the same may be said of Champion of England, Ne Plus Ultra, Veitch's Perfection, Stratagem, British Queen, and others of a similar character.

The question of preparing the soil, also the sowing of the seed, are of paramount importance when an early crop is desired. As is well known, some make it a practice to sow in November, but experience has repeatedly taught me that nothing is gained by it. For years I kept a diary of these matters while serving in various gardens in different parts of Britain, and have proved conclusively that to sow Peas in November is a mere waste of time and money. In light sandy soils the crop may be advanced a few days by sowing in the autumn, but even in these cases the risk of losing the seed by mice and other vermin, not to mention damp, is scarcely worth what is gained. Ground that has been well dug and manured early in the previous au-

turn is about the best for Peas, and this should be well pulverised previous to sowing in the spring. It should, moreover, be in a dry, workable condition, since to sow Peas in a wet, pasty soil is by no means conducive to success. A common error which needs correcting is that of sowing the seed too thickly. The majority of those who sow Peas appear to think that the more thickly the seed is sown the better it will be. The reverse is the case, and in nine gardens out of ten the plants are literally struggling for breath, so to speak, so crowded are they in the rows. Every seed should be at least 2 inches apart, if not more in the case of the tall-growing varieties, and, given this, there is plenty of room for the plants to develop.

Another interesting item in the cultivation of Peas is that of sowing the seed in pots and turves under glass for the purpose of procuring an early crop. Is anything gained by it? I ask this question because experience has shown me that although the crop is advanced a day or two, it does not repay for the labour incurred. I have frequently sown Peas in February in pots and in turves, and have grown them on under glass, taking care to keep the plants sturdy and hardy until ready for planting out. On the same day I have sown some of the same kind on a warm border out of doors, with the result that those sown under glass and eventually planted out with the utmost care were not more than a day or two at the most earlier than those sown direct in the border outside. This has been the result in northern gardens on heavy soil, and in southern gardens on light soil. Therefore the only conclusion I can reasonably come to is that where space under glass and the number of hands are limited, it is far better to sow Peas, judiciously, of course, direct into the open ground.

C. L.

Seed Potatoes.—In answer to "Caledonicus" (GARDEN, Jan. 25, p. 76), I have found no difficulty in roguing seed Potatoes after sprouting simply by the diversity found in the sprouts. Of course, for that purpose the sprouting must be done in shallow boxes and in the light, such as a glass-house or frame affords. Naturally, only by the grossest carelessness could seed Potatoes become badly mixed, and under any circumstances round varieties could easily be selected from the kidney forms, but when two or three kinds of either round or kidney become mixed, little or no difficulty is found, even when the differences in the sprouts are minute, in picking out the rogues. As to how many shoots should be left on seed tubers when sprouted, much must depend upon the purpose for which they are grown. If in frames or on warm borders for early lifting one stout shoot is best, because the produce will be finer and more even. The tuber will be simultaneous. In the case of tubers planted for the production of exhibition samples the same desideratum, the production of fine even samples, is aimed at, and one shoot to a seed tuber is more productive of that end than are several. In the case of Potatoes planted to produce an average sample for ordinary consumption, sets having two or three shoots do better than those having many, which produce thick clusters of growth and far too many small tubers; whilst in rich garden soil sets with one shoot only would probably produce tubers too large for average use. I prefer to lift for the main crop many tubers of medium size suitable for cooking than a medley of large, intermediate, and small.—A. D.

Sowing Cauliflowers.—In raising several hundreds of Cauliflower plants of the true Snowball for seed-producing purposes every year, I sow early in January in a cool house. I marked the date this year as on January 10, and noted that on the 22nd I had an abundant plant on the soil, so that without heat there had been a free growth in twelve days. The advantage of so raising Cauliflowers is that the seedlings are sturdier and harder than are those raised in heat, and there is no difficulty in giving a liberal watering when needed, but of course little is needed where there is a deep body of soil, except when the sun shines out

warmly two or three days in succession. These seedlings remain until quite stout, and not being sown thickly they become strong in a very few weeks. They are then carefully lifted and dibbled out 4 inches apart into frames in good soil. Then in about three weeks they are ready to transplant with good balls of roots and soil to the open ground. The plants soon get hold of the soil, and produce heads in a very short time. It is important to have them in the frame in soil into which they will quickly and freely root, but the soil where they are grown must not be too rich or the heads will be too large, and large heads are not conducive to seed-production, as they are so long before breaking away to flower. Those about 6 inches across are best, and the quicker they can be induced to head and break into bloom the better the prospect of getting seed.—A. D.

Planting Celery.—I quite agree with what Mr. Tallack says (p. 57) about putting Celery out direct into the trenches instead of pricking it out into a nursery bed. We usually raise ours in pans, and then prick the seedlings out about half an inch apart into boxes before putting them out into the nursery bed. Last season we put out one row direct from the boxes to the trench as an experiment. The produce of this row was nearly double the size of that treated in the ordinary way, although the plants were all raised at the same time.—E. B. L.

STOVE AND GREENHOUSE.

THE DOUBLE-FLOWERED CHINESE PRIMULA.

DOUBLE Chinese Primulas are not grown nearly so much as they deserve to be; this arises, no doubt, as far as private establishments are concerned, from the want of a suitable structure in which to keep them. Double-flowered Primulas are not so useful as the single-flowered kinds, which can be grown fairly well in a cold greenhouse provided there is not an excess of moisture. Not so the double-flowered varieties. They need a temperature and other treatment that cannot easily be provided where fruit occupies an important place, or where only stove or greenhouse plants are grown. They will succeed well and give a plentiful return of bloom under nearly the same treatment accorded to Cyclamen persicum. The temperature should not fall below 50° at night, especially when the plants are in flower, with a rise of from 5° to 10° in the day by fire-heat or 15° by sunshine. The atmosphere should at all times be made buoyant by a gentle circulation of air, which if possible should be arranged for, and admitted near to, the hot water-pipes, at the same time providing for a little outlet by the roof ventilators. Staging on which to stand the plants will be better than a solid surface, which in any way retains the moisture. If the staging is slightly elevated above the level of the hot water-pipes, so much the better. Sharp currents of air should be avoided at all times; rather than allow this, it would be better to shade with some very light material for an hour or two during the middle of the day. The plants should be kept as near the glass as possible, and for this nothing is better adapted than the light span-roofed houses of some of the large trade growers. Lofty houses are great drawbacks to successful Primula culture, not only through causing the leaves to become drawn, but being also more draughty by reason of the larger volume of air that is in motion. During the dull season of the year, when the flowers are of the most value, the watering should be done in the morning, so as to leave the house as dry as possible at nightfall. In watering some caution is necessary, as a haphazard mode of procedure in respect to this will be a source of failure if persisted in. A plant must not be watered one day to save the trouble of doing it the next; neither

must it be allowed to get so dry as to cause the foliage to droop. A medium course is the safer one to follow.

POTTING.

This is very important. If the plants have been potted loosely, more moisture will be held for a greater length of time in the soil; yet possibly, if the pots are sounded with the knuckles, the plants will appear to need water when in reality they do not. In potting, therefore, press the soil

drainage sprinkle a few crushed bones when giving the final shift into the flowering pots, which, for all practical purposes, need not be more than 6 inches in diameter.

PROPAGATION.

This is best done by layering early in the spring. It must not be left till the flowering season (in the case of well-grown plants) is at an end, or time will be lost that cannot after-

growths, first pegging them outwards as much as possible. The soil should be mounded up close to the leaves and kept moderately moist. The old ball of roots in the pot will not now get so much water; this will tend towards promoting fresh root-action in the new soil, which is the point desired. When it has been ascertained that the roots are working into the new soil, each layer should be severed from the parent stem with as many roots as possible. The strongest of these should be fit for potting into 3-inch pots, afterwards to be transferred direct to their flowering pots. The smaller ones would be better in 2½-inch pots for a start, then into 4½-inch pots, and eventually into their flowering pots. This latter batch could thus be used for later blooming. After the first potting a closer atmosphere with more moisture should be maintained in order to encourage them to become quickly established, without suffering more than can possibly be avoided by drooping foliage. Where there is an excess of foliage at this period it would be better to remove some of the oldest than to distress the plant by trying to make it carry it all. As the plants become established, more air should be given, and eventually they may be moved into cold pits for the summer months, with a slight shading over them in hot weather. They should be placed in their future winter quarters early in September before there are any signs of damp; the flower-spikes, which should have been pinched off during the summer, should then be allowed to develop. When well rooted, occasional waterings with weak liquid manure water will assist them and strengthen the flower-spikes.

VARIETIES.

Of the several varieties that have been introduced into cultivation from time to time, there are none to surpass (or even equal, in my opinion) the old double white. The old form of double rose or red is not of so good a habit and does not flower so freely. The fringed varieties with rather better flowers do not, generally speaking, grow so freely, neither do they bloom so profusely. Those introduced a few years ago into commerce by Mr. Gilbert have handsome flowers of extra size and colour, but they do not seem to have made that headway which they promised to do when first seen at our autumn shows. The so-called double-flowered forms, of which seed is offered, are quite distinct from the preceding kinds. They are very useful for decoration, having been greatly improved upon both in substance of flower and variety of colours during the last few years. The chief failing with these latter kinds, in my opinion, is that of not producing the succession of bloom for which the former varieties are so well known. J. H.

Winter-flowering zonal Pelargoniums.—The brightest blooms in my greenhouse, not excepting Poinsettia bracts, have been for the past two months, and for some time to come will probably be, those of zonal Pelargoniums. My treatment differs radically from that of "H." (p. 77). Instead of taking cuttings during the last days of August, or "early in September," and nursing them as he describes for nearly a year and a half, that is, until the winter of the following year—and most people, especially amateurs, know what it is to fill during a long winter and spring their shelves with plants from which they expect no blooms—I take cuttings intended for winter blooming in June or July. They will then readily root in a box in the open air or a warm south border. I prefer thus rooting them, for they must rigidly be ripened, hardened, and kept as dwarf as possible. For winter use, neither the cutting nor the subsequent growth should be sappy, long or lanky, and on no account would I try to root a zonal Pelargonium in a pit or frame during



Flowers of the double Chinese Primula.

down as firmly as possible by means of the finger and thumb, but without the aid of a potting stick. To do this properly, it is better to have the soil rather on the dry side than otherwise. This should consist of light fibrous loam, with about one-third of well-rotted leaf-soil added to it. It is better not to use peat if it can be avoided. Sand, of course, is needful and should be added, unless any old mortar rubbish is at hand, and which I would prefer when obtainable, and use rather freely if there is any doubt as to the quality of the loam. Drain the pots liberally, and on the top of the

wards be regained. This, I think, is a point which many may overlook in their desire to obtain as much bloom as possible. As soon as the spring bulbs come into use the double Primulas ought to be dispensed with, and propagation at once commenced. A good strong plant will have four or more fairly large growths, each of which can be made into a plant by layering. Before doing so, however, all the larger leaves should be cut off close home, the decaying ones being pulled off quite clean at the stem. Some good soil, similar to that used for potting, should be worked in amongst these

the summer or early autumn months. Any sandy position in the full sun is the best, and I generally find that suitable cuttings are nicely rooted in from a fortnight to three weeks. But first as to the cutting. The selection of this is very material. I much prefer a side shoot that has not flowered, that is not drawn nor sappy, and that has been fairly ripened. I take it off with a clean cut with a heel or joint, callusing and then rooting taking place all the more quickly. I lift the plants out of the box or border, disturbing the roots and ball of earth slightly. My plants in $3\frac{1}{2}$ -inch or $4\frac{1}{2}$ -inch pots are then placed on a coal ash pathway, or on a border with pieces of slate under them to keep out worms. During the autumn I occasionally water with liquid manure. It would probably surprise many to see the magnificent succession of bloom that has been kept up since last October in $4\frac{1}{2}$ -inch pots. The secrets are judicious feeding with liquid manure, the fullest light and sunshine, pots full of roots in the end of autumn, and plenty of air when the open-air temperature is over 50° Fahr. It is remarkable how often this occurred during the past two months, not to refer to November, as quoted (page 77). I am quite sure if "H." or any reader of THE GARDEN, will adopt this method of having their conservatory a mass of brilliant blooms during the dull winter months, they will find it as feasible as I have.—W. J. MURPHY, *Clonmel*.

Azalea rosæflora.—I was quite astonished to find this kind in flower the other day, its beautiful buds resembling tiny Tea Roses. The plant cannot be a species, although it was imported many years ago from Japan by the Messrs. Rollisson. The flowers, salmony red and perfectly double, are very valuable for button-holes, bouquet-making, &c. They never fall, and the dried blooms need to be picked off the plants. We want a variety of the same type with pure white flowers.—G.

Æschynanthus Lobbi.—Two remarkably fine specimens of this uncommon stove plant are at The Dell, Egham, both suspended in baskets, which they have hidden by a luxuriant growth of deep green foliage, brightened in summer by the rich scarlet flowers. Plenty of moisture is necessary, and it is this that the plants survive on, as they have long since used up the soil in which they were planted. It is a Java species introduced in 1845; and when a new love returns for stove plants, that are now at a discount, it will possibly have a place in all good gardens. Æ. Lobbi is easily grown, and once established gives very little trouble.

Dracæna argenteo-striata.—What an elegant and graceful plant this is, with something the habit of *D. gracilis*, but yet not stiff in any way; the leaves are bright green, beautifully margined and streaked with creamy-white. It has, I believe, been recently imported by Mr. Bull, of Chelsea, from the South Sea Islands, and it is certainly one of the most effective ornamental-leaved plants which have been distributed lately. If this plant could be rapidly increased it would make one of the very best market plants, and if it will stand without much heat it must become a very popular variety.—W. H. G.

Begonia Haageana.—A considerable amount of controversy has arisen with regard to the correct name of this Begonia, but whether known as *B. Haageana* or *B. Scharffiana*, it is certainly one of the very best of its class. It is a free-growing plant with stout, erect stems and foliage that suggest an affinity to the old *B. metallica*. The flowers, which are borne in massive clusters, are of a bluish tint, while the outside of the bloom is covered with large reddish hairs. It is undoubtedly a very beautiful Begonia, whose value is further enhanced by the fact that it will bloom nearly throughout the year, including the winter months.—H. P.

Eranthemum albidiflorum.—Like many other members of the same genus, this is a very pretty flowering plant, and an extremely useful one where flowers have to be maintained at all seasons, for it will bloom freely during the winter, and indeed

almost throughout the year. Compared with many of the others, it is quite a dwarf-growing plant, flowering well when not more than a foot high. It is upright in growth, the stems being clothed with very deep green ovate leaves, and terminated by an upright panicle of white blossoms, not unlike a small cluster of white Lilac. To be seen at its best this *Eranthemum* requires the temperature of an intermediate house or the cool end of the stove. Cuttings root readily enough, and if they are taken in the spring and grown on freely during the summer they will form pretty little flowering plants by the winter.—H. P.

THE FLOWERING OF CAMELLIAS.

My experience of the flowering of Camellias quite agrees with that of Mr. Muir, and I am convinced that the only way to obtain good early blooms is to get the plants into growth as soon as possible after the turn of the year, as that is the time to do the forcing, and the plants then enjoy a fair amount of artificial heat if accompanied with plenty of atmospheric moisture. With this treatment they are sure to do well. We have been cutting quantities of flowers for some weeks past, the sorts being Colvilli, alba plena, Lady Hume, Albertus, and a small red sort, the name of which I do not know. These and other varieties are on the back walls of two vineries, the one an early house, and the second forced slightly to succeed it. The plants start to make their wood in January and begin to expand their blooms in November. It will at once be seen how valuable they are and how little trouble they give, as being planted out in a narrow border with their roots running under the pathway and loosely trained and tied to strained wires, they require no attention beyond watering now and then and pruning, for though we cut the flowers with long stems, the growth is so free that the knife must be used to keep the plants within bounds. Were it not for these Camellias the walls in the vineries here would be bare, as owing to the shade of the Vines nothing else would succeed; but they are just at home, as the treatment accorded the Vines exactly suits their requirements all through the year. This being so, those who have available space like that referred to cannot possibly do better than utilise it at once, as this is a good time to start; and to give the plants a fair chance, the border should be prepared by draining it at a depth of 2 feet or so. This may readily be done by digging out and putting in at the bottom 6 inches of broken bricks, and then filling up again with a mixture of fresh turfy loam and peat, roughly chopped, with a dash of sand to keep the whole open. As Camellia roots are very brittle, it is not advisable to interfere much with the balls of the plants when turning them out, but to plant them entire or only just broken by carefully picking some of the old soil away. If the balls are at all dry they should be soaked, as after the planting it is very difficult to properly saturate them. The way to encourage the plants to break is to freely syringe both on the morning and evening of bright days, as that will keep the foliage fresh till new rootlets are formed.

S. D.

Elæocarpus cyaneus.—At the present season of the year this greenhouse shrub is very ornamental by reason of the great profusion of bluish berries, which impart to a specimen an appearance very different from that presented by a plant when laden with its beautiful blossoms. As a flowering shrub it should certainly take high rank, for its blooms are so unlike those borne by any other occupant of the greenhouse, being pure white, bell-shaped, and deeply and delicately fringed. The blossoms hang suspended from the undersides of the branches, somewhat as in those of the North American Silver Bell (*Halesia tetraptera*). It is altogether a plant of simple requirements, disliking above all things frequent disturbance at the root, and on that account it is well fitted for planting in the greenhouse or conservatory where there is a prepared bed suitable for such things. When in pots or tubs it will often remain in health for years without repotting; indeed the treatment usually

given to Oranges and similar subjects will suit it well. From the seeds which often ripen young plants can be raised, and cuttings of the growing shoots will root freely in spring.—T.

PROPAGATING TREE CARNATIONS.

WHICH is the best time to take cuttings of Tree (winter) Carnations? and what treatment do they require?—KENT.

* * The most suitable time to take cuttings of the Tree or winter-flowering Carnations is as early as possible in the year, for the plants have then a long season of growth before the flowering period comes round. Very good cuttings are generally to be obtained from plants that have been flowering throughout the winter, for they are usually kept in a genial temperature for the sake of their blossoms, and, consequently, they are by this time studded with young shoots, which form the best possible cuttings. Where these Carnations are propagated in quantity, there are generally some close propagating cases kept at an intermediate temperature, such as are available for striking cuttings of Fuchsias, Heliotropes, Petunias, and similar subjects. These Carnations strike root very readily under such treatment, but where a similar convenience does not exist they may be struck equally well under a hand-light or some similar protection in the warmest end of the greenhouse, or on a very moderate hot-bed when covered by a frame. A minimum temperature of 55° is a very suitable one in which to strike the cuttings, as if higher they are greatly weakened, and on that account a few degrees lower is better than a greater amount of heat. In taking the cuttings, it should be borne in mind that the very stout succulent shoots do not strike root so well as the more slender side branches, for the former are far more liable to decay, and, even if rooted, they do not branch out so freely afterwards. The cuttings must be formed entirely of the current season's shoots, and as far as possible the very weak ones should be rejected. In taking the cuttings, some prefer to cut them off, while others pull them out after the manner usually adopted in the case of pipings of Pinks, but it really matters little which course is adopted, provided always they are not bruised in any way. A length of about 4 inches is a very suitable one for the cutting, and the bottom leaves having been removed, it is then ready for insertion. The pots or pans may be of any size, but a very suitable pot for the purpose is one 4 inches in diameter, and this should be drained with broken crocks to about one-third of its depth, and the remainder filled up with a compost consisting of loam, leaf-mould, and silver sand in equal parts, with a slight layer of clean sand on the top. The soil should be pressed down moderately firm and about half-a-dozen cuttings dibbled in each pot, when a thorough watering must be given, sufficient in fact to settle the sand at the top in one level unbroken surface, as many cuttings are lost from insufficient watering at the time of insertion. The after-treatment will consist in watering when necessary (which in the close propagating case will not be for some little time), and in giving a little air should any sign of decay be visible. At present the cuttings will not require any shading, but towards the end of February they will need to be shaded from the sun's rays during the hottest part of the day. Directly the cuttings are rooted more air should be given, as the object then is to encourage as sturdy a growth as possible. This will be assisted by removing the plants as soon as they are sufficiently rooted to a position near the glass, and they should be potted off directly they are ready. Two very important considerations with regard to the cuttings are, in the first place, when dibbling them in, to take care that the soil is closed firmly around the base, as should a cavity be left, which is liable to happen unless specially guarded against, the cutting will often shrivel up without rooting. The second item to which special attention must be paid is to see that there are no aphides on the cuttings when they are put into the close propagating case, as they will increase rapidly in it, and in a

few days greatly cripple the foliage. The after treatment consists in gradually inuring them to the shelter of a cold frame and shifting them on as required.—T.

TEA ROSES IN POTS.

THOSE who are anxious to supply these beautiful flowers all the year round will have found by experience that it is most difficult to obtain good blooms during the early spring months. When the plants have good late summer growths, as they generally have when well cared for, there is no difficulty in getting really good blooms late in the autumn by placing the plants in a light airy house and maintaining a dry atmosphere by a moderate warmth in the heating apparatus. The ventilators should, of course, be open as much as possible, for these Roses cannot thrive or produce good blooms in an atmosphere that is damp or impure. Our garden is, in fact, too near London to allow us to produce really good Roses either out of doors or under glass. Our difficulties begin with the month of November and remain until April. The early spring-flowering plants require to be prepared in the autumn of the previous year by free exposure to the sun. If possible, they should be under a glass roof and have no shade whatever. The young wood under glass may not be so highly coloured, but it will undoubtedly be in better condition for producing healthy flowering growths in the spring. Protection from cold late autumn rains is also of great importance.

In our variable climate I would not place Tea Roses in pots out of doors at all if I could help it, not even in summer, for unless the pots are protected from scorching sun, the roots are liable to be injured by the excessive heat. The plants should be pruned in November, and before doing so they should be quite dry at the roots and allowed to remain so until all danger of bleeding is over. Some fifteen years ago I started my Tea Roses in one of the earliest vineries during the last week in November. The house became too much shaded with leaves before the buds had advanced to the opening stage, but we were fortunate in being able to remove the plants to another vinery, in which the Vines were not so forward. At that time we followed a good old-fashioned practice of forming a bed of manure and leaves in the vinery. This was not only useful in giving a genial moist warmth to the Vines, but was excellent for plunging pots in that required bottom-heat. I found the Tea Roses were all the better for a little bottom-heat, enough to push the roots well abreast of the growths. Vigorous growth and well-formed flowers are absolutely dependent on the reciprocal action of the roots and the growth of the plants. The roots of Roses soon begin to move, and they progress very rapidly when root and branch are working harmoniously together. We are managing our Roses on the same system now. They were started last year at Christmas. We have not the advantage of a heap of fermenting material, but they do very well in the lightest part of the house just over the hot-water pipes. The second house is started in good time to receive the plants if the Vines are likely to shade them too much in the early one. I have been told by some of the best market growers that it does not pay now to grow Grapes for market unless some other kind of produce is grown with them. It is well known that nothing will grow very well under Vines when they are in full leaf, but a snatch crop of early Tea Rose blooms might go a long way towards paying for fuel. Tea Roses can be sold at any time, but they are most valuable early in the year. In forcing Tea Roses, mildew and green-fly must be guarded against and destroyed on their first appearance.

J. DOUGLAS.

SHORT NOTES.—STOVE AND GREENHOUSE.

Cyclamen Faust.—This is a very fine blood-red variety of the giganteum type, and is the very finest of the dark hued forms I have seen. The colour is even and dense, yet full of glow, whilst the flowers equal the large whites in size and are of perfect form. Dark reds hitherto have, as a rule, been small-flowered,

and have seemed somewhat dwarfed by the robust growers of the white and persicum strains. *Cyclamen Faust* is a match for the stoutest of these. It has already received two certificates of merit.—A. D.

Kalanchoe carnea.—This is a near relative of the old *Crassula* or *Kalosanthes coccinea*, but it differs from it in many particulars, and especially in its season of flowering, as it blooms during the winter months. It forms a stout, erect-growing plant with succulent foliage, and bears its blossoms in large flattened terminal heads. The individual blooms are each about half an inch in diameter, pale pink, and very fragrant. It seems to ripen seed readily enough—at least it is offered in quantity by most of our seedsmen, and I find that the seedlings very quickly make their appearance after they are sown. From their succulent nature water must be supplied sparingly at all times, but especial care in this respect is needed just as the young plants show above ground.—H. P.

ORCHIDS.

ANSELLIA AFRICANA.

THIS plant has now been grown in our gardens for fifty years, and is even at the present time exceedingly popular. I have frequently noted how fine it has been at Mr. Tautz's at Shepherd's Bush, Mr. Measures' at Streatham, and at Messrs. Williams and Son's, Holloway, but in none of these places is it so fine as in the collection of the Rev. W. N. Ripley, at Earlham Hall, Norwich. Here Mr. Bartlett, the gardener, has several plants of this species. The one to which I wish to draw the attention of my readers is now bearing six enormous spikes with from 50 to 100 flowers on each. This *Ansellia* has undergone its share of neglect; indeed, this seems to be the case with most of those Orchids which have been introduced over twenty or twenty-five years. All seem to be neglected in their turn until someone again takes up their cultivation. Such is the case with this plant, and with a view of increasing its popularity I introduce it to the notice of the readers of THE GARDEN. The plant was named in honour of its discoverer, Mr. Ansell, who was in an early expedition to the river Niger. It is found upon the ground, growing in the accumulated soil which gathers about the base of the trees. It cannot be accommodated in a small or low house, for it grows to a height of from 3 feet to 5 feet and 6 feet, and requires the warmth of the stove. It thrives well amongst ordinary stove plants, where two of Mr. Bartlett's plants are flowering beautifully. This species grows usually to between 3 feet and 4 feet in height, producing stout, terete, stem-like bulbs, and bearing near the top numerous light green and strongly-ribbed leaves. The spike of bloom is terminal, slightly pendent, bearing numerous branches and many flowers, the colour of which in the sepals and petals is yellow, heavily marked with spots and blotches of chocolate, side lobes of the lip similarly marked, but paler in colour, whilst the middle lobe is clear yellow, without spot or blemish. The plant, in addition to producing a very large quantity of flowers, continues in bloom for about six weeks or two months, so that there is ample time and opportunity to cut side sprays for decoration. The pots for the reception of this plant should be exceptionally well drained, and they should be of good size, for the plant at all seasons likes an abundance of water, although, as a matter of course, during the summer, its growing season, the greatest quantity is necessary. Even in winter when flowering a great mistake will be made if any attempt is made to keep it in any way dry. It roots very freely, and also makes quantities of

spiny roots from the upper part, in a similar way to *Grammatophyllum* and other plants. This *Ansellia* does not bear repotting so well as many things; hence the necessity for thorough drainage. The soil should be a mixture of rough peat and leaf-mould, with a little rough, turfy light loam. This is a genus which should receive additions through the opening up of the country, for this species, or varieties of it, extend round from Fernando Po, where it was first found, to Natal. I have a dried specimen of a form of this plant introduced by the Messrs. Rollisson and named by them *Rollissoni*. This did not grow much more than a foot high, and produced flowers larger than those of *A. africana* and similarly coloured. The blotches, however, were larger and less numerous. I do not know to whom these plants were sold at the time of the breaking up of the establishment. We have also a yellow-flowered variety from Natal called *lutea*, which, however, is not very showy, although there may be brighter forms of it to reward the careful searcher. Sir William Hooker's plant of *A. africana* could not have been a very good variety which he figured at t. 4965 of the *Botanical Magazine*, for he says, "The flowers are deficient in brilliancy or even brightness, the ground colour being a pale livid green," whilst in the specimen before me the flowers have a decided yellow ground, and hence there may be still greater variations in the species, if not new ones, in the forests of the Congo and other parts of the Dark Continent.

W. H. GOWER.

Dendrobium Hilli.—A fine specimen of this Dendrobe in the garden of Mr. Raphael, Castle Hill, Englefield Green, brings to mind the Australian type *D. speciosum*, which was introduced as far back as 1824, and is now in bloom at Kew. The plant of *D. Hilli* at Englefield Green is bearing two strong spikes of flowers which are of a paler colour, the lip transversely marked with purple, and with narrower petals. The pseudo-bulbs are not so thick and about twice the length of those of the parent. Neither are showy Orchids but worth a place in large collections.

Sarcanthus teretifolius (H. B.).—This is the name of the plant you have sent, and it has nothing whatever to recommend its being grown. As you say you have but little space in which to grow your Orchids, and still less time to look after them, you should grow kinds that will give you some return for labour and expense. It was something of this kind which led to the cessation in Orchid growing some few years ago, as anything in the Orchid way was grown. Happily, the mistake has been seen, and we have started upon fresh lines. We require bright flowers in our hothouses, and this the *Sarcanthus teretifolius* will never give.

Vanda lamellata Boxalli.—This is the name of the Orchid sent by J. Macarty, and it is one of the prettiest of the small-flowered kinds introduced by the Messrs. Low & Co., of Clapton. The plant is dwarf in habit, and well deserves the attention of all Orchid growers. It has slender, narrow leaves and erect spikes bearing numerous flowers, the dorsal sepal and the petals creamy white tinged with yellow, whilst the lower sepals are of the same colour on the upper side, the inner half being rich reddish-brown, the lip and column reddish-brown streaked with purple and yellow. The plant is a native of the Philippine Islands, and requires warmth and moisture to maintain it in good health.

Dendrobium crassinode was opening an abundance of its flowers in the garden of Mr. Raphael, Englefield Green, the other day, and masses of this beautiful Orchid give a rich glow of colour in the Orchid house in early February. The plants are grown in baskets near the light, some of the knotted stems bearing as many as thirty-seven flowers, and one carried upwards of fifty. The sepals and petals are richly tipped with deep pur-

ple-rose, the lip white with an orange-coloured blotch at the base. It is a native of Siam, where it was found on the Arracan Mountains at a height of between 2000 feet and 3000 feet. There are two good varieties of it, one named *Barberianum* being often seen in collections; it has larger and more brightly coloured flowers than those of the type, while in *albiflorum* they are pure white, save for a yellow-coloured blotch at the base of the lip. This was first flowered by Messrs. Low & Co., of Upper Clapton, and is rare in cultivation.

Cypripedium Burbidgei.—This plant was named by the late Professor Reichenbach, and I think he did quite right in separating it and also *C. Petri* from *C. Dayanum*, for if I wanted a plant of the true form of *C. Dayanum* I should not like either of the above forms sent in its place. I do not say that they may not be found to approach each other closely, but still each is distinct enough to be grown side by side. A flower of *Burbidgei* from Mr. Measures, of Camberwell, proves it to be quite distinct from *Dayanum*. One of the chief characteristics of the flower now before me is a distinct row of wart-like black spots on each edge of the petals, and also in the greater amount of colour in the apical end of the petals, the shape of the lip also being different. The leaves are of a very deep green colour, tessellated with white. It comes from Borneo, and requires the warm house.—H.

SHORT NOTES.—ORCHIDS.

Vanda Amesiana, one of the richest treasures in Orchids given to us of recent years, is of greater freedom than the specimens we have hitherto seen of it led us to expect. A plant of it in the collection of Mr. Raphael, Englefield Green, bore a spike thirty inches in length, with five laterals, carrying in all forty-eight of the fragrant delicately-coloured flowers.

Odontoglossum Hunnewellianum.—I lately saw a large-flowered form of this species, in which the colours were very bright and well defined, the sepals also being larger than usual. The blooms were larger than those received from its native country, so that the flowers, when the plant becomes established, promise to improve in size.—W. H. G.

Dendrobium Dominicanum.—This handsome hybrid, raised by Mr. Dominy between *D. Linawianum* and *D. nobile*, was in bloom recently with Messrs. H. Low and Co., Upper Clapton. Its flowers partake of the characters of both parents; the sepals and petals bright rose-purple, and the lip with a deep basal blotch, surrounded by creamy white, the margin rose-purple.

Dendrochilum uncatum, or *Platyclinis uncatum*, under which name we see it in some collections, is a graceful plant, and some specimens of it were full of the pendent racemes of pale green, fragrant flowers in Messrs. Low and Co.'s nursery at Clapton the other day. It is like *P. filiformis*, but the racemes are not so long and the flowers are larger. It comes from the Philippine Islands.

Dendrobium Farmeri (E. B.).—This is the name of the *Dendro* received from Burmah, where it is by no means an uncommon plant. I have imported this species in considerable quantities, but I think the form from Upper Assam is more beautiful than that which I have received from Burmah. Both, however, are extremely beautiful and well deserving of cultivation.—G.

Sophranitis violacea.—This is a gem amongst Orchids when well grown, as at The Dell, Egham, where there is a basket of it one mass of the rose-violet flowers, which clustering amongst the narrow dark green leaves have a peculiar charm. It is more often seen in collections carrying about half a dozen blooms, and from such a paltry show no idea of the true beauty of the plant can be gained.

Lælia anceps alba.—This flower is sent me by Mr. Denison, of Manor House, and although not so fine as *Stella*, *Dawsoni*, and some others, it is, nevertheless, pure white; the crests and base of the side lobes of the lip only being yellow. It is a well-shaped flower, and proves that these white varieties, flowering as they are in so many places this season, are becoming amenable to cultivation, and we may yet hope to see the white-flowered forms as freely grown as the darker kinds to which they afford a rich contrast.—W. H. G.

Dendrobium Ainsworthi roseum is a pretty flower, like that of the sweetly-scented type, except

that the sepals and petals are flushed with rich rose-magenta, the lip deep amaranth, and veined with rich crimson. A plant of it was in full bloom the other day in Mr. Raphael's collection.

Chysis Chelsoni.—This is a charming hybrid raised in the Chelsea nursery of Messrs. Veitch between *C. bracteescens* and *C. aurea*. The flowers are of a nankeen colour, but the upper half of both sepals and petals is coloured with a rosy suffusion, the lip yellow marked with red. It is in bloom now, and is scarcely so free as its parents.

Odontoglossum crispum Wolstenholmiæ.—Amongst the many finely-spotted forms of *O. crispum* this is one of the best, and may be compared to *O. Stevensi*, which has not such a full, rounded flower and the spots or blotches of brown are paler. A well-flowered raceme of the variety *Wolstenholmiæ* has a striking beauty, as may be seen from a plant in full bloom in the collection of Baron Schroeder at The Dell, Egham.

Dendrobium Jamesianum is finely in bloom with Mr. Raphael, Englefield Green, one plant bearing a spike of nineteen flowers. When in full flower this is a noble species, introduced as far back as 1869 from Moulmein, and differing chiefly from its nearly ally, *D. infundibulum*, in having a rich red stain at the base of the lip; the other portion of the flower is of the purest white. As in the case of *D. formosum*, the blooms last for weeks when not wetted by the syringe.

Cypripedium Sedeni candidulum.—New varieties of *Cypripedium*s are constantly being raised, but this one, now somewhat old, is one of the most beautiful of the light-flowered forms of this remarkable plant. The original form raised by Seden is still the best. It produces much the finest flowers and of the purest white. This form is now flowering beautifully in The Woodlands collection at Streatham, where also are several other varieties called *candidulum*, none of which can be compared to Messrs. Veitch's plant.—W.

Spathoglottis Lobbi.—I am told that this, which I recently noted as flowering in Sir Trevor Lawrence's garden under the above name, is in reality *S. Regneri*, the flowers of which are clear yellow throughout. *S. Lobbi* has red streaks in the lateral sepals, as shown in the plate of this species given in *THE GARDEN*, August 26, 1882, Vol. XXII. (p. 188). The only fault of the *Spathoglottis* is, that it is destitute of leaves at the time of flowering. If grown in a hanging basket, I would suggest the leaving of several pockets and dropping in seedling Ferns. If anyone can suggest a better plan, I am sure we should all be glad to hear of it.—W. H. G.

Cattleya Percivaliana.—A flower of the finest variety of this I have ever seen has been sent me. The sepals and petals are deep rose, the lip large and deeply frilled, rosy-magenta in front, quickly passing into deep velvety purple, at the base of which is a rich orange V-shaped belt, the base of the lip being deep purple, but on the outside it is wholly stained with orange.—W. H. G.

—The above Orchid is very beautiful just now in collections, and amongst the finest forms we have seen this season are those at The Dell, Egham, where Mr. Ballantine grows this charming and variable *Cattleya* remarkably well. It belongs to the *labiata* section, and was first brought to notice by the large importation sent to Messrs. Sander & Co., of St. Albans, about eight years ago, from South-west Venezuela, where at a great altitude it flourishes on the bare rocks in full exposure to a tropical sun. There are several good varieties in flower at The Dell, one especially striking for its richness of colouring and size of bloom; the sepals and petals are of a warm rose tint, the lip bold and intensely coloured with velvety-purple, that fades to a pale lilac, almost white, at the finely-fringed margin, while at the entrance to the throat is a suffusion of dull guinea gold, that deepens the superb shades of the other portion. In the collection also of Mr. Raphael, Englefield Green, there is a large specimen one mass of bloom, which represents an excellent variety and gives a warm glow of colour to the Orchid house.

Cypripedium hirsutissimum.—The last importation of the Messrs. Low and Co. of this plant appears to be that of a fine form. I noted last week in Sir Trevor Lawrence's garden at Burford Lodge a plant recently bearing ten flowers, which were borne in five pairs, the colours being rich.

Last year, I think, also this *Cypripedium* produced numerous twin flowers. I have observed this feature in several gardens possessing plants from this importation, but the plants of the older imported lot never did this; indeed we never looked for twin flowers in the old times on this set of Orchids. This species flowered first with me in Messrs. Jackson and Son's establishment, and before the specimen shown by Messrs. Parker and Williams in the rooms of the Royal Horticultural Society in Regent Street, Messrs. Jackson's plant being then out of flower. This species has lost favour to a great extent on account of being a shy bloomer, but the plants from Messrs. Low's last importation do not appear to have this failing.—G.

GARDEN FLORA.

PLATE 739.

THE FENNEL FLOWERS.

(*NIGELLA HISPANICA*.)

THE subject of our plate belongs to a curious group of annual plants allied to *Clematis* and *Ranunculus*, with a decided leaning towards the genus of Poppies. Perhaps the best



Love-in-a-mist (*Nigella damascena*).

known species is *Nigella damascena*, the so-called Love-in-a-mist of our great grandmothers' gardens. All the species are found wild in the Mediterranean basin, and trend out eastward into Asia. One species, *N. sativa*, which is cultivated for its aromatic seeds, is by some authorities thought to be the "fitches," mentioned in the writings of the prophet Isaiah. The only two species really worthy of culture in gardens for decoration are *N. damascena* and *N. hispanica*, and these as well grown are distinct additions to the best of gardens. But it is a singular fact that annuals are, as a rule, despised, and rarely so well cultivated as their beauty and

* Drawn for *THE GARDEN* by H. G. Moon, September 16, 1889, at Gravetye Manor, Sussex. Lithographed and printed by Guillaume Severeys.



NIGELLA HISPANICA.

free-flowering characteristics would lead one to hope would be the case. Many, indeed most of them, are well worth growing specially as flower garden ornaments, and not merely to stick into the herbaceous borders to fill gaps, a use so often recommended for them. Speaking generally, annuals do not transplant well, and many of the best of them should be sown in autumn and allowed to remain to flower where sown. As a rule, deep light soil is best, but *Nigellas* will grow anywhere if sown thinly, so that each seedling has space to develop itself to the best advantage. Seedling *Nigellas* as thinned out to 15 inches or more apart are very different objects to those seen in "choke-muddle" patches thickly sown in dots along the herbaceous borders. My own plan with annuals is to sow in autumn and again in spring. In this way one has two strings to one's bow, and failure is reduced to a minimum.

F. W. BURBIDGE.

ORCHARD AND FRUIT GARDEN.

THINNING FLOWER-BUDS ON FRUIT TREES.

THERE prevails an opinion that a profusion of flower-buds is the forerunner of a good crop of fruit; but this does not always follow, as several contributory conditions are quite as essential as the organs of fertilisation and perfect pollen, and, lacking these, a Peach or other fruit tree may be literally covered with flowers and yet the crop may be thin. Trees, on the other hand, as in the case of the old Noblesse, which cast nine-tenths of their buds, almost invariably set every flower which expands, and although the fruits appear thin and far between at first, they seem to increase in number as they swell, and sometimes require thinning before the crop is ripe. I do not object to a profuse blossom, as without flowers the fruit grower's hopes vanish and the work of the past year is thrown away; but having them in plenty, the roots of the trees must be fresh and active and the air temperature of the house satisfactory, otherwise the most careful fertiliser's art will not avail. Pushing the buds too forward before the trees go to rest, keeping the roots too dry, overcropping in preceding years, and stuffing houses with plants which must not be touched by frost, are conditions which enervate the trees, and although they may get over the dropping stage, those which stand are weak and imperfect in some of their parts. Profuse flowering, again, is weakening, and, notwithstanding the fact that the trees have had proper rest and the roots plenty of water, each individual flower will be small, and puny flowers, every fruit grower knows, are followed by indifferent fruit. The set, it is just possible, may be profuse, especially if the trees be old and making a last fluttering effort to reproduce themselves before they depart; but why allow them to be thus handicapped, when a thin blossom, as I have shown, is the sure forerunner of enough and to spare for a good crop of fruit? The Grape grower gives relief to his Vines by the removal of the superfluous bunches so soon as one, naturally the best on each shoot, can be decided upon, and these he further reduces before they come into flower. The enthusiastic Peach grower, on the other hand, sometimes sends up to the editor of a gardening paper a shoot or shoots carrying so many dozen embryo fruits to the foot, and he lauds the syringe or the rabbit's tail; but what

does this wonderful feat convey to the practical gardener? Why, it tells him that the trees are in excellent health, that conditions are favourable, and the enthusiast is driving them headlong on the road to ruin. Growers of the *Chrysanthemum*, the *Pelargonium*, the *Camellia*, the *Indian Azalea*, and other flowering plants thin the buds; why, then, should not we thin them on the Peach, the Pear, the Apple, and the Plum? Fruit blossoms of all kinds just now are most profuse; therefore time sooner or later must be given to thinning, otherwise the crops of indifferent fruit next autumn may not pay for gathering, when the weakened trees will take a year's rest. A free-flowering Peach tree under glass may be relieved in a few minutes, not by taking each bud singly, but by drawing the finger down the under side of each shoot, when 50 per cent. of the least desirable buds will fall, as no one cares for a pendent Peach or Nectarine if he can get one with its apex pointing to the sun. Then, if time permits, those left may be still further thinned, every tenth blossom being ample for a heavy crop of fruit. Pears, Apples, Plums, Apricots, and Cherries may be thinned by spur-pruning in winter, and, extra fine fruit being the object, by the use of the scissors just before the flowers begin to expand, the finest upon each truss, as a matter of course, being reserved for the crop. But why not, some may say, leave these matters to Nature? Well, so we might, if the trees were growing in a state of nature, and roots and branches were allowed to extend. Quite the reverse, however, is the case, especially in high-class gardens, where dwarfing stocks, double grafting, pinching, manipulating, and annual or biennial root-lifting are devoted to the suppression of wood and the production of flowers.

FRUIT GROWER.

Precocious nuts.—I see "A. D.," in the *Gardeners' Chronicle*, in speaking of nuts, says, "We have plenty of evidence that female flowers may become fertile when pollen is absent." This, however, I cannot believe. I have had proof enough of female flowers assuming the appearance of fertility, but never producing seed, and a nut without a kernel cannot be called fertile. Speaking of early flowering, I observed in Sussex in the first week in the new year a small nut bush that had been removed when in full flower in the spring of 1889 from one part of the garden to another. I have no doubt but that the mildness of the season is the cause of the early blooming, and there is little wonder at the flowers of fruits being earlier than usual, when we had Primroses, Polyanthus, and many other spring flowers in bloom a long time before Christmas.—W. H. G.

Peach buds dropping.—A "Fruit Grower's" remarks upon this subject (*GARDEN*, Jan. 18, p. 62) must have come with exceeding relief to many a young Peach grower who has found bud-dropping amongst his started trees to be to him a difficult problem. I was looking through the Peach houses in a garden recently when the gardener, a young man, drew my attention to the considerable falling of bloom-buds in the earliest house; indeed, so great was the mortality, it seemed as if hardly any buds would be left. The gardener could not fathom the cause at all. I diffidently suggested dryness at the roots, but was assured such was not the case. Perhaps some element in the material with which the pipes were last coated may have been the cause, but there was nothing to indicate anything wrong in that direction. The observations of a "Fruit Grower" seem to go so clearly to the foundation of the evil in question that I have specially invited my friend's attention to them, and without doubt the proper remedy will be applied henceforth. It is far too often the case that both Peaches and Vines in houses are deprived of that moisture at the roots at the time of leaf fall which outdoors the trees get even more

plentifully almost than at any other time of the year. It would seem as if after all in the culture of Peaches under glass the best guide is to be found in the conditions which exist naturally.—A. D.

FORCING STRAWBERRIES.

STRICTLY speaking, there is no resting season for Strawberries, but there is a time, especially in the case of plants prepared for forcing, when the vital principle is less active. After the pots are well filled with healthy roots, and the whorl of leaves surrounding the crown has attained its full development in autumn, there comes a quiet time of a few weeks, during which there is a break in the hard work of the plant's existence. I have never been in favour of the old-fashioned plan (I suppose few growers practise it now) of stacking up the pots of Strawberries in heaps whilst waiting their introduction to the forcing house. There is always a danger of an evergreen plant like the Strawberry suffering for want of moisture when laid on its side, even if sheltered to some extent from drying frosty winds. Where many plants are forced, plunging the pots in ashes, which is doubtless the best plan, is a serious tax. For very early work the plants may be placed in cold houses and pits in November, as a preliminary move to their introduction to the forcing structure towards the end of December or beginning of January. But the great bulk of the plants, under any circumstances, must be kept back to the season when the large parties are given in town, and if one could ensure the pots from being broken by the frost the best place to keep the plants in would be the open air. I have tried many ways of keeping Strawberries whilst waiting for the forcing house; and in the country, where leaves are plentiful, I know of no better nor more economical plan than standing the pots on some hard impervious bottom, a hard coal-ash bed being the best, and filling in the interstices between the pots with tree leaves, and in frosty weather sheltering with old mats, not because the plants require any protection, but to prevent the loss and annoyance of broken pots. When the pots are lifted out of the bed of leaves, the roots of the plants are fresh and fully charged with fluid ready for work.

THE STRAWBERRY HOUSE.

Where a house can be given up to this work it should be a light one. It may not matter much if the plants are not placed near the glass for the first two or three weeks in the early season, but the moment growth commences the lighter the position they occupy the better. In the full light the flower-stalks come strong, the blossoms large, and the fruit fine. For early work I prefer a lean-to house or pit, not too steep in the pitch, as in the steep houses the air soon becomes heated and dry, and there is difficulty in warding off insect attacks—I say warding off advisedly, for no good can be done with Strawberries unless both green-fly and red spider are kept at a distance. What a blessing it is when the young man in charge of the Strawberry forcing has keen eyes and ready intelligence. The green-fly never come in their thousands at first, and the person who wields the watering-pot and the camel's-hair brush or the rabbit's tail during the setting can easily brush aside the odd flies when they first appear and are few in number. Fumigating in mild doses as a preventive is an excellent plan for forcing or plant houses generally, but if the houses are large it means a considerable expenditure. The syringe is a grand implement for keeping down insects if used in time. My experience in dealing with insects has been that if the plants are well grown and healthy they may be kept clean and free from insects by the use of the syringe, and a little trouble taken with hand-picking when the first fly appears as one looks over the plants in the morning. Worry the insects well with the syringe, using tepid water, and they will disappear. In the case of varieties liable to mildew mix a little sulphur with the water. Of course the ripe fruit should not be syringed, but if the plants are clean up till the time the fruit

begins to colour there will be no necessity to syringe afterwards. As regards watering, the plants must never be allowed to get dry enough for the leaves to wilt or appear distressed. If they do the tender rootlets will perish, and the crop suffer both in quality and quantity. Dryness at the root at some period of the plant's growth is the cause of hard and deformed fruit, and frequently also leads to imperfect fertilisation.

LIQUID STIMULANTS.

I remember reading an interesting article in *THE GARDEN* last year by a vanished hand deprecating the use of stimulants in the forcing of Strawberries, but the same argument would apply as forcibly to any other fruiting or flowering plants that are generally helped on in some way by stimulants. It is possible, of course, to overfeed, and so make the soil sour, and thereby injure the flavour, but where the stimulants are given judiciously and moderately the weight of the crop can be increased without any sacrifice of flavour. Whatever liquid stimulant is given should be free from sediment. Before the advent of so many artificial manures the growers I worked with had a special brew of sheep droppings, which was diluted till it assumed the colour of sherry for Strawberries; Vines and Pines need it stronger, but artificial manures now are so handy and so easily mixed to any strength, that the sheep droppings have been discontinued. I am not going to recommend any particular manure. All have some merit, and I do not pin my faith to any particular kind. Plants like a change, and it is not easy to go far wrong if used according to the manufacturer's instructions. I give stimulants as soon as the berries begin to set, and they are continued until the last fruits begin to ripen. Some growers discontinue its use as soon as the first berries begin to colour, but the late-ripening fruits require support quite as much as the early ones, and if given clear it will not injure the flavour.

SETTING AND THINNING THE FRUITS.

Both of these are simple matters, and should receive attention where first-class results are wanted. When the pollen of the fully expanded blossoms is dry, about eleven o'clock in the forenoon, a light touch of the camel's-hair brush will scatter the grains and make sure of a good set. I have tried thinning the blossoms before they expanded with good results, leaving from eighteen to twenty of the largest buds, and just giving a further look over when the blossoms are set to see if any further thinning is desirable. As regards temperature, the Strawberry is very accommodating, but it is not advisable to start with much over 50° when the flowers begin to expand; 60° by night to 80° by day with sun heat will be about the right temperatures. I may in conclusion say it is quite useless to attempt to force plants not thoroughly prepared.

E. H.

Grape Gros Colman.—I have never found any difficulty in having Gros Colman Grapes as black as Sloes without the aid of artificial shading, and although Mr. Stratton (p. 90) may attribute his success to the use of whitewashed glass, yet he might have obtained the same results by allowing the Vines to carry more foliage and attending to the damping of the path and border. My Gros Colmans were grown in a Black Hamburg house, and the canes trained up the trellis 3½ feet apart. As Grapes out of this house were required by the beginning of August, forcing was commenced on the 1st of February, thus giving the Colmans a long season of growth, which no doubt contributed towards the perfecting of the fruit. Not to this alone, however, do I ascribe success, but to an unusual extension of their laterals, for instead of pinching at the first or second leaf beyond the bunch, as is generally done, I allowed them to extend from one cane to another before stopping, thereby forming a groundwork for a natural screen of foliage. In bright sunny weather the border and path were kept well sprinkled with water, and especially was this the case when a hot, scorching day followed a period of dullness. I believe that the premature decay of the foliage is in a great measure due to a lack of atmospheric moisture

during exceptionally dry weather. Where atmospheric moisture is properly attended to, I imagine better Grapes will be obtainable than where artificial shading is employed to preserve the leaves, as the refracting of any of the sun's rays cannot fail to detract from its chemical influence on the sap when passing through the leaf. Notwithstanding this, I am sure others as well as myself will be pleased to know how Mr. Stratton's Vines behave this year.—J. RIDDELL.

RENOVATING OLD APPLE ORCHARDS.

I AM very pleased to see Mr. Coleman championing the re-grafting of old Apple trees where the original sorts are inferior and the stems still clean and vigorous. Whatever may be the best course for the ordinary market grower of fruit to adopt in his peculiar methods, the renovating of old trees comes more into the line of the farmer, cottager, and in some cases of the ordinary private gardener or amateur who may have orchards. That grafting these old trees means for them renewed life and vigour, there is ample evidence to show. Indeed, many a fine tree, which for forty years perhaps has been producing all the time only poor fruits and the growth of which has latterly become stunted, just begins to be profitable when its old and valueless head has been exchanged for a new one, the yearly crops of rubbish being replaced by valuable fruit. I have had a hand in renovating many comparatively old trees in my time, and have seen wonders resulting from the change. But with all diffidence I dissent from some portions of Mr. Coleman's advice, that which urges the leaving of the stem spray to grow for a year or two after the grafting and the grafting of many branches or arms rather than cutting these hard back to clean cuts and few in number. The first point may be said to open up a question in tree physiology, and it is this: What is the effect on the roots when the head is removed? I take it that Mr. Coleman holds to the opinion that the spray or stem shoots to which he refers as being left on the tree for the purpose of carrying off excess sap, or else that the beheading of the tree causes so great a collapse of root action, that some growth is needful to cause sap to flow upward. That there is a close affinity between leaf area and root action is a matter of course, the greater the one the more of the other, and *vice versa*. If the head be absolutely removed from a tree, of course in the natural order of events root action should cease and the tree die. In some cases death would follow, but not so with Apples and Pears. If these have the heads cut clean off, leaving some 8 feet or 10 feet of stem above ground, they will be sure to start into growth, and strong growth too, even if no grafts be put on. If there be in such case greatly reduced sap force, there is still ample for the purposes of Nature, and it will be found, at least such is my experience, that the application of grafts to the beheaded arms of a tree suffices to carry all the sap sent up by the roots, and also to act later on as an attractive force in causing sap to ascend. If, however, Mr. Coleman holds that the retention of the stem shoots or spray be needful to assist the ascent of sap for the benefit of the grafts, I fear there I must join issue with him, because the tendency would be to misdirect the sap into these side shoots rather than to concentrate its strength into the grafts. In grafting it is desirable that the sap force at the first should not be too strong. What is needed is a gentle and gradual flow, so that the scion may become speedily united, and once a union takes place then it is ready to take up and utilise the strong flow of sap which greater warmth later on generates. Because of the shock to the system of the tree beheading produces, the upward flow of sap is naturally slow, but it is apparently ample for the purpose, and as the grafts begin to develop, they are not only enabled to utilise all that may come to feed them, but through the agency of the rapidly expanding leafage, help to attract still more from the roots. The result is a stout strong growth the first year from the graft, forming a substantial basis for the future tree. That, so far, has always been my experience,

but then I have never operated, as Mr. Coleman seems to advise, by grafting numerous branches. Where I have beheaded, I have done so drastically, relieving the head two-thirds in the winter, and then making clean cuts back to about three or four stout arms in April, when the grafting was at once performed. To graft a big tree on a dozen or a score of limbs is no child's play, and the tree has a very gaunt, naked appearance. The graft-growth from these long numerous arms seems almost always to be rather puny, for a year or two, at least. When, as I prefer, the limbs are shortened back to within 2 feet or 3 feet of the fork, or in the case of a very clean vigorous stem, right back to the single stem itself, of course, extra stout grafts may be used, and these are safest if put in wedge-shaped with a fine saw, as the attachment to the hard wood is more secure. Still, these properly made, fixed, and tied, then clayed over, and when strong growth is made, as it certainly will be later, needing some stakes to support it for a time, will produce a remarkably fine head in two or three years.

A. D.

FRUIT-GROWING IN BRITAIN.

It would be extremely difficult to point out any class who are not interested, either as producers or consumers, in this matter, which is fast becoming one of the most important problems of the day. The continued low prices for corn compel producers to turn to other crops with a view to larger profits. Among these good hardy fruit takes a high place. There is also a daily and growing conviction that the country would be enriched in many directions were a larger proportion of the money expended on foreign fruits paid to home growers.

Besides, so soon as the working classes learn the value of fruit as food, the demand for many years is likely far to exceed our supplies from our home orchards and gardens as well as from abroad. For hitherto the great consuming masses of our population have treated our best home fruits more as simple luxuries than as important factors in their daily bread. When fruit reaches this high place in our social economies our national health is likely to be greatly improved without any serious diminution of strength, while the demand for good hardy fruit is likely to be largely increased; hence the opportuneness of this new departure.

I confess to a liking for the old names and a *renaissance* of the veritable orchards of the olden time. They are redolent of poetry. English orchards might have been profitable had they not been starved down to Moss and Lichen bearing and sterility. Of late years these orchards have gone out of fashion, and have drooped, decayed, and been grubbed up in consequence.

The taste or zeal for hardy fruit culture has run into dwarfing channels. Of far more importance to us as a great fruit-eating nation are large and practically inexhaustible supplies of hardy fruit of the highest quality than being able to gather crops within a few months after budding or grafting. Not that anything need be said against miniature fruit trees in all their manifold sizes, forms, times, and degrees of fertility. These bring the pleasures and profits of fruit growing within reach of thousands of amateurs, mechanics, tradesmen, and labourers, whose limited means and gardens could never have enabled them to sit under or enjoy the fruits or shade of full-sized orchard fruit trees. But it was unfortunate that as miniature fruit gardens and trees increased and multiplied, orchards decreased or were grubbed up. The net result is that possibly the year 1890 will yield but little increase in the quantity or quality of our home-grown hardy fruits over that of 1889. Neither are our home-grown hardy fruits likely to meet our ever-growing home demands unless, simultaneously with all our dwarfing methods of fruit culture in gardens or even orchards, we return also to what is generally understood as the old-fashioned and sized large trees on the Crab and wild Pear stocks. It matters little if we have to wait a little longer for the produce, though under skilful root-pruning the period of waiting for first fruits from free growing fruit trees has been reduced to the nar-

rowest limits. The quantity and permanency of the crops are of far more moment alike in realising handsome profits for producers and satisfying the wants of consumers.

But in advocating the planting of orchards of hardy fruit, nothing could be further from my intention than to disparage planting pyramids, bushes, cordons. There is room enough for all forms and sizes of fruit trees, and also a fair chance of remunerative profits, provided always that a good selection of varieties is made, and that skill and prudence preside over the culture of the trees and the sale of the produce.

Neither is it needful that orchards should be large. The large size of orchards and the absurd number of varieties have wrecked more ventures in fruit growing than all other evils and difficulties crowded together. Everyone, unless he has special experience, should proceed in this new venture tentatively, and then he can lose little and may ultimately gain much, mayhap a moderate competency or even a fortune.

Local experience is the core of success not only as to the selection of varieties and modes of culture, but also as to local tastes, market prices, &c. Hence while advocating the planting of a few orchard-sized fruit trees, it may be prudent to note actual results before extending those into orchards of any considerable area. The trees if properly cared for will furnish the only true object lessons that can be safely followed. Success alike in produce and profit may be safely followed over larger areas. On the other hand, failure will stop planters before the loss of many grand trees can have become serious.

There is one admirable mode in carrying out these preliminary experiments in hardy fruit growing that must result in substantial gain, whether it results in a pecuniary profit or loss. That is to plant half a dozen or a score of fruit trees on free stocks in a group or singly on the lawn, home meadow, plantation or shrubbery. From the very first day after planting, the form of the trees, the novelty of their foliage, the beauty of their flowers and fruits will add new features and richer touches to the home and garden, and all these will prove an immediate and clear gain, whatever may happen to hardy fruit growing as a commercial speculation. There is also this further to be urged in favour of these tentative experiments in the orchard culture of hardy fruits. They will tend greatly to improve as well as extend home supplies; and were every homestead that has the power to grow sufficient for its own consumption, a long step would have been taken to place more and better fruit at cheaper rates within reach of those larger masses less favourably circumstanced.

One hint more, specially to owners and landholders. Few things strike one more painfully in travelling through rural districts than the close proximity of forest trees to the gardens of labourers and mechanics. These are upheld for the sake of shelter, shade, or picturesque effect, to the serious detriment, not seldom the semi-ruin, of the gardens. Could all such trees be cut down, grubbed up, and fruit trees planted in their stead, a powerful stimulus would be given to the orchard culture of our hardy fruits and the vegetable produce of hundreds of gardens be multiplied manifold. D. T. F.

Apple Northern Greening.—When good cooking Apples are in request late in the spring, this variety ought always to be grown, for it keeps well, being as firm as a cricket-ball when the majority of other sorts are shrivelled and worthless. Its growth is erect, and I find it succeeds well as a kind of upright bush tree, allowing it to grow to larger dimensions than is advisable with some kinds that form flower spurs more freely. I had a good crop of this, as well as other kinds, last year. I do not attempt to make the trees look uniform, as my object is to get fruit, and I am convinced that one of the surest means of accomplishing this is to treat each kind separately, for whereas some varieties will be fruitful under any conditions, more especially those of the Codlin type, that are mostly early sorts, there are others

that resent the very close pruning. I find that this valuable late kind must be allowed more latitude as regards growth, and then after it has made a fair-sized tree it will become very fruitful. I do not think that its merits are sufficiently known, as one rarely meets with this or any other really late keeping kind. Except in the fruit-growing parts of Kent, where one finds row after row of Greenings, one may look in vain for those that keep much after Christmas. I am well aware of the prolific nature of the early kinds compared with the late keepers, but in making a selection the question should not always hinge on how much produce can be had, but rather on what will be its value when sent to market.—J. G., *Hants.*

Apple Blenheim Orange.—I was very pleased to read your editorial remarks on the above in your issue of January 4, and quite agree with all you say in praise of the Blenheim, for in my opinion, taking it all in all, it is the best Apple in existence. I herewith send you two or three as a sample taken from a heap more than a foot thick and not in the least disturbed since they were gathered early in October. I have often measured fruits each over 14 inches in circumference and have kept them as late as April in fairly good condition, but I consider them in their prime from November 1 to February 1. A neighbour of mine remarked the other day that my Blenheims were much better flavoured than his, and asked me to try one, which I did, and found that it tasted very strongly of the musty straw upon which it had been kept. Mine have been laid on closely boarded shelves covered with sheets of paper, which I believe to have been the sole cause of their superior flavour. If I were planting twenty Apple trees five of them would be Blenheim and five Cox's Orange, the latter a most delicious handsome Apple and a free bearer. We have far too many sorts of Apples, and if two-thirds of existing trees were cut down and grafted with these two sorts we should soon hear much less about the superiority of imported Apples. I have been told that the Blenheims grown in Kent are far superior to those grown in the western counties. Is that so?—W. SANGWIN, *Trelissick.*

* * Very good samples, highly coloured, but as regards flavour past their best.—ED.

Apple Mannington's Pearmain.—This delicious dessert Apple originated in a garden at Uckfield, in Sussex, more than one hundred years ago. It remained local until 1847, when specimens of the fruit were sent to the Royal Horticultural Society, and, proving a first-class variety, it soon became generally known. The tree is very hardy, clean and healthy, but does not attain a large size, and coming quickly into bearing is well adapted for working as a cordon on the Doucin stock. Some maiden trees here bore a little fruit the second year after planting, and have made most perfect little pyramids now laden with flower-buds. The fruit, of medium size, and rather blunt, Pearmain shape, is of a rich golden-yellow colour, covered with a warm, brown russet on the shaded side, but much brighter next the sun; flesh yellow, rather firm before Christmas, but as tender as that of Cox's Orange Pippin from January onwards, rich and sugary, with a particularly brisk flavour, which it retains until late in the spring. As a late winter Apple, this is one of the best varieties with which I am acquainted, and continuing the supply after Cox's Orange Pippin, which it much resembles in texture and flavour, is past its best, I can strongly recommend it for general culture as cordon, pyramid, and bush, in which forms it will fruit early and occupy but little space. The late Doctor Bull, in the "Herefordshire Pomona," says, "This is one of the best and richest flavoured dessert Apples, in season from November even until March. The fruit should be allowed to hang late on the tree to secure its richness of flavour and its good-keeping properties, for if gathered too soon it is apt to shrivel. The only objection to this is the difficulty of protecting the fruit from birds."—W. C.

Pear Knight's Monarch.—With me if the weather is at all rough this Pear always falls from the tree prematurely. I place some soft material under

the tree, and this saves some of the fruit from being bruised. If gathered too soon the fruit does not mellow. When properly ripened it is a delicious Pear and covers a long season.—E. BUTTS, *Leigham Court, Surrey.*

THE VINE.*

PHYLLOXERA.

PERHAPS there are not many among us who have been troubled with this insect. A few years ago it was as big a bugbear among gardeners as the Eucharis mite is to-day. The Phylloxera attacks the roots of the Vine chiefly; there at least is its stronghold, and if we are to successfully cope with it we must lift the Vines and replant them. Considering the risk that is even then run in a renewed attack, I say, "clear out" and have a fresh start, removing every particle of soil that would by any possibility come into contact with the new border. Afterwards apply freshly slaked lime over the bottom of the border and around it as far as the Vine roots have extended.

ANOTHER SPIDER.

There is another species of spider which may fairly be termed the "white spider," to distinguish it from our better-known kind. This kind is chiefly troublesome to young Vines during the first two or three years of their existence, but not generally after that. Its effects are quickly seen; not so, however, the insect itself; it can only under favourable circumstances be discerned by the naked eye. It generally locates itself on the under surface of the leaves, and prefers those that are half-grown downwards to the smallest. It causes the leaves to partake of a glossy light brown colour with a blistered appearance. In bad cases the wood itself suffers in a similar way, the leaves eventually drop off, and the point of the shoot is lost. I have had my attention drawn to this trouble by others who did not suspect that it was the work of an insect. I found it troublesome some years ago on Crotons in a similar way. The best remedy for this little creature is some soot tied up in a bag and placed in the tank from whence the water is taken for syringing the young Vines. The water should, when used, have quite a bitter taste, then it will soon put a stop to this trouble, but may be continued as a preventive, at the same time assisting the Vines.

CLEANING.

It is hardly necessary to say much on this point. All vineries should, as a matter of course, have a thorough cleansing every season when the Vines are dormant, and painted too every few seasons, especially when the "bug" is troublesome.

SHANKING.

Most of us are acquainted with this failing of the Vine to carry its fruit through to perfection. I believe it arises from several reasons. One is without doubt that of over-cropping. The Vine can carry the fruit on to a certain stage, but cannot get all its crop over the stoning period in safety. Hence, soon afterwards we see signs of this complaint in some of the berries losing their vitality at the footstalk. Another cause is, I believe, to be attributed to a deficiency of root action, resulting from one of three sources, viz., an impoverished condition of the soil, and consequent weakness of the roots, or through an excess of moisture in the soil, and that, therefore, colder, or by the other extreme of being too dry, and therefore causing a general check to the growth. If at one period the lateral shoots are allowed to remain upon the Vine without being stopped until there is a considerable growth, and then a large quantity removed all at once, there must be a check put upon the Vine that, in my opinion, would also have a tendency towards producing shanking. When there has been an omission in stopping, it is better to remove only a few shoots at the time. I think if each case of shanking is well thought out, it may be attributed to one of the causes I have just named.

* A paper read at the Ealing Gardeners' Mutual Improvement Society, November 27, 1889, by J. Hudson, Gunnersbury House Gardens.

GRAFTING AND INARCHING.

These are both good means whereby to add another kind of Grape to a collection without disturbing the border to plant a fresh Vine. It may happen that some particular kind is not approved of, or perchance does not succeed so well as the rest. Then graft or inarch another kind, and remove the old rod of the stock to throw all the strength into the scion. The common mode of grafting will answer very well and is easily done. For myself, however, I prefer inarching, which is, perhaps, more expeditious than grafting. It requires to be done with care, but is quite simple, by bringing into contact the two young growths of corresponding size after an equal portion of each has been removed (nearly half-way through) with a sharp knife. These shoots should be bound together firmly, and when it is considered that a union is effected, the support of the intended addition to the Vine should be gradually withdrawn from its original source of sustenance.

EXTENSION SYSTEM.

In some cases this is to be recommended, and could probably be adopted more than it is done at the present time. There are, no doubt, differences in constitution of the same kind of Vine; in fact, it can be clearly seen in many instances, some being more vigorous than others. Where this is plainly visible, by all means remove the weaker one, and encourage the stronger to further develop itself, by which its own vigour will be increased.

MILDEW ON VINES.

Sometimes during May and June even we get a spell of comparatively cold weather after a warm time, when the fires have been let down, and perhaps for economy have been for a few nights dispensed with. This change to a low temperature produces a check in the growth, which after a few days will render the Vine liable to an attack of mildew that will soon make sad havoc amongst the bunches. When this is seen, apply sulphur immediately to the pipes after they have been made extra hot. These attacks generally come on during or after a period of easterly winds, also in damp and cloudy weather. If mildew has been troublesome the previous season, it is better to be on the safe side and apply the sulphur in time, retaining at least a little heat in the pipes. It must not be done, however, before the berries are as large as Peas or rust will ensue, which is another nuisance to be avoided. Rust is also caused by a sudden chill or drop in the temperature; steaming the pipes when the berries are tender will also cause it if the pipes are extra heated. If during the previous season there has been a dressing of sulphur applied to the pipes, that should all be carefully removed when the house is cleaned at the time of pruning. The neglect of this essential point will frequently result in the berries falling a prey to rust in their earliest and consequently most tender stage of growth.

RENOVATING OLD VINES.

Where time and supply are the chief objects, old Vines that show evident signs of going back may be revived by the removal of a considerable amount of the soil in which they are growing. Unless it be a bad case, I would not advise the entire removal; two-thirds in most instances would be sufficient. The healthy portion of the roots should be preserved and relaid in the new soil; those that are furthest from home, however, might be removed to cause fresh ones to be thrown out closer to the stem. This work should be done as soon as the fruit has been cut, in order to get fresh root action, if possible, the same year. The next season but few Grapes should be taken from Vines thus treated; the growths ought, however, to have greater freedom given them, so as to assist the roots. I remember an instance (when under my father) in which a Vine survived rather severe treatment. It was the best Vine in the house, the others having been removed to make room for new ones. The chief part of the border was outside, the inside portion being only about 2 feet wide. In order to have all the border new outside, this Vine was chopped off where the stem and roots went through the arch in

front. It had only thus got the little piece of inside border left. To make amends for this the two rods of the Vine were shortened half-way. When new growth commenced this old Vine started a fresh life, and seemed determined to keep pace with the young ones, which it did, and bore quite as good Grapes for years afterwards.

COVERING FOR VINE BORDERS.

This is necessary in a sufficient extent to prevent frost from injuring the roots. I do not believe in it as a medium for imparting heat to the border itself; it may do that certainly for a few inches under the surface by frequent turning and by adding fresh fermenting material. The better plan is to have the roots of all early Vines confined within the house. Before sharp frost sets in I like to have the outside borders covered with leaves to a depth of about 6 inches, over which a layer of long litter should be placed to keep the leaves from blowing away. For late keeping Grapes with outside borders, I would, if possible, have a covering of corrugated iron, as used for roofing, or better still even than that would be a covering of glass. I remember this latter plan being adopted in one garden, and it well repaid for the outlay expended.

KEEPING LATE GRAPES.

In order that late Grapes may keep well, it is most essential that they should be thoroughly well ripened by October. It must not be inferred because they may be well coloured that they are equally well matured. I believe in having a little heat in the pipes at all times for late Grapes, even after they are ripe. Much heat does harm, but a trifle does good by assisting to keep a free circulation of the air and in keeping down any symptoms of damp. The temperature at night when the Grapes are fully ripe may range from 45° to 55°, according to the state of the weather. Constant attention should be given to the bunches to see that no decaying berries are allowed to remain on them. It is better to remove a berry as soon as there are symptoms of decay than to leave it until it is further gone bad and others perhaps affected also. When the main part of the wood is well ripened, the rest which is still green should be gradually removed; this will permit of a better circulation of air about the foliage and bunches. This may, in fact, be done in earlier vineries with advantage also, but the ripened wood should be left until the foliage drops off. The best success I ever had with late Grapes was in a span-roofed vinery some 20 feet wide. The chief part of the border was inside, and got fairly dry by the time the Grapes were ripe, the last watering being given when the Grapes were colouring. This house used generally to have 600 bunches hanging in it at Christmas-time, the supply from which used to last into June following, when the new Grapes were ripe. If a point is made of growing Grapes for a supply all the year round, it is necessary to have half of the vinery space, as far as size goes, devoted to late Grapes entirely. It cannot be done well without that arrangement, the other half being given up to early and midseason Grapes in, say, three divisions. I prefer to cut late Grapes from the Vine the first week in the new year, with as much wood as possible, and remove them to a dry room from which frost can be excluded. The wood should be thrust well into bottles previously filled with rain-water nearly up to the neck, and some charcoal added thereto to keep the water sweeter. The best arrangement for the bottles is a rack, from which they can be hung sufficiently in a sloping manner for the bunches to be free of everything. Another plan is adopted by some growers with zinc troughs, which I believe to be a good system, but I have not tried it myself. The troughs should have an advantage over the bottles in being more easily filled up when necessary, as it could be done by means of a hole for that purpose, whereas each of the bottles would want filling separately. A temperature of 40° to 45° may be taken as a safe one for Grapes when kept in the foregoing way, and if means were provided for heating by hot water so much the better. All damp air should be carefully excluded, the room should be kept as dark as pos-

sible, and constant watch kept for decaying berries. Large bunches are not the best for late keeping by any means; it is generally the small ones which are the freshest at the last.

PECULIARITIES IN GRAPE CULTURE.

I have been struck with two cases in particular which are somewhat novel, the first one especially. It was to be seen at Heckfield, under the late Mr. Wildsmith's charge. A span-roofed vinery was planted with Lady Downe's Seedling all on one side; rods were carried to the top and down the other side. When they reached the soil a new border was prepared for that end of the canes, and into which they were inserted and rooted freely. The Vines thus rooted at each end bore splendid crops for years. When eventually a renewal was thought necessary, the oldest portion of the rods and their original roots were taken away, the remainder being left, so to speak, on their heads and are doing well to this day in that fashion. Another case is that of one Vine which partly filled two houses at Ealing Park some years ago when Mr. Cole was gardener there. One house was forced earlier than the other, the Vine being brought through the partition from the cooler house into the warmer one. The rods in the latter started and kept pace with the pot Vines in the same house, whilst in the other the rods did not start until that house was started in due course.

FRUITING VINES IN POTS.

For extra early forcing, pot Vines are undoubtedly to be preferred to starting permanent Vines so early. I would adopt it in every possible case and make special provision for it if necessary in order to have ripe Grapes as soon as possible when required to meet the demands. You can take a fair crop from Vines in pots with as much certainty as from established Vines, having the satisfaction of knowing that they can be thrown away immediately the fruit is cut, and an equally good lot be secured for another season; whereas permanent Vines after hard forcing will fail after a few years. In nearly every instance Vines, where they are permanently established, will not, as a rule, stand more than six or seven years of hard forcing. By the time they are ten years old they are next to useless. Pot Vines may be started 5° warmer than the others, their roots being well under control; in fact all through their course they may be pushed on more briskly. The best pot Vines I ever grew were started in a Pine stove at 60° as the lowest temperature, remaining with the Pines till the finish. Vines in pots need close attention as to watering, they must not be allowed to suffer when in active growth, then also they should be fed liberally with manure water. A zinc collar placed round the rim of the pot inside, and the space filled up with rich soil will be a great assistance to them by the amount of extra roots produced. Five or six bunches are quite sufficient for a pot Vine to carry with reliability as to a good finished crop.

KINDS OF GRAPES TO GROW.

No definite rule can be laid down on this point beyond two or three of the best-known kinds. What is one person's choice and taste is not another's. The most fastidious can, however, I think, be fairly well met in their ideas of which are the best. The highest of flavour can be had in some, berries large enough for eating comfortably in others, while bunches big enough for anyone to look at (some of which are fit for nothing else) can also be supplied.

The following are, in my opinion, six of the best all-round varieties to grow, viz., Black Hamburgh, Madresfield Court, Foster's Seedling, Muscat of Alexandria, Gros Colman, and Lady Downe's Seedling. With these a supply may be kept up all the year round, where there is the convenience. Next to these I would name Mrs. Pearson, Alicante, Duke of Buccleuch, Alnwick Seedling, Gros Maroc, and West's St. Peter's. For the highest flavour, Duchess of Buccleuch, Black, White, and Grizzly Frontignans, Muscat Hamburgh, the Strawberry Grape, and Ferdinand de Lesseps may be named, but I doubt if either would meet with more ap-

proval than Madresfield Court. For large bunches, Gros Guillaume, Trebbiano, and White Nice will meet the demand, but are not to be recommended either for quality or utility. The Muscat Champion is also a fine Grape for flavour, size of berry, and bunch, but it never gets beyond a foxy-red colour. Mrs. Pince is an equally good Grape, but has the same failing. Buckland Sweetwater is of very good appearance and constitution, but must be eaten directly it is ripe, for it quickly deteriorates. Cannon Hall Muscat has no good point, except its flavour, to recommend it in preference to Muscat of Alexandria. Of recent introductions, I have great faith in Diamant Traube, a white Grape of the Sweetwater class, but finer in appearance and flavour, and of which more will be heard no doubt in the course of a year or two.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—Most of the stove plants that are met with in cultivation do not require so much rest as they are usually given. The temperature is often kept down so as to enforce for a lengthened period an all but dormant condition that greatly reduces the time during which many kinds would bloom if the treatment was different. *Ixoras*, *Dipladenias*, *Allamandas*, *Gardenias*, and many of the continuous bloomers have their flowering season shortened by an undue continuance of low temperatures. One of the reasons given for a long rest in winter is that if any growth is going on whilst the days are short it will be weak. Provided that the plants are raised so that they are near the roof of the house or pit they occupy, and that the structure admits a fair amount of light, no evil will follow the term of rest being shortened. From the end of November to the second week in February is long enough to keep the stove at its lowest temperature; 65° in the night is low enough during the time named. Now a few degrees more heat may be kept up in the night with a still further rise in the daytime. It is well to guard against an over-moist atmosphere. Any excess in this direction is at all times to be guarded against, but especially whilst the days are short.

BOUGAINVILLEA GLABRA.—This fine plant can never be seen at its best when the roots are confined within the limits of a pot; yet it is very useful grown in this way, as with two or three good-sized specimens such as can be accommodated in 16-inch or 17-inch pots, a supply of flowers can be had for cutting. Plants that have been kept dry for the last ten or twelve weeks should now have all the weak wood cut out, leaving nothing but the strongest shoots, as it is these alone that will produce wood which will give any bloom worth taking into account. Train the shoots round the trellis or sticks that are used for support. The soil must be well soaked, so as to thoroughly moisten the whole; if this is only partially done, the plants will break irregularly and the young growth come weak. Young specimens that are wanted to increase in size may have a liberal shift as soon as the shoots are an inch or so long; but in potting do not disturb the roots further than by removing the old drainage. This *Bougainvillea* will bear very rich soil, besides regular applications of manure water after the growth has begun to move freely. Plants that are in pots as large as it is desirable to give them may have an inch or two of the tops of the balls taken off, replacing it with new material consisting of one part good fresh loam to one of rotten manure, with a little sand. Where this *Bougainvillea* is planted out in a warm house, and has been kept dry during the winter, the bed must be well watered, so that the whole is thoroughly moistened down to the drainage. At the same time all the weak growth should be removed, leaving, as in the case of the pot specimens, nothing but the strong wood produced last summer; this, if need be, may be shortened.

BOUGAINVILLEA SPECTABILIS.—This species is

only suitable for planting out. It will do with considerably less heat than used to be considered necessary, and when grown in an intermediate temperature it does not require its roots drying to the extent that is necessary when grown with much heat. The bed or border should now be well moistened, but the head of the plant must not be interfered with, as this species, unlike *B. glabra*, flowers from the preceding season's wood alone, the shoots extending only a little before they show bloom. Whatever is required in the way of pruning must be done as soon as the flowering is over.

CLERODENDRON BALFOURII.—This *Clerodendron* is quite as useful for greenhouse and conservatory decoration as it is for cutting. Small specimens, such as can be grown in 10-inch pots, will flower as well as larger ones, provided that last season's growth was fully matured. It will bear the soil keeping quite dry during the period of rest. Before starting, see that the balls are well moistened. It is a good plan to soak the roots of this and other plants that are allowed to become quite dry during the winter in a tub of tepid water for some hours. The shoots should not be touched with the knife until after the plants have flowered, when they may be shortened to within a few eyes of the point they were cut back to last year. Any potting that may be required should be deferred until the growth has begun to move after cutting back, except in the case of small examples that are much confined at the roots, and that are to be grown on into larger specimens.

CLERODENDRON FRAGRANS FLORE-PLENO.—This fragrant shrubby species takes up much less room than any of the other kinds, either climbing or shrubby. When started early the plant will bloom twice before autumn. The best way to treat it is to cut the stems down to within a few inches of the collar before growth begins. It does not require nearly so much root-room as the kinds which attain a larger size; 12-inch or 13-inch pots are large enough for large specimens. As soon as the plants have made an inch or two of new growth turn them out of the pots, get most of the old soil away, and repot in new loam, well enriched with rotten manure, adding sand, more or less, according to the nature of the loam. Make the material moderately solid in the pots. Quick-growing subjects of this nature require a good deal of water during the time of active growth; consequently, it is necessary to see that the drainage is sufficient. In the case of full-sized examples they can be put into pots the same size as those they have already occupied; smaller specimens that are wanted to increase in size may have a liberal shift, say from 8-inch into 12-inch pots. T. B.

THE KITCHEN GARDEN.

EARLY CELERY.—If there is a demand for early Celery, or should a few extra large stalks be needed for the August shows, then ought a pinch of seed to be sown at once. As a rule the white varieties are to be preferred, for the reason that they blanch in much less time than the coloured forms, there being a gain of quite a fortnight. Exhibitors, however, are disposed to favour the pink-stemmed varieties, these generally being the heaviest and most solid. As it happens, there are now several superior forms of white Celery available, and we are content to sow one or, at the most, two of these (the second generally being a trial sort) at this early date. Too often the mistake is made of raising four times more plants than are needed, the consequence being that all are very spindly at the outset and are slow in gaining strength. Sow the seed thinly in pans set on a hot-bed, and cover with a square of glass. When the plants are well up, gradually expose to light, a shelf in a warm house being the best place for them. Thin out early where the plants are crowded, and prick out into boxes or in frames on a hotbed as soon as they are sufficiently strong for the purpose. They must be kept steadily growing, a serious check either from their being placed in a cold house or frame too early or from neglect in any way usually ending in premature bolting.

EXHIBITION ONIONS.—Extra large bulbs must be grown and shown now-a-days by those who would win premier prizes, and in the case of the White Spanish types these can only be obtained by raising the plants under glass and transplanting to the open. The seed of the new forms, which attain such huge dimensions, is sold in rather small packets, but by sowing it now in heat every one will germinate, not a plant afterwards being wasted by thinning out or other causes. The simplest course to pursue is to sow the seed thinly in rather large pans or boxes of good light soil, and from these the seedlings may be transplanted direct to well-manured open quarters. The seed ought to be pressed well into the soil and lightly covered, and being set on a brisk hotbed will not be slow in germinating. Keep the seedlings near the glass, gradually harden off, and when about 6 inches high prick out where they are to grow. The Giant White Tripoli can also be raised in heat now, spring-raised plants not unfrequently developing finer, better formed, and cleaner bulbs than the plants raised in the open the autumn previous.

LARGE LEEKS.—In most instances very large Leeks fit for table use are not needed much before November, but the exhibitor may have a use for them as early as August. At the more southern shows not much weight is attached to early Leeks, but the more northward we go the more they are evidently appreciated. The only objection to autumn-raised plants is the fact that many of these in common with Tripoli Onions are liable to run to seed prematurely, a very annoying occurrence after so much trouble has been taken with them. The seed being sown now much as advised in the case of Onions, and the plants grown on without a check, very fine Leeks may be had quite as early as they are required for exhibition. In this case, however, it is advisable to forward the plants considerably under glass prior to turning them out into the open. Leeks transplant fairly well from boxes into which they have been early pricked out, but as only a limited number are usually wanted, these may well be shifted into 6-inch pots before they are planted out.

SPRING CABBAGE.—If by any chance there is a scarcity of autumn-raised plants, whether in the seed bed or the open quarters, it is advisable to sow seed now of one or more of the small-growing quick-heating forms, of which there are several within the reach of all. The earliest crops are most appreciated, very few caring to use Cabbage when Cauliflowers, Peas, and other choice vegetables are plentiful. Sow a pinch of seed only unless several hundred plants are required, as when raised thickly the greater portion of them may damp off wholesale. A very little heat is sufficient to hasten germination, and directly the plants are well up transfer the pans or boxes to shelves near the glass in a cooler house, or else place them in cold frames. When well into rough leaf prick out about 4 inches apart either in boxes of good soil or else in a bed over a slight hotbed. In any case they will soon be ready for finally planting out where they are to grow. There is, however, every prospect of spring Cabbage being both early and plentiful, large breadths of plants having survived what frosts have been experienced even better than might have been expected. They will be benefited by having the ground about them loosened with the flat hoe, and if soot or some kind of nitrogenous manure is previous to this freely distributed among the rows, the growth will be materially hastened and the quality of the hearts improved.

FORCING TURNIPS.—Turnips will not bear such hard forcing as will Carrots, but they may be forwarded considerably with the aid of large frames set on slight hotbeds. We find the Early Milan the surest and the quickest to bulb, but have also done fairly well with the favourite French Long White Forcing form. A hotbed 2 feet high is ample, this being formed of well-prepared materials and put together as firmly as possible, a very gentle heat only being needed. If the frame used is at all deep, throw some of the shortest of the manure inside so as to raise the 9 inches of loamy soil placed on the top well up to the glass. A loose rich soil pro-

motes the growth of leaves rather than the bulbs, and it ought, therefore, to be made quite firm prior to sowing the seed on the surface thinly and broadcast, this being covered with light soil. After the plants are up give air freely in mild weather, and also thin out early and lightly. When growing strongly, draw off the lights during the warmest part of the day, the aim being to check exuberant top-growth, as, should there be a big crop of leaves, there will be few serviceable bulbs. Commence to draw for use when no larger than good-sized Radishes, and this will be one of the principal means of securing a good succession of early roots. It is useless to sow seed on a warm border before March, at any rate unless some kind of protection can be afforded. Turnips may be had comparatively early by sowing seed thinly among fruit trees, under wall copings, and other unheated structures. To all appearance the roots, both stored and left in the ground, will not keep well this season, and there is, therefore, all the more reason to forward Turnips in some way.

W. I.

FRUITS UNDER GLASS.

CUCUMBERS.—Assuming that the sowing of seeds early in January and the preparation of the house intended for their reception were simultaneous operations, not only should the pots or hills be in good order, but the plants should be quite strong enough for turning out forthwith. A soil temperature of 80° is none too high, and this having been secured, commence by placing a neat stick in the centre of each hill, secure it to the trellis, make the balls of the plants quite moist the day before they are wanted, turn them out of the small pots, and having liberated the coiling roots, plant firmly one to each stick. Unless the compost is very dry defer watering for a day. Train the young Vines upwards, removing all male blossoms and side shoots as they show, preserve most carefully all the premier leaves, and let the shoots cover two-thirds of the trellis before they are stopped for the production of laterals. Aim at a night temperature of 65° to 70°, and 75° to 80° by day, give a little air when the mercury touches 75°, and if bright close in time for the glass to indicate 85° immediately after syringing.

FRUITING plants whose strength has been husbanded must now be allowed to put on more speed, as good fruit for some time to come will be in great demand. Quick growth of root, vine, and fruit depend more upon daily and hourly attention to trifling details than to incessant firing, and yet fire-heat cannot be dispensed with, no matter how good the materials used in the formation of the bed. It can, nevertheless, be rendered comparatively harmless by a liberal use of fermenting Oak leaves, by keeping the evaporating pans full of liquid, and by damping all available spaces with tepid water several times in the course of twenty-four hours. If the plants are perfectly clean, direct syringing must not be attempted on dark dull days, but a thorough bathing will do much good, when 80° to 90° can be secured from sun-heat. Water copiously with good liquid soot and guano water, crop lightly, cut the fruit before it attains full size, and apply the usual remedies for insects and mildew. Top-dress with good flaky turf, bones, and old lime rubble as often as the roots appear, bearing in mind that old plants may be earthed well up the stems. Keep the glass clean by frequent washing with tepid water, and, if possible, cover with oiled canvas through the night.

MELONS.—Here, as in the Cucumber house, the one great aim will be the speed, and in no way can this be better secured than by the use of fermenting material and fire-heat combined. In my last notes I advised sowing a few seeds of some approved variety, and the plants being ready, no time should be lost in getting them transferred to the fruiting pots. Unlike the Cucumber, the Melon grows and fruits best in a strong sustaining loam, and being averse to earthing up of the stem, the little mounds should be made quite level with the rims of the pots. Water the young plants a few hours in advance, release the points of the roots with the finger as they are

turned out, and plant very firmly, barely covering the tops of the balls with soil. Defer watering, but keep the atmosphere of the house moist, and once the roots are on the move allow the plants the fullest exposure to sun. Allow the temperature to range from 65° to 70° at night, with external covering; aim at a mean of 75° by day, and 80° to 85° after the house is closed.

CHERRIES.—When the flowers on early trees are ready to open see that the house is carefully fumigated, as no stone fruit can win the race when the petals are attacked by fly. Although impatient of fire-heat the temperature may be slightly raised, particularly by day when the trees are in flower, and damp or stagnant moisture being detrimental to fertilisation, the syringe must be but sparingly used. A free circulation of air, on the other hand, is imperative; hence the importance of mild fire-heat through the day, when the temperature may rise to 60°, care being taken that the minimum of 50° be maintained on mild nights, and 45° when the outside air is cold. Fertilise each flower with a soft brush when the pollen is ripe, using pollen as much as possible from the May Duke, and although the atmosphere be moderately dry, bear in mind that the trees must not feel the want of water at the roots.

PLUMS.—As these and Cherries are frequently brought on together under the same roof, it is hardly necessary for me to say that the preceding notes on the management of the Cherry are applicable to the Plum. The latter, if anything, is the hardier of the two; hence the importance of a profusion of fresh air and keeping the temperature low, especially through the night.

W. C.

HARDY FRUIT GARDEN.

THE pruning and training of all fruit trees, Peaches and Figs excepted, will now be finished, and the season so far being early, continued attention must be given to protection, not only from frost, but also from birds—unusually troublesome in this locality. The bullfinch of olden days could be scared by a few threads of cotton drawn over the trees or a dash of limewash; but now, progressing with the times and socialistic in all his movements, nothing short of Eddy's best netting prevents him from appropriating more than his share of the good things of the garden. This year, contrary to our usual custom, we netted the Gooseberries before they were pruned, but having gained a taste, with the cunning of a cock blackbird, the bullfinches have found out the smallest holes in the netting, and, what is most remarkable, they know where to find them again when hot pressed by their enemies. Protection from frost must not be put in force or position until the flowers begin to open, as anything approaching coddling makes the buds extremely tender. Poles, nets, coping boards, and other contrivances, nevertheless, must be got ready for use, as it is more than probable that this mild winter will be followed by inclement spring weather. Another important operation which should precede the opening of the flowers is the final syringing of all fruit trees with a cheap, yet good insecticide, as it is much better to prevent the appearance than to apply remedies for the destruction of enemies. Here, I apply ordinary soapsuds at short intervals whenever they can be used without injury to the flowers or fruit, as so efficacious have I found this wash, that the twigs and spurs in course of time retain a certain amount of soap and soda, harmless to the trees, yet fatal to the larvæ of all insects. If scale is troublesome on Pears, a pint of paraffin added to a barrel of suds soon reduces it; but, lacking this wash, advantage may still be taken of mild, dry days for painting the old wood, avoiding the buds, with a solution of Gishurst, made thick by the addition of stiff loam and cow manure. A composition of this kind not only sticks the insects to the death, but it also fills up cracks and crevices favourable to the security of future generations, and in due course washes off, leaving the bark bright, elastic, and healthy. Nuts and Filberts, unusually early and heavily laden with catkins, may now be pruned and top-dressed.

Bushes here commenced opening their tiny pink flowers on the 20th of January, but being so forward a good crop of Nuts is extremely doubtful.

Our work during the past fortnight has been the detachment of all the Peach trees, the removal of the shreds and nails—I always nail, as I do not believe in forming cold air cavities by tying to wires—washing the twigs, painting the old wood, and securing them to light Larch rods, placed 9 inches from the walls. In this position the trees will remain until the flowers show colour, when, with all hands to the work, renailing will be pushed forward to the finish.

THE ORCHARD.—The principal work here will be heading back for grafting, if not already completed, scraping and cleansing the stems, and the selection of clean, healthy shoots for scions. These may be immersed for a few hours in strong soapsuds, and laid in under a north wall, where they will remain dormant until the stocks have recovered from the check and the rising sap fits them for grafting. Pears come first, then young Apple stocks, and last of all the older trees of twenty or thirty summers.

If planting, postponed in the autumn, has not been resumed, no time must be lost, as young trees laid in are now making a profusion of rootlets, which may suffer if the work is delayed. The stake to which standards are to be attached should be driven firmly into the solid subsoil before the trees are planted, and being plentiful, two stakes, a foot apart, answer much better than one, as the stems then have more freedom, and injury from chafing is avoided. Where single stakes are used, they should be well padded with list or strips of cloth, in preference to hay, and carefully, but not too tightly tied with soft yarn. Tar twine is frequently used, but it soon becomes very hard, adheres to the stems, and, unless frequently examined, cuts into the bark. All newly-planted trees should be well mulched with some non-conducting material, and well watered once or twice later on if the spring and summer prove hot and dry. Old orchards may be greatly improved by draining and top-dressing with fresh soil, burnt refuse, and manure, also by copious supplies of liquid from the farmyard, but too often allowed to run to waste. Because liquid manure acts instantaneously in summer, a great number of persons have fostered the idea that it is injurious in winter, but this is a great mistake, as it enriches the soil, and, given in rainy weather, is carried down to the lowest roots, where, greatly diluted, it is true, it soon increases the strength and changes the colour of the following year's growth.

W. C.

GARDEN WALKS.

AMONG the various kinds of walks found in gardens perhaps none are more appreciated during the summer months than Grass ones which have been well made and are well kept, for who does not enjoy a stroll on a cool summer evening along a beautifully shaven turf when the air is enriched by the perfume of Roses and Mignonette? But however enjoyable these walks may prove, there are three questions which ought to be considered, besides mere pleasure, by anyone contemplating the making of such in these days of strict economy in the garden. The first is, Are walks absolutely necessary in that portion of the garden where an idea is entertained of laying them down? This is a question which I think has been neglected in earlier days, as the intersecting of gardens with small and useless paths, frequently met with in places of old standing, tends to dwarf their appearance and entail unremunerative labour in the keeping of them. The second question which presents itself is, Are there sufficient hands to keep them if they are made? When labour is limited this is a very important point to decide, as they require mowing and the edges clipping once a week during six months of the year to keep them trim, and if they are allowed to run wild, seed will be scattered all over the garden and prove an evil of no small magnitude, as few weeds are worse to exterminate than Grass. In a case where walks are necessary,

and yet the labour too limited to keep Grass ones, gravel ones would be best, as one dressing in the year of some of the weed destroyers would be all the attention they required. The third question to be dealt with is, Will Grass walks stand the amount of work which their position in the garden will entail? for it must be borne in mind that wheeling and other heavy work cannot be done upon them when they are in a wet condition.

Assuming these questions to have been answered satisfactorily, a good Grass walk can be obtained by taking out the soil 1 foot in depth and filling up the channel with 8 inches of stones in the bottom, then 2 inches of coal ashes, and the remaining 2 inches with light sandy loam, which ought to be made level and solid. If plenty of good turf, free from such weeds as Dandelions and Plantains, can be procured, the soil may be run over with a rake and this turf laid down, allowing an inch or more on each side of the desired width to be taken off with the edging iron after the whole has been well rolled.

But if good turf be scarce, sufficient to make an edging 6 ins. wide should be laid down on both sides of the intended walk, the space between levelled up with sandy soil, sown with Grass seed, and well rolled. This will form a fairly good path by the end of the first year, if done in spring, and the Grass kept cut during the season of growth. R. C. H.

FLOWER GARDEN.

INTERESTING GARDENS.

I REMEMBER paying a visit to Bentley Priory when bedding out was in the height of its glory, and almost universal in large and well-managed gardens. One immense round bed occupying a central position struck me as being especially beautiful. The colours blended together with exquisite taste; there were no striking contrasts, but a soft light seemed to pervade the whole mass of varied rings of flowers, graduated with the greatest care from the lowest outside ring to the grand centre. It was certainly "a thing of beauty," and I shall never forget it, for I have never seen it equalled in any other garden which I have had the pleasure of visiting. But if there was beauty, there was an almost complete lack of interest.

When autumn came, of course, the whole was swept away, and the place was left bare and naked as if such a lovely display of flowers had never been. Autumn is always more or less sad, but it would be sadder than it is if it meant death and destruction to our garden pets. Many hardy things die down indeed from dislike of wintry winds and hard frost, but many others are fresh and green, and begin to show signs of fresh vitality with the beginning of winter.

But gardens ought to be not only beautiful, but interesting, and the interest may be increased in many ways. It is said that the late Hon. and Rev. J. T. Boscawen could never keep a gardener very long, because "master will not allow a broom to be used nowhere," and the man, who was always more anxious for tidiness than for the prosperity of special pets, could not stand such a mode of gardening. But this very fact proved how thoroughly "master" understood making his garden interesting. All his friends will long remember the eagerness with which Mr. Boscawen would lead on from point to point in his grassy hill, which was the garden, and better deserved the name than many of your neat and trim parterres.

"Now we will go to America," he would say, as he led to a bank of American plants, "and now to Australia," as you came before a beautiful

Tree Fern, rejoicing in its freedom in the damp mild atmosphere of the west; while Cyclamens and many-coloured Primroses carpeted the ground in all directions without fear of molestation from the destroying broom. But I shall never forget the comical look of misery which came over the gardener's face, when in his master's absence he told me he could not stand any longer the untidy condition of the walks. Well, that true lover of flowers has been taken from us, and his grassy hill-side garden with its beautiful trees and sub-tropical plants will know him no more. But the garden was the most interesting one I ever visited.

Before parting with Lamoran Rectory, there was another element of interest in the garden there which was certainly novel, and which, had Mr. Boscawen's life been prolonged, would have proved more and more attractive. It is well known that Cornwall is a mining county, and the many adits or level approaches to mines which the rector was wont to see from time to time gave him the idea of having something of the kind in his garden. He made deep cuttings in the ground in an S shape varying in depth as you went into them, but in the deepest part fully 8 feet below the surface, and just wide enough for one man to walk at a time. The idea was to have shade-loving things on one side and tender things of all kinds on the other in little sheltered nooks and corners, where no frost nor snow could reach. For part of the plan was to cover rapidly this open adit when hard weather necessitated such a course. Here Cape bulbs and many delicate plants grew happily under the careful superintendence of Mr. Boscawen, who thus added a new interest to his already beautiful garden.

The same plan has been tried elsewhere with variable success. The well-known rock garden at Kew is constructed on something of the same principle, only that there, of course, the sides are thrown far back and the centre walk is wider. Even Kew, with its innumerable attractions and its many special features, has few things more interesting for the genuine lover of hardy flowers than the rock garden.

A GLOUCESTERSHIRE PARSON.

The Italian Arum.—*A. maculatum* is very beautiful in the border with its finely veined and rich green leaves that have a fresh beauty in mid-winter. It is worth planting in bold clumps in the garden, sheltered positions on the margins of shrubberies, amongst dwarf Evergreens, or in the rockery, where its foliage will receive some protection from cold winter winds. It may also be naturalised, and even thrives under trees where its veined leaves are as pretty in their way as any flower. Ordinary soil will suffice, but it loves moisture and some shade, which if given soon produce a vigorous and quick growth. It is easily propagated by division in the late days of summer. We regard too often winter as a season of desolation in the garden, forgetful of such pretty things as this Arum and early flowers.

Arum Lilies in the open air all the year.—It does not seem generally known that Arum Lilies may be grown in the open all the year, but it may very easily be done, and very successfully too, for though, of course, not hardy, they may be protected and so made safe from the frost. This is only necessary as regards the crowns, as the leaves are of little consequence during the winter, and the loss of them does not at that season much affect the blooming of the plants. It is our practice, and has been so for a long time, to send our surplus stock to the hardy fernery, where there are several tiny streams of water running in little narrow grips, and alongside of these and in other wet spots we plant the Callas, where they are quite a

feature during the summer and autumn. All we do at the approach of winter is to surround the plants with a few fresh fallen leaves and a handful of Bracken to keep the leaves from blowing away. Another way of growing Callas out-doors is to plant them round the margins of ponds or lakes, where there is sufficient depth of water to cover the crowns about 4 inches, as the frost rarely, if ever, reaches them, and they come up strong annually and flower well. Plants may also be submerged in large pots in basins or fountains in the garden, where they are very ornamental.—S. D.

NOTES ON HARDY FLORISTS' FLOWERS.

THE GLADIOLUS.—The collections of corms wherever they may have been stored require to be looked over early in February. Some of them are now pushing out roots from their base, and if these are not planted out or potted at once a check is received by the plant which it does not speedily recover from. If such are planted at once on a dry border where they can be sheltered a little from frosts, they will produce their spikes early, and will also ripen their corms early. Sometimes the growth pushes from the crown before it does from the base of the corm; in either case promptly placing them in the soil is the best treatment. I have practised potting them up singly in 4-inch or 5-inch pots, using fine sandy soil. The pots are plunged over the rims in a cold frame, where they are allowed to remain until the shoots have grown 4 inches or 5 inches, and at that time they may be planted out in the open garden. A most important point in the culture of Gladioli is the preparation of the soil. I have always found that they do best when the ground has been prepared for them in the early autumn previous. Probably some of the success of the late M. Souchet was because of his custom of allowing the ground to lie fallow a year. There is a growing tendency both with farmers and gardeners to follow one crop after another without any delay whatever, and some are not content to have one crop of flowers, fruits, or vegetables on their ground, but must have two different subjects at once. The ground should be well pulverised for Gladioli, and the more it is turned and exposed to the air the better. Heavy soils are not so well adapted to their culture until they have been lightened by the addition of coarse sand, leaf-mould, or wood ashes, or all three combined. I have forked the surface over three or four times during the winter and early spring months when it has been dry. In any class of soils it is best to place a little clean sand under and over the bulbs.

THE ANEMONE is a useful garden flower, repaying us with a profusion of bloom for the little care required to cultivate it. Anemones can be grown in almost any good garden soil, and the main point in their culture is to note the time of planting, and especially the digging up of the tubers. The last is more important than the first, for the leaves rapidly fade as the warm summer days come in, and as soon as this happens take up the tubers, for if they are allowed to remain, growth quickly takes place, and they will flower again in October. This is very injurious indeed to the tubers. The time of planting is about the middle of October, but we generally plant ours with the Tulips about the first week in November. This season they were not planted until the second week in January, and I have not the least fear of their doing well. The planting out is a very simple matter. We draw drills as if we intended to sow Peas, plant the tubers 6 inches apart, and I find for all these roots and tubers it is a good plan to place a little clean sand around them. Some soils coming in contact with them produce canker, and the sand prevents it. It requires a little practice to discern the crown from the base of the tubers, as in a dry state they are much alike. The plants like a plentiful supply of moisture when in growth, and to be ripened off quickly when the flowering period is over. Anemones also succeed well as pot plants; in fact they bloom quite as freely as those out in the open garden. Six-inch pots are quite large enough, and the plants do best when

the pots are plunged to the rims in a cold frame, where they can be shaded from hot sunshine and also be kept clean. All such spring flowers are most enjoyable in well-placed positions in the open garden, I know, but our uncertain springs are such that invalids, and even the more robust, may not venture out of doors for days at a time even to look at them, and their frequent bedraggled appearance suggests to the ardent amateur that something ought to be done to preserve the purity of the flowers. Indeed, I was so much disappointed with the winter and spring flowering Croci last year, that I dug the lot up and

mones or Ranunculi 2 feet deep and to fill up with a rich compost formed of a third part of manure, would be quite unnecessary for flowers that made all their growth in about four months. One grower of the Ranunculus stated that he invariably found that if the tubers were covered exactly $1\frac{1}{2}$ inches deep that the plants flowered splendidly, but if they were covered 2 inches deep "a production of roots above the crown of the old roots was the consequence, and the old roots perished, from which circumstance no bloom appeared that season, and the young roots generally decayed before taking-up time." The above extract is from a

in a vicarage garden close here, in which Arum Lilies have been growing intermixed with the yellow Iris for several years, and a very pretty effect is the result. Especially handsome is the Iris when in bloom, the bright yellow of its flowers associating well with the foliage, which is deep green. The Arums also grow freely, and flower fairly well every year.—SOUTH HANTS.

HOLLYHOCKS.

THE Hollyhock has given rise to a useful discussion in THE GARDEN regarding the disease which blotted out the noble plant for a series of years, but not completely, as recent seasons have happily shown. There is no doubt that one of the main reasons of the almost complete annihilation of the Hollyhock was the severe attacks of disease on a weakened plant, made so by high propagation in a temperature of 80° or more. We have a parallel instance in the Chrysanthemum of the present day. It is a plant by nature as hardy as the Carnation, but the forcing soils given the specimens for exhibition have weakened its naturally vigorous constitution, and if a disease of the same virulence now attacked the Chrysanthemum, it would probably suffer as severely, or more so, than the Hollyhock, for the reason that the insidious pest finds good quarters in the comparatively weakly growth. Notwithstanding this, J. Douglas, in THE GARDEN of February 1 (p. 99), recommends the following, or at least describes it as his practice in the culture of the Hollyhock: "We will at once take as many cuttings as we can get and root them under hand-glasses in the propagating house"—misleading and hurtful advice, when from the cutting stage to the fully grown plant there is no need for artificial heat in the culture of the Hollyhock. That such a course is sensible and correct we can refer to the collection in Mr. Blundell's nursery at Dulwich, where Hollyhocks are the chief things grown, the fresh, vigorous nature of the leafage showing a healthy constitution it would be a pleasure to see in other gardens. I have never used artificial heat in the culture of the Hollyhock, neither is it my wish to change a plant by giving it treatment foreign and hurtful to it. My usual plan is to sow seeds in May in the open ground, and in July to transplant the strong seedlings to where they are to bloom. Before the arrival of frosts they will have attained sufficient strength and hardihood to pass safely through the trials of an English winter. Very few are propagated by cuttings, as by sowing seed the variety is well reproduced, and in raising Hollyhocks from seed we can look forward to interesting results, some of the flowers displaying the softest shades from delicate pink through rose, lilac, and pure white, a lovely flower that we value for making wreaths. As many will now think of dividing big clumps of Hollyhock, it may be well to urge the importance of not cutting them up into small bits, but to divide judiciously, and secure a big piece that will give a rich display of the tall spire-like flower-stems in the following autumn. Rich, well-manured soil is given, a sunny position, and plenty of water in summer if the weather is dry, and by this easy procedure I scarcely have any disease, though on its appearance every leaf so affected is quickly picked off and burnt. A few named kinds of remarkable beauty are Princess of Wales, pink; Mrs. Barron, rose-pink; Mrs. Sharman, maize colour; Her Majesty, delicate rose; Ettie Beale, flesh; W. G. Head, cardinal; Princess Beatrice, lemon; and Venus, white.

The tendency of the age inclines to single flowers, and in our love for these we should not forget the beauty of the single Hollyhocks.



Hollyhocks in the garden.

grew them in pots. They are merely protected from rain like the Anemones with glass lights.

THE RANUNCULUS.—I plant several thousand tubers every year, and would plant thousands more if I could find room for them. When I first began to cultivate the Ranunculuses I was anxious to do them well, and turned for information to the old-fashioned florists who had made such flowers their special care, but soon found that to follow their directions would take up more time than any gardener could spare. A little consideration would soon convince any practical gardener that such instructions, as to dig out the beds for Anemones

leading article in the *Floricultural Cabinet* for the year 1833, and might make a young planter rather nervous if he had to do with a collection of valuable varieties. Some of them were sold at a guinea a tuber in those days and twenty years later. We will plant out this year in March in ordinary light garden soil, choosing a fine day for the purpose. We plant the crowns as nearly as we can $1\frac{1}{2}$ inches below the surface, and they certainly do well.

J. DOUGLAS.

Arum Lilies in ponds.—The remarks of "A. D." on this subject bring to my mind a small pond

There is a frailty, yet boldness, in the softly and richly coloured flowers that gives an unusual and delightful charm to the summer garden. Double-flowered varieties should have their rightful place, but unless for exhibition—and the Hollyhock is not a good exhibition flower—there should be no pinching, stopping, nor thinning out of flowers. The Hollyhock is burlesqued on the exhibition stage. Long regiments of formal spikes convey a poor idea of the picturesqueness and beauty of the stateliest of hardy border perennials. The flowers are often cut off the spike without any foliage, placed in a neat white collar, and set out in lines on a bare board, as the unfortunate blooms of African Marigolds that supply colour, but no beauty, to the autumn shows. It is idle to exhibit such flowers as those of the Hollyhock which require the broad border and large bed where their noble character can break the garden scenery. The magnificent specimens that are beautifully portrayed in the accompanying illustration give a glimpse of many a bright homely picture that is to be seen in old-fashioned gardens, and, now that a greater love has sprung up for hardy flowers, we may yet see the Hollyhock more extensively grown. The plants shown are against a Conifer hedge which brings out the delicacy of the flower-colouring, the noble contour of the sturdy spikes, and the rich growth of strong deep green foliage. — **HOLLYHOCK** FANCIER.

— In reading Mr. Fish's reply to the remarks of "Sanguinea" in THE GARDEN, Jan. 18 (p. 58), it would appear that Mr. Fish is unable to eradicate the Hollyhock disease, and as his remarks might tend to discourage those who might be disposed to revert to the cultivation of the Hollyhock, I will endeavour to give the result of my experience and observation, and as practised now by some of the very best growers in the country. Before doing this I will point out what appears to me to encourage rather than repel the spread of this terrible scourge. In the case of seedlings, we try to force them to do their work in seven months by treating them as annuals, when we used to give them fifteen by treating them as biennials, i.e., sowing in June and planting out when of sufficient size into the flowering quarters. In this way the Hollyhock seedling had a good robust constitution, and could face many difficulties, besides giving us satisfactory blooms and a matured growth in the early days of August. The other objectionable method is that of keeping the autumn-struck plants in a temperature of not less than 60° with a dry atmosphere, in order to keep off the disease. Plants thus kept are some 3 feet to 4 feet in length by planting time, and stored in a pot of 3 inches or 4 inches in diameter. After this treatment it is very difficult to start the plants into new growth.

I now come to my mode of treatment, which if followed will give good results. I commence planting in April from cuttings, protecting the plants at night by an inverted flower-pot. Should dryness set in water is given and the growth encouraged as much as possible. I also give them an occasional sprinkle overhead in the evening and a light dressing of tobacco powder, with which is mixed some finely powdered sulphate of copper. By choosing a still evening, the dressing is likely to adhere. For this remedy I am indebted to a local chemist, who had some plants to experiment upon with various mixtures. Some were dressed and some not. Those dressed with the above mixture kept clean, while those not dressed were attacked by the disease. Our plants are in bloom by the first week in August, with a matured growth by the end of the month, and are then impervious to the disease. I keep off all young growth at the bottom, and cover over the embryo buds with Cocoa-nut fibre or sand, thus depriving the disease of a home. At the end of the season the plants are removed to a frame, where new growth commences clean and healthy for propagation.—G. WEBB, *Saffron Walden*.

HERBACEOUS FLOWERS FOR SUMMER CUTTING.

As the demand for cut flowers seems to be largely on the increase in all establishments, it is one of the chief duties that devolves on the present-day gardener to see that provision is made for plenty of plants to furnish the necessary quantity. This requires more attention than is at first apparent, for there is a succession to be provided for, then there is the question of flowers for particular purposes, and again those are to be avoided which are of little use in a cut state. To enumerate one quarter of the herbaceous plants suitable for a supply of cut flowers would occupy too much space, so a few old and tried friends may be taken at random as a guide to those who may require something of the kind. I may mention at the outset that all plants mentioned in this list are spring and summer flowering, and do not include the many things specially adapted for autumn, of which Michaelmas Daisies in variety and the Japanese Anemones are types. To take them in alphabetical order, *Achillea millefolium* roseum (the rosy Yarrow) is useful for what may be called rough cutting, as great quantities of large heads of bloom can be taken annually from established plants. The shrubbery is the best place for this, as it is apt to be troublesome by its spreading qualities in the herbaceous border. *Achillea ptarmica* flore-pleno is a capital thing where there is a large demand for wreaths. Its clusters of white flowers, which are produced in great profusion, stand well in a cut state. *Adonis pyrenaica* I have only seen once, but should say it will prove a valuable acquisition; it is a handsome flower, and I am told useful for the flower-basket. There are few better summer-flowering plants than the varieties of *Alstrœmeria*; they are specially adapted for large dark vases, in which, lightened with some long stems of *Asparagus*, they are very effective. They like a warm sheltered position, and it is advisable to give them a south border and plant deeply. If this is done, and great care taken in lifting, I have not experienced any loss from this, or that any annual surface protection is necessary. *Anchusa italica* is valuable for its colour and is a very handsome border plant. The double white Peach-leaved *Campanula* is useful; the long spikes are effective as a background in tall vases, whilst individual blooms can be utilised for button-hole work. For this latter purpose there are few better things than *Carratons* in variety; these are now so much in request, that they are one of the indispensable features of the border. A special point can be made of any particular colour to meet the taste of the employer; personally, I find the old Hampton Court Clove more appreciated than any other, and it flourishes in our sandy loam.

The varieties of *Centaurea montana* are useful in a cut state; the blue and rose shades are effective associated with *Mignonette*. *Coreopsis lanceolata* is one of the cut-and-come-again plants; the supply from established plants seeming almost unlimited. One or two of the *Doronicums*, and also *Erigeron speciosus*, may find a place in the border, although the latter is somewhat later than the plants under consideration. The fine foliage of the *Heucheras* is sometimes useful in dinner-table decoration; these are decidedly rock plants, but where there is no rockery a little special provision can be made for them in a corner of the herbaceous border. The *Pentstemons* and *Pyrethrums* (single and double) almost deserve a border to themselves, so endless are the varieties and so valuable are they in a cut state. The perennial *Phloxes* cannot be recommended, for this particular purpose at least. I have never met with any varieties that would stand any length of time after cutting. A beautiful and distinct plant is the Sea Lavender (*Statice latifolia*); it has a very pleasing effect associated in a cut state with some of the feathery *Spizæas*, of which *Aruncus*, *astilboides*, *filipendula*, and *palmata* deserve special attention. These *Spizæas* are also exceedingly effective in tall vases dotted sparingly among tall plumes of the common garden *Asparagus*. The different forms of perennial *Sunflower* are nearly all good and specially adapted for rough cutting. The above list will naturally be of little

service to the hardy plant lover, but I thought it might be useful to those who have not as yet made a special feature of the herbaceous border, and who wished to combine effect with opportunity for obtaining cut bloom in quantity. All the plants enumerated are specially adapted for this purpose, and indeed should furnish when established an unlimited supply of bloom. They are easily grown, and with very few exceptions may be easily and cheaply obtained.

Claremont.

E. BURRELL.

VERBENAS FROM SEED.

If carefully grown in separate colours, *Verbenas* come fairly true from seeds; and if there should be a stray plant of the wrong colour among a batch of seedlings, it may generally be detected before the plants are turned cut if they have been raised early. I like to sow about the middle of February, and then there is no necessity to push the plants on in heat, which has a debilitating effect upon the plants. The seeds are sown in the hotbed or propagating house, and as soon as pricked off and established the plants are moved to a cool house, where they make short sturdy growth. All the plants will be showing a truss or two of bloom by the middle of May, and whether grown in separate colours or as mixtures, there is no difficulty in making a suitable arrangement. The advantage seedlings possess over plants raised from cuttings lies chiefly in the extra vigour they possess. This vigour saves them from attacks of mildew or thrips, which, years ago, when *Verbenas* were always raised from cuttings, often checked their growth after the first bloom and marred their effectiveness. This was the cause of *Verbenas* falling out of favour, and probably over-propagation in heat in spring, by weakening the constitution of the plants, had a good deal to do with many failures. With seedlings there is no trouble in saving stock in autumn, and we start with clean healthy plants in spring, and this results in well-filled beds with plenty of blossoms. Seedling plants should be allowed more space in the beds than is usually given to plants raised from cuttings. Unless the beds are required to be filled quickly and to produce an early display, a square foot for each plant is scarcely enough, especially if due attention is given in pegging down the growth as it progresses. Seedling *Verbenas* are not particular about soil, provided the beds have been well cultivated and dressed with leaf-mould or old manure of some kind. There will be no frost to hurt *Verbenas* after the middle of May, and the sooner they are in the beds or borders after that date the better. *Verbenas* are strong-rooting plants, and if grown in small pots they are almost sure, some time or other, to suffer from want of water, and a check of this kind has a bad effect in stunting their growth. Anyone in possession of a good strain may save his own seeds, but a 2s. 6d. packet will raise at least 100 plants or more if fairly dealt with.

E. H.

SHORT NOTES.—FLOWER.

Best Pæonies and Delphiniums.—Will you be so good as to give me a list of twelve best and most distinct varieties of herbaceous Pæonies, double, which do not show any eye, also of twelve Delphiniums, including both old and new varieties? Does the Delphinium come true from seed?—F. R.

Winter Aconite (*Eranthis hyemalis*).—This is very gay just now, and it is a lovely plant to scatter here and there on the rockery. I noticed the other day at Kew a very charming little bed, which was a sheet of bright yellow forming a pretty ground work to the crimson stems of the *Cornus*. It is a very useful plant for planting in Grass, where it does very well, in woods, or under shady trees. No garden indeed can have too much of it, and it is now so cheap, being only a few shillings per 1000, that no excuse can be offered for not planting it in quantity, especially as it gives no trouble and takes up little room.—W.

Snowdrops in the north.—Snowdrops are early everywhere this year, but it is interesting to note that there is practically little or no difference in northern and southern gardens as regards the

blooming of early bulbous plants during a mild season. In *THE GARDEN*, Jan. 25 (p. 71), "J. C. B." recorded that Snowdrops were blooming in sheltered gardens in Surrey; whereas, a fortnight previous to that date a friend sent me a large box of single and double Snowdrops from Northumberland. In doing so he said, "Snowdrops are very plentiful here now; the grassy plots by the side of the walks in the woods are white with them. I have never known such a thing before; the beginning of February is when we generally begin to look for them." The place from whence the blooms came is situated in the northern part of the county and within walking distance of the Tweed. Therefore, it will be seen that southern gardens are not alone favoured with early Snowdrops.—C. L.

SNOWDROP NAMES.

I SHOULD have allowed Mr. Smith's letter to you on the above subject in *THE GARDEN* of 25th Jan. last to pass unnoticed, as it deserves, were it not that the Rev. Mr. Ewbank so graciously and fairly takes up the cudgels on our behalf.

I was the more surprised at Mr. Smith's letter, inasmuch as I remember only last spring reading in your valuable paper a letter from him wherein he praises a variety of things then in bloom in his garden; amongst them I think I remember the magnificent Tulipa Greigi, the lovely sweet-scented golden Tulipa sylvestris italica, Tulipa præcox, and many other plants, the bulk of which he had obtained from my firm, and because one article, a Snowdrop, is either wrongly named or has got mixed up by him or by us, he condemns us.

I affirm that Mr. Smith is greatly indebted to us for many interesting things, as indeed is the whole trade. The horticultural world is indeed deeply indebted to the partners of the firm, whose reputation is well known, and whose lifelong labour is worthy of a better return than Mr. Smith's letter. I feel convinced Mr. Smith will acknowledge he was probably a little hasty in spreading a damaging report of the firm who has brought out many really good novelties, and who, by bringing down the prices of many articles and placing them within the reach of our market gardeners, has made it possible for them to compete against foreigners for cut bloom.

JOSEPH LAMBERT.

MARKET GARDEN NOTES.

THE weather still continues mild, and very heavy falls of rain during the past week, accompanied by westerly gales, have delayed outdoor operations considerably. All kinds of green crops are very abundant and prices low, and unless we get some severe weather very shortly a good deal of the surplus of common green crops, such as Savoys and Cabbages, will be fed off by sheep, as the land is now being got ready for spring cropping. The kinds now being got in include

BROAD BEANS, that are sown as early in the year as the state of the soil will permit. Good stiff soil suits this crop best, and if it has been manured for the previous crop it will be quite rich enough. The sorts that are mostly grown are Taylor's Windsor and Hangdown Longpod.

PEAS of the earliest kinds are being got in as rapidly as possible. The dwarf wrinkled sorts with large pods and good large Peas are superseding the small round white varieties. American Wonder is becoming a great favourite for first crops, followed by such kinds as Stratagem, Veitch's Perfection, and others of similar habit.

RADISHES are being sown in quantity in open-air beds as well as in frames, and by means of coverings of litter to ward off frosts and cutting winds from the young plants, good crops are secured very early. The long scarlet and white-tipped or French Breakfast are the popular kinds.

BROCCOLI are again plentiful and very fine for the time of year. The Winter White Protecting kinds are now being sent to market, and the early spring sorts are getting very forward. There is every appearance of the crop of all kinds of this useful vegetable being unusually fine, as the growth

has been steady and continuous from the date of planting until now. Even those crops that were put out rather late have fine heads of foliage and large sturdy stems.

FORCING-HOUSES, PITS, AND FRAMES are now in active work, French Beans, Cucumbers, early Potatoes, and salading being pushed on rapidly. The heated Mushroom houses are yielding good supplies of Mushrooms, Seakale, and Rhubarb, which are now in good demand; seed sowing in boxes, pans, &c., is being briskly pushed on, frames with gentle bottom heat being the favourite quarters for seed-raising. Tomatoes and Cucumber plants are being got ready in quantity, and seed Potatoes in boxes are being sprouted in gentle warmth for pits and frames in course of preparation.

THE FRUIT GARDEN and orchard are now receiving their annual pruning and cleansing. The standards are having their centres cleared of all worthless spray and the strong annual shoots shortened, while the dwarf bush and pyramid trees are being spurred in close. All kinds of bush fruits are now being pruned, as the continued mild weather makes the buds very forward. Manuring is being liberally done, for by no other means can good crops of fruit be had. Birds are getting troublesome, and all sorts of devices are adopted to ward them off. Strawberry beds, the produce of which forms an important item in the fruit supplies of Hampshire, are now being cleared of weeds, stones, &c., and a good dressing of manure put on. This is spread over the beds and allowed to lie rough until the end of March, when it is raked down and all stones picked off.

Hants,

J. G.

ROSE GARDEN.

TEA ROSES IN THE OPEN AIR.

I BELIEVE the supposed tenderness of Tea Roses to a great degree arises from planting small specimens that have been grown in pots. Very frequently these have been grafted in a temperature so high that it ruins the constitution of the Rose so far as outside culture is concerned. After being grafted they are allowed to remain a long time in a high temperature. In this way large plants are obtained, but at the same time a weak constitution is engendered. If these plants are removed to a cold house, plenty of air being admitted, they will remain a long time in a stagnant state, and very frequently become a prey to mildew and other pests. Plants thus coddled are of no use till they have had time to acclimatise themselves and gain strength. Again, the union is often so imperfect that the scions often fall off after having been placed in the cold.

The above is no overdrawn picture, as I have received plants in this condition from various trade houses, and I regret to say I have some before me now in this condition, although I ordered plants that had been grown hardy. We have been nursing these attenuated plants ever since last summer, and now we have plants almost as large grown from cuttings put in early in April. Some years ago I wanted some Tea Roses for outdoor planting, and I called on a firm about them. After I had examined the stock the manager said to me, "Do not have those long green and fine looking plants, but obtain those with short sturdy growth. The former will do no good for a long time and probably die, while the latter will brave every storm, and grow vigorously next season." I am pleased to say such was the case.

J. C. F.

SHORT NOTES.—ROSES.

Roses on own roots.—We have lately lifted some hundreds of Roses, which had rooted freely into the soil where we had pegged them down last year, having had a profusion of flowers all through the season till quite late in January from the old plants and these shoots now rooted. We are in possession of a fine lot of plants, which may be used to form a hedge or for a similar purpose. The permanent plants having

made excellent growth will be pegged down as for merly.—T.

Influence of the stock.—A correspondent of the *Journal des Roses* recently recounted an experiment he had made to test the influence of the stock on grafted Roses. Two lots of Roses, one grafted on Rosa canina and the other on R. polyantha, were forced under glass, both being treated in precisely the same manner. The plants on R. polyantha came into bloom two weeks earlier than those worked on R. canina, and yielded twice as many flowers.

Rose Isabella Sprunt.—This, where small blooms are in request for making button-hole bouquets, is a capital Rose for flowering in a warm greenhouse at this time of the year. The colour of the flowers is pale sulphur at this season. Neatly wired, placed upon a Rose leaf, and with a small spray with bronze-tinted leaves of Lonicera aureo-reticulata in front of the bud to hide the wire, a button-hole is at once formed not only choice, but uncommon.—S. P.

Rose Docteur Grill.—Will you kindly inform me where I can obtain Rose Docteur Grill, figured in *THE GARDEN* on Jan. 18? I have looked through the catalogues of some of the principal Rose growers, but cannot see it mentioned in either of them.—T. F.

* * We find some of our greatest Rose growers have not this lovely Tea Rose in stock. Perhaps some reader will kindly mention some who have it. We grew a large group of it during the last year, and quite exposed it flowered without ceasing for months.—Ed.

The Burnet Rose.—I have found this growing best in and on the turf walls used by the cottars in Ireland as fences between their fields. The thong-like roots lace through the wall in all directions, but the plant grows best on the south or sunny side. I was surprised to find how dry and dusty these turf walls are, even at this season. No doubt it is a sun and drought-loving little Rose, and would grow out of its dwarf and fine character on deep, rich soils, if it lived at all thereon. Its Buttercup blossoms of creamy white, and its black-purple fruits make it to me far preferable to many garden Roses, and its perfume is quite its own.—F. W. BURBIDGE.

DESTROYERS.

WINTER MOTH IN ORCHARDS.

THIS obnoxious pest has increased so alarmingly within the last few years in our orchards, that it becomes every fruit grower in the land to adopt the most stringent possible means to combat and eradicate it, seeing how so many trees in this country were last year quite defoliated, thus causing the crops of fruit to fail. Doubtless those growers who used bands of grease on the stems of their trees early in October, and have since followed it up, will reap temporary benefit, but what shall be said of those sceptical and dilatory ones whose protracted negligence will furnish and keep up the stock? To those who have omitted or neglected the recommended grease banding I would advise the thorough application of quicklime cast up into the trees by hand, both from above and below, so as to completely cover with the lime dust every particle of twig and branch throughout the trees. The time of year is at hand for the application, choosing, if possible, a calm, but moist sort of day, when the branches are damp, and when the lime will adhere better. It is said that the smallest particle of hot lime administered is fatal to the insect egg germ; at all events, my experience has warranted me in recommending its adoption; moreover, the action of the lime is well known to cleanse the trees from the parasitical growths of Mosses and Lichens, as well as to act beneficially on the roots.

A short time ago I was expounding the above theory to a shrewd neighbour, and he immediately remarked that he had often noticed that Apple trees growing by the dusty wayside (limestone district) were invariably better laden with fruit than their fellows situated further away. I venture to quote this for what it is worth. We are now preparing to lime all our trees, young and old, save

one left as an experiment, and which has not been greased either. We had strong hopes that the "Strawsonizer" machine would ere this have relieved us, the reports of experts being so flattering and decided, but our machine does not come to hand, from some unknown cause.

It is not only fruit trees that will have to be dealt with, as hedges, Oak trees, &c., also suffered. A few more moths of the mottled umber winter moth have been trapped since Christmas, being attached to the grease bands. Gas-lime is not a deterrent to these nocturnal marauders, whilst we found hand-picking in May a very costly and inconvenient operation. W. CRUMP.

Madresfield.

OBITUARY.

PETER HENDERSON.

THE American mails bring intelligence of the death of a well-known writer on horticultural subjects, Mr. Peter Henderson, which occurred at his residence on Jersey City Heights. He was born in Edinburgh in 1823, and was apprenticed to gardening at the age of sixteen. In 1843 he went to the States, where he soon became famous for his popular writings. His best known works are "Gardening for Profit," "Gardening for Pleasure," and "How the Farm Pays." Mr. Henderson was at the time of his death the head of one of the largest seed businesses in America, in which his two sons were his partners. The following notice of him appeared in *Garden and Forest* :—

The death of Peter Henderson removes a conspicuous figure from American horticulture. He was a frequent contributor to many journals devoted to agriculture and horticulture, and a prominent place was always accorded to him at the meetings of the Association of American Florists, and of kindred societies, as well as in the business councils of his associates in the trade. Altogether he was more widely and familiarly known than any other man in connection with the horticulture of the country. Few men have exerted so marked an influence in his chosen field of activity. To him more than to any other one are we indebted for many improved processes in the production and distribution of plants. He not only aided in this direction by his writings, but he exemplified his counsel in action, and a visit to his establishment was an object-lesson to all who wished to learn how horticultural practice could be made more cheap, simple and effective. Every square of glass and every foot of ground were always occupied to the full limit of their capacity, and every man was accomplishing all that was possible by trained skill and thorough organization. Mr. Henderson's alertness, enterprise, and success as a business man were known to all the world, but only to those who were admitted to a closer intimacy was the genuine worth of his character fully revealed. His integrity was beyond any shadow of suspicion, his public spirit was universally recognised, his robust manliness and force were admired by all who came in contact with him, but the considerate kindness of his disposition will bring more tender memories to many a man who has received from him prompt and generous assistance at precisely the time when sympathy and help were needed.

THE LATE MR. WILDSMITH.

SHOULD several correspondents offer tributes to the memory of one of our very best and most energetic of gardeners, as found in our late esteemed friend, Mr. Wildsmith, it will not be a matter for surprise. Not merely was he one of the best of gardeners, but he was also one of the best known, and his native energy rendered him so restless that he seemed never so happy as when most active. Widely engaged as a horticultural judge, an able member of the fruit committee of the Royal Horticultural Society, always ready to act as promoter of the Apple, vegetable, and other conferences held at Chiswick; a steady subscriber and helper of the Gardeners' Benevolent Institution; a local secretary

and efficient, even enthusiastic, worker for the Gardeners' Orphan Fund; a member of some of his district horticultural societies; an intelligent contributor to the gardening press; indeed, a thorough all round man. Such are some of the claims which the late gardener of Heckfield had upon the kindly remembrance of his fellows. Very delightful were the relationships which existed between him and his late employer, Viscount Eversley, as also with his more recent one, the Hon. Miss Shaw Lefevre. Those relationships approached far nearer to what are called friendship and kindly regard than is usually found. Few higher tributes can be paid to any man's character than that those whom he served should value him so highly. Specially kind, and I may say affectionate, were the relationships which existed between him and his old foremen. Not one of these left Heckfield without finding in his former head a warm friend who did his best, and invariably successful best, too, to find them good situations. Every one of these, even though some years have elapsed since fellow-service was severed, have for Mr. Wildsmith only feelings of the deepest respect and warm regard. To have thus retained through long years such pleasing sentiments in the minds of former juniors is indeed tribute worthy of all admiration. It was from the very first of Mr. Wildsmith's administration of Heckfield Gardens to his all too untimely death his unceasing effort to do whatever he did well. I have never seen a garden more thoroughly done; probably no one ever did. Its order was perfect, and the quality of the work found in all departments admitted of little adverse criticism. In many respects there had to be makeshifts in both fruit and plant culture in the gardens which some other gardeners know nothing of, but in all respects all was well done. His flower garden was his pride, his fruit his joy, and his vegetables his full satisfaction. All were equally regarded with loving esteem and favour. There are plenty of good gardeners in the kingdom, and the place of the departed one will soon be filled, but no one can ever absolutely replace that wonderfully active, energetic, and high-spirited man who many of us, his friends, will long remember as William Wildsmith. Mr. Wildsmith was fifty-two years of age, having been at Heckfield as gardener some twenty-four years. He was a native of Bradford, Yorkshire. His early garden life was spent at Shrubland Park, under Taylor, and here he first drank in his love for decorative flower gardening, which at Heckfield later he developed into such a beautiful aspect, although towards the close of his life he had materially changed his views in favour of the wider use of hardy flowers. He seems also to have served at Woolverstone under Sheppard, who has thus outlived his pupil; at Powis Castle under Brown, at Chirk Castle with yet another Brown, and at Wynnstay under a Mr. Bell. From there he came to Heckfield, acting as foreman to Mr. Dwerrihouse, and later to Mr. Watt, whose reign at Heckfield was indeed short, and whom he succeeded as gardener at Christmas, 1867. Mr. Goodacre, of Elvaston, one of the first fruit growers, was, I believe, Mr. Wildsmith's first foreman; Mr. Crump, of Madresfield, so well known to our readers, was another Heckfield foreman; so also were Mr. Turton, of Maiden Erleigh, Mr. Heath, of Tamworth House, Mr. W. Lees, of Newmarket, and some others whose names do not at present occur.—A. D.

Few who were privileged to know or be associated with Mr. Wildsmith in literary and other matters but will pause to express regret at his all too early death, and express their admiration at his marvellous energy and surprising ability and worth. Ever since the trap accident of about two years since, which so severely shattered his constitution, he has worked against physical sufferings and difficulties that would have overpowered most men. With him difficulties but stimulated to more successful effort, so that perhaps some of his best work in the garden and through the press has been done since his accident. Mr. Wildsmith was as worthy of our esteem as a man as of our admiration as a gardener. Nothing could move him from his devotion to conviction, truth, and duty. Whatever he did, he did with all his might and in his

own thorough-going way, and with his eyes, head, hands, and heart wide open towards the elevation of gardeners as well as the improvement of gardening. The two subjects could hardly be said to be separated in his broadly cultivated and impulsive mind. The better the instrument the higher and better the work that reasonably might be expected from it was probably the unspoken formula on which he based his life-long labours for the elevation of gardeners, through temperance, higher education, the best object lessons in the garden and other instructive and ameliorative agencies. Though we are all the poorer for the loss of such a wise and generous friend, fortunately, most of his best work is still our abiding heritage through the press, and the memory of his taste and genius and not a little of his solid work at Heckfield will long live in the minds of his compeers, and will doubtless prove a source of strength and of inspiration to the younger men, who can hardly fail to have imbibed some of his character and enthusiasm as they grew up beneath the daily fostering of his ripe experience and ever-widening mellowing wisdom.—D. T. FISH.

By the death of this eminent and thoroughly practical gardener horticulture loses one of her brightest sons. His early death will be deplored by a large circle of friends. There are many of his pupils now holding responsible situations, and many a gardener of the present day owes him a debt of gratitude for his ever ready helping hand and boundless good nature. He was born at Bradford, Yorks, in 1838, and gained his early training in those excellent schools of Wynnstay (twice), Shrubland, Trentham, and Powis Castle, where I served under him. He was next engaged by the late Lord Eversley in 1865 as general foreman, and in about two years afterwards was made head gardener, a post he filled with distinction till the day of his death. He never possessed a very robust constitution, but an accident from a trap some years ago, combined with the loss of his late noble employer, whose decease he felt acutely, very much affected him. Those who knew the gardens at Heckfield in 1865, which Nature had done so much for, will best realise the splendid landscape, the lovely vistas, the unique examples of geometrical flower gardening, and the grand effect produced by harmonising combinations of subtropical with hardy and half-hardy plants. The pleasing repose and general neatness of the whole place can never be forgotten. Mr. Wildsmith's abilities as a successful fruit grower and exhibitor are well known. Whatever plants he took in hand were well grown. His zeal for horticulture was not less than it was for the temperance cause—a cause he warmly advocated. He was buried in the little cemetery at Heckfield, which he had so recently laid out and planted. About 300 gardening and other friends were present, including deputations from various associations, and much grief was expressed at his early death. Very many beautiful wreaths were forwarded.—W. CRUMP, *Madresfield Court*.

Erratum.—In our account of the death of Mr. Wildsmith in last week's issue (p. 117), for W. Thomson, of Chiswick, author of the "Practical Gardener," read, author of the "Gardener's Assistant."

The scarcity of Holly berries this season is fairly general, but occasionally a specimen laden with the rich red fruits greets us. At Castle Hill, Englefield Green, there is a specimen between 20 feet and 30 feet in height covered with berries, and a perfect blaze of colour. Such a specimen is noteworthy in this season of scarceness. Well-berried branches last Christmas in the markets fetched remarkable prices, and many a noble specimen has suffered irreparably to satisfy an increasing demand in decorations.

Odontoglossum Broomeanum is the name now given to the plant mentioned last week on page 102, under the heading "A new *Odontoglossum*."

Names of plants.—*John Watson*.—*Oncidium hæmatocephalum*.—*Walter S. Tighe*.—The *Anemone* is a double form of *A. fulgens*. The Cedar is *Cedrus Libani*.—*G. D. Johnson*.—1, *Sedum acre*; 2, *S. glaucum*; 3, *Pellionia Daveauana*; 4, *Mentha Pulegium gibraltaria*; 5, *Pellionia pulchra*.

WOODS AND FORESTS.

THE GROWTH OF TREES.

IN discussing this subject in *THE GARDEN*, Jan. 25 (p. 92), "I." takes no notice of exposure promoting the unequal size of the rings of wood to be found in the same stem. He says that "perhaps the theory most generally accepted is that the widest are found on the side of the tree facing the south, while others think that the greatest enlargement will be found towards the east, while others again assure us that the greatest extension will be found on the side where the tree has most room, but that none of these theories are correct." His own theory is that the widest rings will invariably be found on the side where the tree has made the most vigorous roots, these being most strongly developed towards the richest feeding ground. This theory, however, is by far too sweeping, for although the roots and fertility of the soil have an influence on the growth and formation of the wood in the stem, yet the difference in the size of the rings can often be clearly traced to a very different origin. Practical experience and observation prove that the wind and exposure are patent factors in promoting this inequality of growth, as the following illustration will show. When cutting down a plantation on a wind-swept hillside, I found the tops of the trees, especially Larch, to be considerably bent from west towards the east by the force of the wind from that quarter. After the trees were felled I found as a general rule that the annual rings were smallest on the exposed or west side of the tree, and largest on the east or lee side of the tree. This, I think, clearly proves that exposure has a good deal to do in promoting the unequal size of the rings of trees.

The site of the plantation referred to was on ground sloping to the west. At the base of the hill the soil was of good average texture, but towards the top the ground gradually became thinner and poorer, until at the top it principally consisted of poor gravel and fragments of rock mixed up together. According to "I.'s" definition, the largest sized rings in the stems of the trees in this case should have been found on the west side of the stem, where the roots had access to the deepest and richest ground; but in place of that the very reverse was the case, thus showing that the accuracy of his theory cannot be depended upon in all cases alike. In this case, the growth and size of the rings agree with one of the theories which "I." says is incorrect, namely, that the largest sized rings are to be found towards the east.

A Horse Chestnut tree in this plantation attracted my attention by its peculiar form of trunk, which exhibited a spiral formation from the ground upwards, and I came to the conclusion that the position of the roots and superior quality of the soil in which the tree was growing had caused this form of growth, although at the same time the rings showed a pretty uniform size. J. B. W.

A valuable cover plant.—*Berberis Thunbergii* has proved to be an exceedingly free-fruited species of Barberry, the bushes being usually completely loaded with scarlet berries. It is found here that quail are very fond of the soft seeds of this species, which are much like wheat in consistence. The skins are rejected, as they are thin and dry. The great hardiness and vigour of this plant and its rapid and cheap propagation from seed should ensure it a trial as a food plant for game birds in England.—F. L. TEMPLE, *Massachusetts*.

The Birch is capable of supporting a much greater degree of cold than any other tree. In

the Old World its northern limit is 71° upon the west, and 63° upon the east coast; in America its northern limit is 64° upon the west, and 58° upon the east. In Germany, the highest elevation at which it is found is 5200 feet above the level of the sea; in Sweden at 3900 feet; and in Lapland at 1722 feet. It is worthy of remark that this tree decreases in size not only as it advances towards the north, but also as it proceeds southwards beyond the limits of its native region. It attains its highest perfection and greatest height in Germany and Southern Sweden. The Birch is not particular in its choice of soil or situation, and will grow almost equally well in sandy, rocky, dry, or damp soil.

OVER-THINNING HARD-WOODED TREES.

WHEN hard-wooded trees are over-thinned the wood is generally of a rough nature, and never so valuable as clean, well-grown timber of moderate length. On the other hand, trees drawn up for want of thinning are equally unprofitable, as they never arrive at a proper size, neither is the timber so well grown and durable as when judicious thinning has been carried out. In many instances where the trees have become drawn from want of timely thinning the trees are bark-bound and stunted, and never reach the dimensions and value they would have done had they been treated so as to induce the growth of a proper amount of branches and foliage. When such neglected plantations are afterwards thinned, it is advisable to do it sparingly at first, and to continue it every second or third year until they are in a satisfactory state. Roots and foliage are the main organs of nutrition in trees, and to ensure their healthy growth it is necessary that there be a proper complement of lateral branches as well as sufficient room for the ramification of the roots. In plantations these cannot be provided without resort to thinning. The importance of this cannot well be overrated, and attention to it is necessary to ensure success, as if thinning is neglected altogether or done injudiciously, there is but little chance of a profitable crop of timber. If the work is done in due time and with good judgment, many other oversights in management will be thereby removed or greatly mitigated. When trees are grown entirely for shelter or ornament, thinning should be performed more freely than when grown for profitable timber, the object being to encourage branch growth; and to keep it within proper limits pruning should be resorted to. Very little stem-pruning will be necessary after the nurses have been thinned out, as it is desirable to have as much branch growth as possible towards the ground. Free thinning also shows more fully the natural habit and character of the different trees intended for ornamental purposes. The trees should therefore be thinned as soon as they begin to encroach on one another, and the operation should be repeated at intervals as may be necessary.

Habits of trees.—Trees, like plants of smaller size, vary much in habit from seed, and present us with a great variety of contour of top and branch, which by selection, as in the case of the Scotch Fir, might doubtless be perpetuated. The Sycamore presents the most noticeable differences; hardly two trees are quite alike, some being of a spreading habit, while others are compact and dense, bearing great masses of verdant foliage one upon another at this season of the year, when the woods are in their prime. The Beech, Oak and other trees differ in the same way. The Yew sports widely, no end of varieties being known to the nurseryman—some compact, some straggling, some growing in the pyramidal form naturally, and some round-headed, with all shades of difference between. Hardly any two of the progeny from one tree have the same appearance; and the difference does not end here, but extends to the period of leafing and flowering. To the landscape gardener and woodman such differences of habit present themselves in different aspects. The first looks at the ornamental appearance of the tree, and the second at its timber, and prefers the straight-

limbed specimen to that with the wide-spreading, umbrageous head so ornamental in our parks. There is room for both, however, and it will be acknowledged perhaps that the arboriculturist has not been so quick to take advantage of the sporting disposition of his trees as the gardener has been to fix special characteristics in his plants. The subject is one commending itself to the forester and nurseryman.—J.

Retinospora pisifera for hedges.—This Conifer is well adapted for hedges or screens, as it can be kept within bounds by the knife, and by continual cutting it acquires a very dense habit, as young shoots are pushed out so freely from all parts of the branches. Even in the case of single specimens this style of growth is often very apparent, especially in poor soils, for when the plant reaches a height of 12 feet to 14 feet, and with a corresponding spread of branches, it often becomes rather naked in the centre, and when this takes place young shoots are produced close to the trunk, frequently in great numbers. When a plant gets bare in this way it may be successfully cut back in order to clothe the bare branches with young shoots. This Conifer can be well kept down to a height of 4 feet or 5 feet for hedges, or it may be had much higher if desired.—W.

Formation of strong wood.—A thorough knowledge of the toughness and durability of timber as influenced by the conditions under which the same was made is of great importance. It would greatly advance forest-tree culture if we only knew the most suitable conditions for making the best Ash, Oak, and a score of other woods. The position trees occupy in the wild state is not always a guide in making plantations. Because a tree grows upon a rocky cliff, it is no reason why it would not thrive in rich soil. Is it true that the more quickly wood is formed the stronger it is? When we look at the end of a log it is seen to be made up of a number of rings. These rings are caused by unequal growth during each season. A comparatively porous layer is made during the rapid growth of early summer, followed by a more dense portion later in the season. It would seem that the more rapid the growth, other things being equal, the more porous would be the product.

New light on transplanting.—For many years I have carried out the transplanting of a number of large trees annually, and such trees were generally dug round and prepared for transplanting several years previously, under the conviction that their future success would be thereby promoted. Some time ago I was surprised to find that those trees which had been dug round and lifted the same season, and generally the same day as dug round, were growing better than most of those that had been previously prepared. The only principle upon which this can be accounted for is that the one check, sudden though it be, is less injurious to the trees than the two checks, with an interval between. If a tree growing upon a dry open soil and in full vigour be dug carefully round, and removed forthwith to other suitable soil and set, the roots, cut, bruised, and mutilated though they be, will heal up and recover better than if the operation had been performed at two separate periods, as commonly practised and generally recommended.—ARBOE.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

LATE PLANTING OF ROSES.

So far, Rose growth at top and bottom has hardly been checked at all this winter; any frosts we have had have neither been of sufficient length nor severity to arrest the growth of the roots nor the movement of the sap in the tops of Roses. Hence, anyone who neglected to plant as many Roses as he had intended in November or December may still go on planting with very fair prospects of success. In fact, in such mild winters as the present, the late winter or early spring planting of Roses may prove a factor in the salvation of the plants. The most imminent danger threatening our Roses in this last week of January is the continuance of those mild westerly winds with their inevitable stimulating effects on the root and top growths of our Roses. Should these continue much longer, one dreads to anticipate what is almost sure to happen, as our all too forward Roses may be roughly handled by the biting frosts of February or the harsh winds of March. But while these seem yet afar off, we may with more or less of safety pick up any arrears of planting among our Roses. Not that this must be understood as sanctioning or advising late planting in general; quite the contrary. The more Roses one plants, the firmer the conviction grows that early planting virtually commands success. Still circumstances, and seasons especially, alter cases and even times of planting. In such unseasonable seasons as the present there are even compensating advantages in late planting. It proves the most powerful check we can apply to precocious growth. It is also as safe as it is strong, provided always that sharp frosts do not follow on the heels of planting, and the roots during the process and immediately afterwards are protected from freezing.

It is root-freezing or drying during the process of removal and the operation of planting that cripples and kills more Roses than late planting. To see the way large quantities of Roses and fruit trees or shrubs are hawked about from one provincial market to another before planting, one may well marvel greatly not that so many die, but that any live. Indeed, the most extravagant investment any amateur or professional Rose grower can indulge in is lots of cheap Roses picked up for next to nothing at auctions in market towns. It has always passed my comprehension why, if these must be got rid of, they are not cleared at the end of October, or any time in November, rather than in January, February, or even March. Of course, it is not such waifs and strays from provincial markets that prudent planters would plant in February. But with plants near at hand, left in their old quarters till the new are ready to receive them, and the transfer made with skill and dispatch, success may be safely reckoned on. Of course, it will be all the more certain should open mild weather continue for a week or ten days after replanting. Open weather cannot be safely reckoned on in our capricious climate, nor can a sudden spell of frost, a heavy fall of snow, nor any other winter weather. Supposing frost

and snow do not come, we shall have Roses galore in April, 1890, or the promising show of buds converted into a black wreckage of ruin and death. Whatever happens after our late plantings, the risks of wreck and ruin will be greatly lessened through this process, growth will be suddenly arrested, and less sap, and consequently less food for frost, will be left in the plants. This virtual hardening of Roses and other plants through late planting has not been turned to so much practical account as it might have been, and the past abnormally wet autumn and this open mild winter afford abnormal opportunities for testing the merits of late planting and pulling up arrears that could not be overtaken in the autumn or early winter.

D. T. F.

ROSE NOTES.

TEA ROSES.—Planters of Roses cannot do better than bear constantly in mind the conclusion of "A.'s" excellent article on Tea Roses (p. 25): "The number of kinds should be proportionate to the size of the garden. Some gardens would have enough in six of the very best Tea Roses, twelve or more plants of each kind; other gardens might have room for fifty groups."

The point cannot be too strongly insisted upon. Fewer varieties and more plants of each is the crying want of nearly all small gardens, and this is the case whether the main consideration be a supply of cut flowers or a display of bloom in the garden. In these days when, happily, simplicity of arrangement has become so general there are few arrangers of cut flowers who do not greatly prefer to have a considerable number of blooms of one variety of Rose to deal with rather than a mixed lot, in which hardly any two flowers are alike. Again, the cultivation of several plants together of any one Rose enables the grower to become much more quickly familiar with the precise character, habit, and constitution of the variety than is otherwise possible, and the importance of this knowledge with a view to the culture of each Rose to the best advantage cannot be overrated.

It may perhaps be doubted whether the arrangement suggested by "A." of grouping together in one bed Tea Roses of different shades of the same colour would be the most effective. It is generally better if a bed of, say, white Roses is wanted to plant the bed with one variety only, and when a bed of several varieties is desired to select Roses whose colours contrast effectively with each other. Thus for a bed of white Tea Roses there is nothing to surpass Hon. Edith Gifford, while a bed in which there is room for three or four groups might be very well filled with Mme. Lambard, rose colour; Mme. Hoste, pale lemon; Hon. Edith Gifford, white; and Marie Van Houtte, yellow and peach. All who recall the classes that formerly existed in the schedule of the Crystal Palace Rose show for collections of white Roses, of pink Roses, and so on will remember how confused and fidgeting was the effect produced by these collections of Roses in which the varieties associated were too similar to contrast well with each other, and too various in shade and form to constitute an at all harmonious whole. It is pleasant to read "A.'s" discriminating remarks on the subject of exhibitions in these days when Rose growers are more than ever divisible into two great sections, of those who exhibit and those who do not, and each half of the Rose growing community is so liable to regard the other with that kind of concerned pity which so nearly amounts to contempt. There is no possible question that exhibitions, as

"A." says, have done and are still doing excellent work in encouraging the raising and distribution of innumerable varieties of Roses and in making their beauties known; moreover, it is a good thing for young growers to exhibit for a time, as they will thereby learn more quickly than by any other means the art of cultivating their Rose trees to perfection, and will also sooner become familiar with the character and habit of each variety, as the exhibitor must be always among his plants at all hours and seasons. As means to such ends exhibitions are invaluable; it is when the means are mistaken for and regarded as the end that the value of exhibitions may be called in question.

ROSE DR. GRILL.—When attention was drawn to this charming Tea-scented Rose in the columns of THE GARDEN in 1888 (Vol. XXXIV.), surprise was expressed that so few Rose growers—not only amongst amateurs, but even the leading nurserymen—should know or have made trial of such a promising variety. The fact is that Bonnaire's pretty novelty was overlooked in the list of new Roses that came from France in the autumn of 1886, just as Marie Baumann and Suzanne-Marie Rodocanachi were "missed" by growers generally in their respective years, to instance only two well-known Roses that failed to obtain due recognition as early as they deserved; and when a new Rose is "missed" in this way and does not at once obtain an extended trial, it is a long time before it is able on its own merits, however great these may be, to emerge from obscurity. Thus it is only during the past year that Suzanne-Marie Rodocanachi, which was sent out by Lévêque in 1883, has obtained anything like the general cultivation to which its merits entitle it. It is hardly possible that a better life-history of a blossom of Dr. Grill could be given than that delineated by Mr. Moon in the issue of THE GARDEN for January 18. In that admirably coloured plate the character of the variety is displayed to perfection; the little green bud at the top carried erect on a stem, slender indeed, but stiff and wiry; next, the somewhat older bud that has already flung back its sepals as if to hasten its development, eager as a young beauty to be "out;" then the perfect flower, exquisite in form and colour, portrayed in its most beautiful stage and with the utmost fidelity; and last of all the flower overblown, worn out with the sunshine of two summer days, and waiting only for the breeze at sunset or the following sunrise to let its tired petals fall and silently to take its place among the beautiful things that have been.

In the comments on page 56 upon the free-flowering character of Dr. Grill, attention is drawn (and justly so) to its ability to expand its flowers in spite of wet weather; but it is also worthy of note that in a hot season this Rose will continue to bloom even through that worst of all months for Roses in the south, namely, August, for down at Torquay towards the middle of that month when most other Roses were already at rest, Dr. Grill was to be seen in great beauty.

There have been many inquiries made as to whence plants of this pretty Tea may be obtained. Of course, the season for obtaining ground worked plants of any Roses is by this time pretty nearly past; but it may be useful to correspondents to know that Dr. Grill appears in the catalogues of Messrs. Curtis and Sanford, of The Devon Rosery, Torquay, and of Messrs. Paul and Son, The Old Nurseries, Cheshunt, Herts.

ROSES IN AUTUMN.—It would be interesting to be assured that the inclusion, in the article

under the above heading on p. 73, of the name of Mme. Plantier amongst the Roses enumerated as having been "strikingly beautiful in many gardens last September" was merely a slip of the pen. It is incontestable that, as a garden Rose, Mme. Plantier can hardly be over-praised, especially for the formation of Rose pillars; but it has not previously been recorded as an autumnal.

There are no Roses which can compare with the Tea-scented Roses as a class for autumnal blooming, but at the same time it is worthy of note that there are individual varieties of mixed race that flower more freely and in greater perfection in autumn than even many first-rate Teas. Thus it would be difficult to find, even among the pure Teas, any varieties to excel or even to equal in freedom of bloom and in the fine quality of the flowers produced in autumn the three so-called hybrid Teas, Grace Darling, Viscountess Folkestone, and La France—all comparatively independent of weather, all beautiful in form and of delicious fragrance, and at least two of them always exquisite in colour.

It is generally accepted as an axiom that the hotter the summer the better for the Teas, and certainly these have rarely been finer throughout the country than in the broiling summer of 1887. So that it can hardly be a matter of general experience that a "hot July sun spoils the outer petals of the Tea Roses, and deprives them of their delicate and refreshing fragrance and exquisite form!" Most people seem to be under the impression that, so far from the flower's fragrance being reduced by heat, a Rose only smells its best when it is basking in the full sunshine, just as it is only when the fruit is hot through with the sun that the finest flavour of a Strawberry can be fully appreciated.

In addition to the Rose species so deservedly praised for their beauty of foliage and fruit in autumn, mention may be made of the lovely *Rosa rubrifolia*, whose strikingly coloured foliage and immense bunches of brilliant hedges make the plant as conspicuous and as attractive as when it is covered with its exquisite rose-coloured flowers and wonderful glaucous leafage in June and July.

The article on p. 73 concludes with a curious transposition of cause and effect in the remark that the "reason for a common belief that Roses are for July only is that the exhibitions are crammed into a few weeks in July." This sentence might very well be stated conversely. Of course it is because exhibitors can only obtain a sufficient supply of flowers for their purpose during the last three or four days of June and the first two or three weeks of July that the Rose shows are all held in that period. Autumnal Rose blooms are not numerous enough to furnish a good exhibition, nor is their average quality such as can stand a journey to a show. As for the institution of a Rose show in the autumn, the experiment has been tried, and resulted in dismal failure, for reasons which must be patent to everybody who has had the opportunity of criticising the Roses exhibited at the provincial shows in August and September.

In regard to an early show for Roses, it was proposed that the National Rose Society should this year hold a small exhibition of Tea Roses in conjunction with the meeting of the Royal Horticultural Society on June 10, but the proposition received so little countenance from the exhibitors at large, that it was found necessary to postpone the show till the second meeting on June 24. This, while it shows that the

National Rose Society is willing and anxious to do all that is possible for the prolongation of the Rose season, indicates at the same time pretty clearly the opinion of the men most likely to have practical experience in the matter as to the possibility of the proceeding. If, however, the possibility exists, the simplest way of demonstrating the fact would be for Rose growers to send exhibits of Roses to the meetings of the Royal Horticultural Society early and late in the season. The meetings are held, with few exceptions, every fortnight, and all exhibits of beautiful Roses are very welcome, so that growers who have the question at heart can settle it for themselves in a single season.

T. W. G.

WHERE TEA ROSES SUCCEED.

IN some districts dwarf plants, either on their own roots or worked on the Manetti and seedling Brier stocks, succeed fairly well in the open beds and borders, especially if proper pains are taken with them. When they fail hereabouts, for instance, it is largely due to careless planting and subsequent neglect. If any portion of the Manetti stock especially is left above ground at planting time, or it becomes exposed later on, the life of the Rose is short and unhappy, and the seedling Brier, although it does not so quickly succumb to climatal influences, is by no means so hardy as the stem of the own-root plant. Own-root Roses are difficult to procure. Those who want them must raise their own stock from cuttings, and what we have to discuss is how best to meet the requirements of the worked plants. Neither these, nor in fact any other Roses will make satisfactory progress in poor uncultivated ground, and the least that can be done is to thoroughly break it up to a good depth, not, however, bringing much clay to the surface, mixing with both spits a liberal dressing of good fresh loam, if procurable, and plenty of unexhausted solid manure. Puny growth is of little value, and what is wanted from Tea Roses is abundance of strong branching shoots, which never fail to produce a profusion of fine blooms. The planting ought to be done before the newly broken up soil has become badly saturated with moisture, or otherwise it is not possible to do the work properly. We also find that Roses generally emit root fibres most quickly and freely when the roots are well surrounded with good leaf soil, or a mixture of this and other fine sandy soil brought from the frame ground, something of this kind being absolutely necessary when the ordinary soil is lumpy and hard to separate. Many no doubt, like myself, have been obliged this winter to lay in a few or many newly received dwarf Roses by their "heels," and the roots being covered with fine light soil, fibres have already been formed. Unless, therefore, these are planted with more than ordinary care, their tender fibres will be destroyed, much to the injury of the plants. Those on stocks of any kind (I am writing of dwarf Roses, not holding it to be a sane policy to plant any with long stems, and which are liable to be destroyed or badly crippled any winter) should be planted sufficiently deep to well bury the union of stock and scion, and in time this, in addition to being a protective measure, may also lead to the Rose emitting strong roots, and thus become independent of the fickle stock. Tea Roses in the open ought late in every autumn to be heavily mulched with strawy litter, this if need be being raised somewhat or have more added to it before a severe frost is experienced. Protecting the roots and the lower part of the bushes keeps them alive in spite of severe frosts, the loss of the upper portion signifying but little when the base is saved. It is not yet too late to buy in new plants, and in very many instances those already on the place would be greatly improved by being lifted and replanted more in accordance with what I have just advanced. We frequently split up any strong own-root Roses, this being the readiest mode of increasing the stock.

More often than not many of the Tea Roses fail

completely in the open, however well treated, and the only places where the more delicate of them will succeed in such cases are various sunny walls. We annually cut some of our very finest blooms from plants on their own roots growing against sunny garden walls between young Plum and Peach trees. These are really capital positions for them, a fairly rich root-run, warmth, and shelter suiting them well. The plants require little space, and being kept well shortened back they are constantly pushing up strong suckers. Maréchal Niel will also do well on the garden walls, and the archways in the walls ought to be clothed with this popular Rose; Gloire de Dijon, as a rule, grows too strongly for garden walls. Tea Roses succeed admirably against sunny house fronts, always provided the plants receive fair play. It is quite useless to plant them in the poor, hard soil usually found against the walls of buildings, and this ought therefore to be excavated and wheeled clean away, a border fully 3 feet wide being formed with good fresh compost. Nor will they long thrive if the more vigorous evergreen and other common climbing Roses or other wall plants are allowed to get the upper hand. Give them a clear course and they will quickly furnish a moderately high wall. The old Gloire de Dijon is most commonly found covering house fronts, but this variety, serviceable as it may be, ought not to enjoy the monopoly of the position, but should make way for any of the other fairly robust Teas and Noisettes as well as the vigorous, free-flowering, and strongly-scented Cheshunt Hybrid.

Tea Roses are also better adapted for clothing terrace walls than any of the Hybrid Perpetuals, and ought to be extensively planted in these usually sunny sheltered positions. Unfortunately, in many instances these are cut out of banks of poor, and it may be clayey soil, and the Roses, as previously pointed out, will not thrive in very poor ground, nor will they do well if the position is badly drained or very cold. These difficulties are not hard to surmount. Our plan, and which answers well, is to excavate the poor soil to a width of 2 feet and a foot in depth, replacing with fresh compost, raising this 6 inches or more, if circumstances permit, above the ordinary level. Last May we turned a number of comparatively worn out or much exhausted pot plants into borders made in the way just described, and the growth made and the flowers produced during the summer were really remarkable. This season they promise to do exceptionally well unless late frosts cripple the unusually early young shoots. In this case the compost added to the best of the surface soil consisted of equal parts of loam, leaf soil and charred garden rubbish, and the Roses revel in it. As a rule, no borders are permitted or liked against either house or terrace walls, but if smothered over with turf the Roses soon fail. Even this difficulty may be obviated to the satisfaction of all parties concerned. If, instead of relaying the turf after the Roses are planted, it is chopped up and buried under them, the border being raised somewhat and the surface clothed with common Ivy, this will be an improvement on the old style and suit the Roses very much better. Turf effectually excludes all warmth and air from the roots; whereas, both can and do penetrate a border thinly clad with Ivy, which does not prevent water being easily given during a dry, hot time. The Ivy must be prevented from taking possession of the walls, and should also be lightly thinned out occasionally. We have no difficulty in finding plenty of suitable Ivy on the place, but pot plants of this, and also Tea Roses, can be purchased and planted now or two months hence.

W. I.

Pruning Roses.—The high temperature that prevailed through the best part of the month of January has been hurtful to Roses generally. The result of the unseasonable growth of the plants is not difficult to tell. It is very evident that when the proper growing season arrives it will be weak. Hybrid Perpetuals are in no better condition than the Tea varieties, as on every hand they show a state of activity that no experienced observer likes to see. I know of no better plan than to go

over the plants with a pair of secateurs and cut off all the points of the shoots with about 2 inches of the old wood. This will have the effect of checking the unseasonable growth for a few days at least; it may even do so until a change to a lower temperature takes place. I have in years gone by resorted to the same plan of cutting off the young growth in mild winters, and I have found that I got a stronger growth from plants so dealt with than from those that were allowed to go on without any attention. I have further proved that in the case of a long spell of mild weather in the months of February and early March, that it is quite safe to go over the plants the second time in the way I have suggested, always taking care to leave three or four dormant buds above the point to which the shoots will be cut back at the proper season.—J. C. C.

HECKFIELD.

THOSE few friends of the late Mr. Wildsmith who found time or courage to walk across and look perhaps for the last time over the gardens which he for so many years had conducted with such skill could hardly have failed to realise the sense and fitness there was in the passing away of the gardener just when the gardens themselves were at rest. There is a striking contrast in the appearance all gardens present at midsummer and in midwinter. In the former case teeming with life and beauty; in the latter showing all the gloom incidental to transition, and under leaden skies an aspect almost funereal. Possibly through the absence of the man, who for so many years had been the very soul of the gardens, the mind was inclined to moralise because of the sad ceremony just shared in. For obvious reasons the terrace gardens were not visited. It needed a good deal of strength under the circumstances to look round at all, but to some, like myself and Mr. Molyneux, who walked over with me, the look round may have been the last for us, and esteem for the memory of one who had been so faithful a friend in life impelled the doing of what after all was so painful. The future of Heckfield yet hangs in an uncertain balance. To-day it remains as it has been; to-morrow it may have passed into other hands, and the world of horticulture may know of it very little more. It would be premature to aver that it may share the fate of so many other of our once fine and beautiful places, but it is too obvious that with many others its days as a grandly kept garden are fast passing away. It would seem as if a crowning mercy had been bestowed upon Mr. Wildsmith that he should have been taken before changes came which might have broken his heart. One notable memento, not, however, an enduring one, of the late gardener was found in the Grape room. In old days it was his boast, not an unbecoming one, that through the aid of this room he had Grapes at Heckfield all the year round. When we looked inside of it the other day there were hanging in it over 300 capital bunches of Lady Downe's, all as plump as if still hanging on the Vines. It was a large number to have stored at once, but the Vines showed so much activity this season, that there was no alternative but to cut them. This, Mr. Maxim, the foreman and prospective gardener, had done well, leaving plenty of wood attached, and without doubt many of these bunches will be plump some two or three months hence if kept. Mr. Wildsmith always had Lady Downe's in good condition fully four months after they were cut in January. Because of the changed conditions of the place there will this year be no very early forcing, and the earliest house of Vines was so moderately heated that the shoots were barely an inch broken. Still they were showing well. In one of the low houses, once so useful for experimental Grape culture, and where Vine growing by express seemed to be sometimes practised, the Vines have given place to Figs, which it would seem are far from being unprofitable to grow when well done and made to produce crops over a long season. Strawberry plants in pots were excellent, but none started early, whilst the low houses formerly devoted to Pines and Melons are just now full of dwarf French Beans in pots. Peach houses were being

slowly started, trees in the earliest house being in bloom. In another low span house the back border was filled with Eucharis in large pots doing finely, while the broader front border was filled with Gardenias planted out. I have never seen cleaner or better plants than these. This little house should prove valuable during the coming spring. Few things in the garden were more affectionately regarded by Mr. Wildsmith than the Pear trees of every kind. These were showing buds in profusion, some almost too early, for the scales had fallen and the buds were whitening into the blooming. The trees on the arches in the cross walks seemed almost earlier than did the numerous and admirable lot of single oblique cordons on the lower south wall. That wall should present a delightful spectacle during the coming season with Pears, should all go well. A quantity of young Apple trees of the best sorts had recently been planted in one of the kitchen garden quarters. The Cupressus hedges in the main garden, lovely in their density of foliage and pleasing growth, remain a monument to Mr. Wildsmith, and long may they be so. However, as all things must end, so does our final look round, and jointly we feel that with all the dead man's mannerisms or defects, we can hardly hope to look upon his like again.

"A FRIEND."

NEW CHRYSANTHEMUMS.

TO THE EDITOR OF THE GARDEN.

SIR,—During the present craze for Chrysanthemums, anything new, whether in name or otherwise, will certainly attract the eye of the enthusiast. I should like some information about three incurved varieties now being sent out, and which are John Lambert, John Doughty, and Mr. Robert Mudie. The first is said to be a sport from Lord Alcester, and the two latter sports from Queen of England and Alfred Salter respectively. I believe I am correct in saying that only one out of the three—John Doughty, has been honoured with a certificate. Mr. Molyneux writing in THE GARDEN, December 21, 1889 (p. 581), says that John Doughty is identical with a variety named Mr. Robert Mudie and was grown by him (Mr. Molyneux) during the season. In the same article Mr. Molyneux says that John Doughty is a sport from Queen of England, and Mr. R. Mudie a sport from Alfred Salter. In Messrs. H. Cannell and Sons' catalogue for 1890, both Mr. R. Mudie and John Doughty are described as being sports from the same parent, Queen of England. Mr. R. Mudie is known to have originated in Forfarshire, and is a sport from Lord Alcester, and not, as has been erroneously stated, from Alfred Salter or Queen of England. Did these supposed new varieties originate in the hands of one individual? If so, will he be good enough to give information in reference to their antecedents? A SCOTCH GARDENER.

Birds in gardens.—One of the busiest workers in my garden at the present time is the golden crested wren, who devotes herself principally to the Gooseberry bushes. I have often watched these little birds picking something that I could not see on the stems; probably the eggs of an insect. The black and blue-headed tomtits are also busy on the Apple trees. Some of your correspondents complain of the injury done to buds by the common house sparrow, but although there is a colony of them in my garden, I never could discover that they, the wrens, or tomtits ever touched fruit buds. Against bullfinches alone I wage a relentless war. A neighbour has killed seventeen of them in his kitchen garden this winter.—J. H. THOMAS, Belmont, Carlisle.

Sulphide of potassium.—Unfortunately, both this and pentasulphide of calcium, though most excellent remedies against mildew, which they eradicate or cure, are very injurious to paint—at least they disfigure it sadly if allowed to come in contact with it. Wherever either the sulphide of potassium or pentasulphide of calcium touches the paint it becomes tarnished and disfigured, and no amount of washing will remove the stains. To

avoid this evil of discoloration to houses, the only way is to remove the plants and syringe them while lying on their side, or dip them in the liquid in a large vessel, so as to effectually wet every part. We treat the whole of our Strawberry plants before taking them in to force in this way. In cases where plants cannot be carried out of the houses they are in and mildew attacks any, it will be found a good plan to syringe with water in which sulphur has been boiled, as that, if all the parts are wetted, destroys the pest, and leaves no marks on the woodwork.—S. D.

NOTES OF THE WEEK.

A pretty piece of planting on the rockery at Kew is *Scilla bifolia* and the spring Snowflake (*Leucojum vernum*). Both are now in bloom, and the nodding bells of the Snowflake are in charming contrast to the rich blue spikes of the Scilla. Those who have rockeries should repeat this arrangement.

Apple, Bramley's.—Mr. Webber showed us some very beautiful specimens of this Apple on Feb. 12. They were as large as good Blenheims, very highly coloured, firm, and handsome. Beyond all doubt it is an Apple we must look to for the future supplies. Get enough of it, and there would not be so much room for either French or American Apples. For general use the ordinary American or French Apple is decidedly inferior.

Arisæma speciosa is one of the best of this class of Aroids, and there is a fine group of it in perfection just now in the stove at Kew. It was introduced from the Himalayan forests in 1872, and has a beauty peculiarly its own. The hooded spathe, which has a reflexed tapering point, is coloured with glossy purple, cut into at the base by lines of silvery-white, while the spadix lengthens out into a reddish-purple tail about 20 inches in length, or even more.

A beautiful indoor Rhododendron is *R. præcox rubrum*, a charming soft mauve-lilac-coloured variety, now in full bloom in the greenhouse at Kew. The plants are large and smothered in flowers, which are in clusters of from three to six, and the twigs are without a leaf to tone down the colour. *R. præcox*, the type, is useful in the garden, where it blooms so early that the flowers are sometimes cut off by frost. A slight shelter will shield them from harm, and when under glass a very gentle forcing will soon bring them out.

Iris reticulata in pots.—There are some hardy bulbous flowers that we dislike in pots, and none more than the crowded masses of Crocuses that are exhibited at the London spring shows, but the netted Iris makes a dainty gem for the drawing-room or greenhouse. There are several potfuls of it in the Broxbourne Nursery of Messrs. Paul and Son, and no flower is more welcome than that of the richly coloured Violet-smelling *I. reticulata*. The bulbs are potted up in the autumn and given the protection of a frame, when the blooms appear at this season free from blemish that spoils the beauty of those exposed to storms of wind and rain.

Malformed Oranges.—By this day's parcel post I have sent for your inspection a few Oranges of peculiar growth. There were very few fruits out of some dozens that ripened on the tree that did not display protuberances of some shape or form, and the green or succession crop exhibits the same tendency.—WILLIAM LOW, Euston Gardens, Thetford.

Fruits of well-grown Oranges, but exhibiting interesting and curious malformations, taking the form of fantastic growths from the surface.—ED.

Narcissus minor.—I have sent a few blooms of *Narcissus minor*. With us, this and *N. minimus* are always the first to open. Our first lot of flowers was gathered on January 20. The bulbs are grown by the thousand in borders and as edgings to beds, &c. When planted in quantity and in places more or less sunny, they are most effective for five or six weeks. I wonder they are not more grown. With us they increase most rapidly.—J. MURTON, Truro, Cornwall.

Flowers of a charming early Daffodil, which might be more seen in gardens. In several places round London *N. minimus* was in bloom before the end of January.—ED.

Chinese Primulas.—We are reminded of the beauty of these winter flowers by a selection of blooms sent from Messrs. Veitch and Sons to show the steady improvement they have undergone. There are a

breadth, firmness, and richness of colouring in the flowers that place them amongst the best "strains" in the country. Swanley Giant, fimbriata rubra, Chelsea Scarlet, Double Rose, a charming thing, and The Queen are among the kinds sent, all of bright and telling colours.

Camellias in Notts.—I have a *Camellia* (Mathotiana, I believe) on an outside south wall here which grows and blooms freely and has done so now for six years or so; it is not of course actually in bloom yet, but the buds are swelling fast. I also have *Ficus repens* on the brickwork in front of a boathouse, where it has been for some years, and it thrives in spite of icicles hanging down over it every winter. The old leaves turn brown and are brushed off in spring when it begins to grow again. I have never seen this out of doors before in the midlands. —GEORGE FELLOWS, *Beeston Fields, Nottingham.*

Psychotria cyanococca is an interesting and ornamental plant when in full berry, as we may see it in the Royal Gardens, Kew. The berries are of the deepest purple-blue, about the size of small Peas, and produced from thirty upwards in dense drooping clusters which are in rich contrast to the deep green leaves. It was introduced from Nicaragua in 1870, and belongs to a genus that comprises about 500 species, for the most part unattractive. It was introduced with or about the same time as *P. chontalensis*, which is quite as ornamental as *cyanococca*. Those who wish to grow this plant should give it the same culture as the *Ixora*.

A new late Chrysanthemum.—At the recent meeting of the National Chrysanthemum Society a flower of a variety called Castle Hill was shown by Mr. Owen, of Maidenhead. Without discussing the question as to whether such things are wanted at the end of January, we may say that this Japanese variety has a very large flower, fully 7 inches across, the florets quilled throughout their length, with the outer ring spreading widely, but those in the centre curving inwards. The colour is yellow, with, as far as we could see in the gaslight, a shade of bronze in it. It deserves a note as much for its lateness as for any intrinsic worth, but another season may bring out qualities which do not now appear.

The weather in the west of Scotland.—Mr. Brown, of Arddarroch, in a letter to me, received on the 6th inst., says, "We have had scarcely any frost here this season. The silver-edged *Geranium Bijou* is as fresh outside almost as at any time during the past season, and hybrid *Rhododendrons* 8 feet high and nearly as much through are now in full bloom. At Christmas even, there was quite a show. It may seem incredible, but there they are, not a solitary specimen, but a dozen or more, literally a mass of flowers." This shows a mildness almost incredible, and one would scarcely need to go to the south of France when such a climate can be found within a few hours' ride of London.—W. H. G.

French gardeners in England.—A society of French gardeners in England was some time ago formed with the object of establishing cordial relations between the gardeners in France and their English brethren. The results obtained up to the present are highly satisfactory. Believing that many English gardeners are desirous of sending their sons to the Continent to learn the different modes of culture, &c., while we know that many French nurserymen and gardeners are equally desirous to send their sons to England, we decided at our last meeting to proceed by way of exchange. The society would thus undertake to place in France an English gardener provided someone would take in exchange a French gardener. The office of the society is at 27, Gerrard Street, Shaftesbury Avenue, where all communications should be addressed.—G. TRUFFAUT, *Secretary, Société Française d'Horticulture de Londres.*

The Mezereon at Kew.—Visitors to Kew Gardens at this season will find a delightful piece of outdoor gardening on either side of the walk leading from the Palm house to the river. Near the wire fence that divides the pleasure from the wild garden are two large beds on each side of the

walk, each containing thirty plants of the *Mezereon*, 2½ feet high, the majority in the fullest flower. This makes a welcome sight in February and tells of a returning love for old-fashioned favourites that have flowered unseen for years in cottage gardens. The *Mezereon* does well at Kew in the full sun, which brings out the rich colours of the flowers that wreath the leafless twigs.

Osoberry (*Nuttallia cerasiformis*).—This Californian shrub is represented at Kew by an immense spreading bush in the arboretum near the temperate house, and it is worth a note for its early flowering. It is now smothered with the drooping racemes of white flowers, which with a few days' warm sunshine and wind would fully expand in their full freshness and beauty. It may be likened to the Flowering Currant (*Ribes sanguineum*), that gives brilliant colour to the garden in spring, as the racemes of bloom are of the same character. The *Nuttallia* grows from 6 feet to 12 feet high and forms a thick rounded head, while any soil will suffice. It may be classed amongst the flowering trees that Conifers and Evergreens have ousted from the garden.

Astrapea Wallichii must be classed amongst the finest introductions to this country, and is in bloom now at Pendell Court, Bletchingley, while a superb specimen was recently in full beauty in the Palm house, Kew, near by the giant *Brownea grandiceps* now in flower. The *Astrapea* belongs to a genus of stove trees, and bears a number of brilliantly coloured carmine, drooping and crowded umbels of flowers that make an unusually bright picture when associated with foliage plants, as in the Palm house at Kew. It will grow 30 feet in height, the leaves large, deep green, cordate, and a noble relief to the splendid flowers. Madagascar has given us no finer stove flower, and although introduced about 1820, it has never become common, nor will it ever be, as it is only in large conservatories that the plant could be grown, where there is room for its rich spread of large foliage.

Cantua dependens is now in bloom in the greenhouse at Kew, and an excellent coloured plate of it appeared in THE GARDEN of Sept. 12, 1885, from a plant growing in the garden of Mr. Scrase-Dickins' garden at Coolhurst, Horsham. This *Cantua* seems to do best when trained to a pillar in the greenhouse or conservatory, and in this way it is grown at Kew, where there is a plant that has covered one of the pillars with its untidy and hairy growth. Plenty of air is essential, also water in summer, and an abundance of sunlight through the year. The soil that suits it best is sandy loam or a mixture of loam, peat, and sand, while the border must be thoroughly well drained. The flowers hang in graceful sprays, the colour bright carmine when fully expanded, but deep crimson in the bud. It would be a pleasure to find the *Cantuas* in all good gardens, as even the bright coloured *dependens* is a rarity, though well known by name.

Brockwell Park.—South London will shortly be enriched by a pleasure ground of 78 acres, and called Brockwell Park. It is placed near to Herne Hill. The general committee appointed in November, 1886, "to secure the purchase of the whole or part of Brockwell Park as an open space for the public for ever," held what will perhaps be their final meeting prior to the opening of the park on Sunday afternoon in St. Matthew's National Schools, Church Road, Brixton. Mr. T. Lynn Bristowe, M.P., presided, and explained the steps that had been taken by the executive committee to carry out the object for which they were appointed. The prospect of success was discouraging enough until March 17 last, when they had an offer of the property at £1500 an acre. With renewed vigour the committee set to work to find the purchase money. The London County Council was approached and they generously voted £61,000; then the Charity Commissioners, out of the city parochial charities, agreed to give £25,000. The Lambeth Vestry, being perhaps more interested in the matter than any other, as the park is situated in the parish of Lambeth, granted £20,000; the Camberwell Vestry, £6000; and

the Newington Vestry, £5000. There were other sums which brought the total up to £122,050. The liabilities, including £117,000 for the 78 acres at £1500 an acre, and £1106, being the charges incurred by the Raleigh Park Committee, an opposing scheme for which Parliamentary sanction had been obtained, but now abandoned, amounted to £121,720, leaving a balance of about £330 to meet contingencies which could not be estimated. The preliminary expenses, which had amounted to about £300, had been defrayed by members of committee and friends.

The greenhouse at Kew is never prettier than in the earlier months of the year, and at the present season it affords a good example of what can be done in the way of arrangement with forced bulbs, Freesias, and things of that character. There are splendid batches of Freesias, the graceful *Chorozema Chandleri elegans*, large bushes of *Azalea amena*, that give rich colour and exhibit a pleasant variety of shade; early *Rhododendrons*, as *R. Countess of Haddington*, *Epacris*, and forced shrubs, as *Prunus pissardi*, which makes a delightful flowering tree for indoors when brought on in gentle heat. Several climbers are now commencing to bloom freely, the yellow *Hibbertia dentata* amongst the number. Visitors to Kew should never miss the greenhouse, which is full of flower at all seasons, but has a distinctive charm from February until early summer. There are many happy pieces of colour-blending that gardeners and others might repeat with advantage at home.

The Wych Hazels (*Hamamelis*) are a class of trees whose beauty is of a quiet kind, and the flowers appear in the depth of winter when they have a peculiar interest, as then there are few things in bloom. One species should have a place in all good gardens, and this is the Japanese *H. arborea*, which was recently in full beauty in the Royal Gardens, Kew, in the arboretum near the temperate house. The tree is about 6 feet high, and does not usually grow more than a few feet taller in this country. It is quite hardy, not particular as to soil, but must have a sunny open position. The tree at Kew has been in bloom some time, as even before January is out the leafless branches are hidden with the flowers, which have twisted golden yellow petals and small dull purple-rose sepals that intensify the richness of the petals. In an ordinary garden *H. arborea* will be quite sufficient, but *H. japonica* is also a Japanese species that should not be passed over. It is more spreading and dwarfer than *arborea*, and a plant of it at Kew in the same bed as *arborea* is now in bloom. It is just as free, but the flowers are of a brighter yellow. As with *arborea*, it will thrive in any soil, but loves the sun.

The Lenten Roses, which will, however, this season scarcely fulfil their right to such a name, were finely in flower the other day in Messrs. Barr and Son's nursery at Long Ditton, where there is a rich series of species and varieties. For the past three or four years *Hellebores* have risen in favour, and each season sees the spread in cultivation of such types as *H. orientalis*, *colchicus*, and *abchasicus*. There are a delightful variety of colours, a richness of growth, and great beauty in the many forms of these that are inexpressibly charming. Every good garden should have besides its Christmas Roses, varieties of *Helleborus orientalis* and others which stand severe frost, giving interest to the garden when the Crocuses, Snowdrops, and early Daffodils are expanding to the warmth of a winter sun. *H. orientalis* is the commonest kind, and very beautiful with its sturdy stems of green and white flowers, but there are various colours, as rose, and in the seedlings at Long Ditton there is a remarkable diversity of colouring. One fine variety was pure white, with the lower half of the segments on the outside boldly blotched with lake-crimson—a charming thing, as delightful in its colours as the spotted form of *Odontoglossum Alexandræ*. The finest of the red varieties is the beautiful *colchicus*, the leaves very dark green and the flowers purple of an intense depth and shade. They droop gracefully and in this way are shielded from heavy rains. *H. abchasicus* and *H. guttatus* are also very richly coloured types.

STOVE AND GREENHOUSE.

THE COBRA PLANT.

(DARLINGTONIA CALIFORNICA.)

THERE is an old saying that "you should never prophesy unless you know," but I think I may fairly assume that there are but few, if any, plants of this great Californian Fly-trap that could be compared with the specimen we now illustrate. It has been grown to its present dimensions during the last twelve years by Mr. Duncan Welsh, the well-known gardener at Mount Merrion, near Dublin, and is in the most perfect health and vigour. The tallest

develop its foliage to the above dimensions. On the approach of cold weather and throughout the winter months the plant has occupied a less shaded and more airy position in ainery. An example of excellent leaf development I believe this specimen is quite unique, and it may serve as an illustration of the many noble examples of plant culture not unfrequently found in quarters where they might naturally least be expected to exist. If any of the readers of THE GARDEN should happen to know of a specimen surpassing the one now illustrated, it would be interesting to hear of it and of the conditions under which it has been cultivated.

posed to full sunshine. Naturally this interesting plant is wild at considerable elevations on the Californian Mountains (Sierra Nevada), where severe frosts in autumn and deep snows in winter are the rule. It grows in boggy spots amongst Grasses, Sedges, and Mosses, and the largest pitchers are said to rarely exceed 30 inches in height. I remember someone having told me that the yellowish-tinted dome-like tops of the smaller pitchers looked like Jargonelle Pears set in clusters on end among the herbage and Sphagnum. The plant has been used occasionally by the settlers as a domestic fly-trap.

The flowers of the *Darlingtonia* bear some resemblance to those of *Sarracenia*, but they have narrower segments and a smaller peltate stigma. It has borne seed at Glasnevin and elsewhere, but all attempts to obtain hybrids between these two genera appear to have failed. The plant is figured in the *Botanical Magazine*, t. 5920, and is said to have been introduced to English gardens in 1861.

A new *Darlingtonia* is mentioned in THE GARDEN, Vol. XV., p. 156, as having been found in the Black Hawk Creek, in Sierra County, and a coloured plate of this supposed novelty appeared in the *Californian Horticulturist* for January, 1879. The flowers of this variety are said to have averaged 40 inches in height of the scape. Although this form is said to differ from the type, it never appears to have found its way to our gardens. This supposed novelty might be worth looking after should an opportunity occur.

F. W. BURBIDGE.



Darlingtonia californica. Engraved for THE GARDEN from a photograph sent by F. W. Burbidge.

pitcher leaf is 3 feet 9 inches in height, and the pan in which it is growing measures 12 inches wide by 8 inches deep. The divaricate leaflets at the orifice of the largest pitchers are 8 inches or 9 inches apart at their tips, and of a lurid red or crimson colour. The photograph kindly made by Mr. Greenwood Pim does not, however, represent all the growth of the twelve years it has been at Mount Merrion, as several smaller plants have been taken off it from time to time.

It is growing in a compost of fibrous peat, corks, and living Sphagnum Moss, and during the warm months of summer has occupied a close and small lean-to house with a somewhat northern aspect. This position evidently suits it admirably, watering and a daily moistening with a syringe having been found sufficient to

As is well known, the first really successful culture of this plant was that at Glasnevin, where in 1875 a pitcher 3 feet high was produced, and it was as a valued gift from the late Dr. Moore that Mr. Welsh obtained the plant to which we have just referred. The plant has proved capable of withstanding an ordinary winter in the open air at York; also, we believe, at Glasnevin and at Newry, in Ireland, but the largest pitchers can never be obtained as so grown. Yet the pitchers as borne by this plant in the open air are stout, and if short, they are very highly coloured; but if its open-air culture, as several times suggested in early volumes of THE GARDEN, be attempted, shelter from rough and dry winds is most essential, and the plant, growing in peat and Sphagnum so that its roots may reach the water below, must be ex-

Acacia ovata.—This is a pretty *Acacia* with somewhat small leaves and globose bright yellow flowers, which are very fragrant. It is now excellent in Messrs. Low & Sons' nursery, and I was assured that it is very elegant when grafted upon *A. armata*, the semi-pendent habit then showing to great advantage. Readers may try this experiment, and if the plants are not liked, they may be cut down again and the stock will again break and make a strong plant.—W. H. G.

Epacris hyacinthiflora fulgens.—This is a magnificent variety, originally raised in Tooting, and sent out by the Messrs. Rollisson and Sons. It was recently very fine in Messrs. Laing and Sons' nursery. I would advise all readers of THE GARDEN to invest in this variety. It should be cut hard back, and the old stems should not be left long and straggling. Amateurs are too apt to do this, and the plants soon become an eyesore. The plants should be cut back to within a short distance of where they were last pruned to, and placed in a warmer situation to induce them to break, after which the plants may be shaken out and repotted.—W. H. G.

Habrothamnus Newelli.—This is a great improvement on the old *Habrothamnus elegans*, not being of such coarse habit, while the flowers are more freely produced and of a brighter red colour. We have two plants in the conservatory where they have plenty of head-room and a fairly large border to root in. At the present time they are flowering grandly and will continue to do so for several months. The long branching stems are merely kept loosely suspended to the pillars and archways over which the plants are trained, thinning out being occasionally resorted to. As we cut the flowers freely this also serves to keep up a succession of bloom. When the clusters of bloom have been fully developed for some time, they are apt to fall soon after they are cut, but they are fairly serviceable if cut before their freshness is past. They are best adapted for hanging over the sides of vases, and if it is desirable that some should be erect, the stems must be wired. This plant will grow in almost any kind of soil, but it must not be too rich at the outset or the growth will be rank, firmer, better-ripened shoots branching and flower-

ing the most freely. If the roots are confined to large pots or tubs, frequent rich top-dressings and liberal supplies of liquid manure must be given or the plants soon become stunted and unsightly rather than ornamental. A coloured plate of this appeared in THE GARDEN, August 4, 1888 (p. 106).—I. M. H.

GRAFTING CAMELLIAS.

CAMELLIA flowers are in small demand. Even the favourite old double white variety, without which a bouquet used to be looked upon as incomplete, has to give place to flowers of lighter appearance and less formal shape. Yet, apart from what might be the fashion for the time being, the Camellia is one of the best greenhouse shrubs that has ever been introduced. Not the least of the merits which the best varieties possess is their freedom of growth and the ease with which the plants may be kept for an unlimited time in a healthy thriving condition. In common with a good many other plants, the simple beauty of the semi-double sorts, such as Donckelaari and ochroleuca, is by many preferred to that of the double varieties. Unlike many hard-wooded greenhouse plants, Camellias that have got scraggy and thin of foliage can, with suitable treatment, be renewed and got into full vigour. Those who have had much experience in the cultivation of Camellias will not require to be told that they bear cutting close in, or even heading down. Some of the best and most densely furnished specimens I have met with have been headed down. In the case of inferior sorts, or where another variety would be preferable, the headed-back plants may be grafted with the kinds wanted, and if the specimens are strong and in fair condition at the roots, large handsome examples can be had by this means in little more than half the time it takes to grow young stock up to a similar size. The present is the right time to prepare for grafting. It is necessary to head the plants down some weeks before the sap begins to rise, otherwise they will bleed to an extent that will weaken them much and prevent the grafts taking. The plants to be grafted should be headed back about 6 inches above the point where they were originally grafted. At the time the heads are removed the soil should be in a medium condition as regards moisture; if too wet the roots may suffer, and if the opposite, it would necessitate water being given sooner after the heading down than it is good to give it. I have found the ordinary cleft system of grafting the best for plants treated in this way. With stems that are from 2 inches to 2½ inches in diameter, four or six scions may be put in each. Little in the shape of ligatures will be required to hold the scions in their places, a piece of bast wound round the whole being sufficient; finish the work with ordinary grafting clay applied in the usual way. A dash with the syringe occasionally will keep it from cracking until the union has taken place. An intermediate temperature will help the scions to take; after growth begins the progress is rapid, so that stopping once or twice during the summer will most likely be necessary. Through the first summer after the operation is effected it is necessary to water carefully. If the soil is made too wet, the extremities of the roots are in danger of suffering; at the same time the opposite extreme of allowing the ball to get too dry must be avoided. Grafting should be done when the buds of the scions have begun to swell a little; if deferred until much progress in this direction is made the leading buds often perish, this causing delay in the union taking place, with the result of less growth being made in the summer. It takes less time to obtain good sized specimens by this method of grafting than by inarching small plants on the stems a season before the old heads are removed in the way that is sometimes done, as when once the grafts begin to grow they move at a rate that outstrips inarched plants. Camellias that have got into the state described and are to have their heads renewed, but not re-grafted, require to be cut down in the same way before the sap begins to rise. If the roots are

healthy the stools break freely; and though there are no eyes perceptible, they nevertheless exist in a latent state at the points where there have been leaves. T. B.

LASIANDRA MACRANTHA.

I HAVE used the old-fashioned name for this plant, though it is now known as *Pleroma macrantha*. My object in calling attention to this free-blooming, easily-grown plant is that it is so seldom seen in any quantity or in good condition. It is often grown in too much heat and becomes drawn and weakly and does not bloom freely. To do this plant justice, now is the time to commence getting stock. I never use old specimens after I have obtained sufficient cuttings for the following season. No doubt old plants are best if required for covering a bare wall or for running up pillars where a long length of stem is required, but for early winter and autumn decoration I prefer one-year-old plants grown on quickly. For large houses a few old plants may be desirable, but I have always found it best to discard them as soon as ever they get naked at the bottom or in any way unhealthy, as young plants are much the best. Cuttings should be secured as early as possible in the year, and placed in small pots in a compost of peat and loam. Plenty of peat and coarse silver sand should be used for *Lasiandras* in their early stages. As soon as the cuttings are struck they may be potted off singly and placed in a little bottom-heat in a warm house or pit, and grown on quickly, shifting into an intermediate house as soon as the plants have made a strong growth, repotting finally into 6-inch or 7-inch pots, using a larger quantity of loam in the last two shifts. As the pots get full of roots the plants should be transferred to cold frames, giving air carefully at first and watering sparingly. During the summer the lights may be left off the frame during the day, leaving plenty of air on at night. Abundance of moisture should be given, and the plants liberally fed with a good fertiliser or weak liquid manure. By this treatment short bushy plants 1 foot to 2 feet high will be secured and well set with bloom by the early autumn, when they should be removed to a warm greenhouse or intermediate house. The large violet-purple blooms are most telling in a collection of plants. This *Lasiandra* is not so subject to insect pests as are many things; this, therefore, is a point in its favour. The plants, as soon as their blooming season is over, should for a time be kept rather drier at the roots and not placed in too much heat, as I find this produces weakly cuttings. They should then be cut back, and in a short time an abundance of cuttings will be produced. It is of the greatest importance to keep the plants near the light during their growth to prevent their becoming drawn. If kept close to the light the colour of the blooms will be much improved and more lasting. For decorative work specimens when in flower are most useful and effective.

Syon House.

GEORGE WYTHES.

Psychotria cyanococca.—It is twenty years ago since this was introduced from Nicaragua, but it is even now quite a rare plant, though the dense clusters of intensely bright indigo-blue berries give it a characteristic appearance, especially at this season of the year. It is rather a soft-growing shrub, with light green leaves, each about 4 inches or 5 inches long, and crisped at the edges. The flowers are small and inconspicuous, but this is atoned for by the beauty of the berries, which retain their freshness for a considerable time. Plants may be easily raised from seeds, or cuttings strike readily enough, and will grow away freely in any ordinary potting compost. A second species, *P. chontalensis*, was introduced at the same time as the preceding, but I have not seen it for some years. This was altogether a more robust plant than *P. cyanococca*, but like it the berries were the chief feature of interest. Quite unlike the two previously mentioned is *P. jasminiflora*, which is a most beautiful flowering shrub, that blooms at different times, but more particularly during the winter and early spring months. It forms a neat growing

evergreen bush, while the flowers, which are borne in clusters, greatly resemble those of a very pure white *Bouvardia*. It is also known under the name of *Gloneria jasminiflora*. This species of *Psychotria* is of much harder texture and less free-growing than the others, but it is a beautiful shrub that well repays a little extra care and attention. All the above-mentioned require the temperature of a stove.—H. P.

Impatiens Hawkeri.—We generally hear this spoken of as being difficult to grow. We have in our stove at present the largest plant I have yet seen of this *Balsam*. It is growing in a 10-inch pot and is 4 feet through and 2 feet high. It is covered with blooms, which I have counted several times, there being between sixty and seventy each time. I should be glad to hear if a larger specimen has been seen. I attribute my success to the mode of treatment the plant has received. The cutting was struck in a 3-inch pot in the autumn, and placed as soon as well rooted into the pot it is now in, getting as much of the stem below the soil as possible, thus allowing it to make plenty of roots. The soil was very light, consisting of half coarse leaf mould and half good, rough, turfy loam. It is growing in a strong heat and is covered with blooms.—R. SMITH, *Pusdalls, Ware*.

Mimulus moschatus ruber.—This dwarf Musk, as observed by your correspondent in THE GARDEN, Feb. 1 (p. 98), is very free-flowering, and the blossoms are quite distinct in colour from those of any of the others. I venture to suggest that the reason it has never been grown for market is that the colour, a kind of reddish buff, distinct though it be from that of other Musks, is not decided enough in hue to compete with many other subjects that are largely cultivated by the market growers. This same process of selection can be observed in the case of all classes of plants grown for market; for instance, among *Pelargoniums* the best price is obtained for those of bright and decided colours, and in the case of Camellias and Carnations the same remarks apply. Of these last two there is really little demand for striped and parti-coloured flowers. While pointing out the probable reason that this Musk is not grown for market, I may say that it is a great favourite of mine, as it flowers so continuously and remains dwarf.—H. P.

Staphylea colchica forced.—This member of the Bladder-nut family is one of the easiest of all hardy shrubs to force into bloom, and when in this stage it is not only very beautiful, but quite distinct from all other shrubs employed for the same purpose. *S. colchica* bears its blossoms in large drooping panicles, the flowers being white and most agreeably scented. Against the pure white flowers the yellow anthers stand out very conspicuously. The pale tender green of the unfolding leaves forms another pleasing feature at the same time as the blossoms. As far as my experience extends, it flowers best when grown altogether in pots, the plants after flowering being pruned back to a good plump bud, and after making their growth in a gentle heat they are then plunged out of doors. Propagation of this *Staphylea* is usually carried out by means of layers which is a somewhat slow process, and the plants do not grow very quickly afterwards, but I recently saw a number of specimens from the Continent that had been budded close to the ground, and had made very strong clean growth. The stock employed was, I think, the common Bladder-nut (*Staphylea pinnata*).—T.

Amaryllis aulica.—This fine old-fashioned plant, long cast aside for newer things, is not so scarce as a few years ago when it was only possible to find it in botanic gardens. Several flowering specimens were shown at the January meeting of the Royal Horticultural Society, and it is in bloom now in a stove at Kew, where its rich scarlet flowers, veined with a deep red shade, give welcome colour in the winter months. The leaves precede the flowers, which are carried two together on a strong scape about 2 feet in height. There is more than one variety, the finest being that called *robusta* or *superba*, a strong grower and handsome indoor plant. It would be well if hybridists were to try

and infuse some of the vigour and strength of colour of *A. (Hippeastrum) aulica* into the autumn-flowering kinds represented by *H. reticulatum*. *A. aulica* was introduced in 1819 from Rio de Janeiro.

LAPAGERIA PROPAGATION.

WHILST *Lapagerias* were scarce they were mostly increased from cuttings. There was often a reluctance to adopt the layering system of propagation, as it entailed the sacrifice of the best and strongest shoots which the plants produced. It may be well to say that the manner in which *Lapagerias* behave when layered is so different from the majority of other plants, that the process requires to be different. With ordinary plants the usual course is to tongue the shoots at the part which is secured under the soil to help the formation of roots at that point, the future plant being formed by the continued extension of the shoot above the point of layering. The difference in the character of the growth of *Lapagerias* from that of most plants prevents extension in this way. With *Lapagerias* the principal efforts of the plants are directed to the production of shoots that spring up annually from the base, and these make comparatively little further progress in after years; hence the inability to obtain plants through the continuance of the growth of the layered shoots. It is the buds on the layered shoots that form the future plants.

The process of development that the buds of *Lapagerias* undergo when layered differs from that of all other plants with which I am acquainted, except one or two. In a short time after being layered they swell out and thicken greatly; then before they form shoots, roots are produced at the base and make some progress in the soil, after which the shoots are formed and appear above the surface. It is only the strong stems that should be layered, and of the buds on these only a portion grow, the larger number remaining dormant.

Layering may be done at any time from when the wood is fully matured in autumn until a little before the plants begin to grow in spring; but it is better not to defer the work too long, or it will interfere with the progress that should be made during the following summer. In private gardens only a few plants are likely to be wanted with the object of increasing the number of specimens grown, or of replacing any that may show signs of getting worn out. When any plants show signs of this, it is well to prepare others to take their place. These should be coming on for some time before they are wanted, as it is better to keep them in pots until they have attained considerable strength. When planted out whilst small, *Lapagerias* often either fail altogether, or make little progress for several years. This is attributable to two causes—the insufficient amount of roots which small plants have not enabling them to occupy the soil of the bed in which they are planted before it gets sour and unsuitable for them; and in some cases where the plants are turned out far from the glass whilst small their heads get so little light that they fail to grow. Plants that have been kept in pots until they have got several shoots 6 feet or 8 feet high before being planted do not suffer in the ways named. Those who propagate *Lapagerias* with the object of raising a limited number of plants are not likely to injure the specimens they layer from in the manner that has been sometimes done when whole plants have been layered. I know a case where several strong, large specimens of both the white and red varieties were layered to produce stock for sale, and the mistake was made of layering the whole of the shoots. The plants so treated seemed not to be affected the first year by the operation, as they produced many hundreds of stout young ones, a large portion of which made shoots 8 feet or 10 feet high before the middle of summer, and they likewise pushed up a number of strong growths from the collar. The stock produced by the layers was in due course taken off and potted, and when the winter again came round all the shoots that the plants had made from the base were in turn layered, and produced a fair lot of young stock. This season only a few of the independent growths came up. These were

layered at the end of the year and gave a few plants, but the specimens died before the end of this their third time of layering. If a portion of the shoots, say one-half, had been layered each year, leaving the others in their natural erect position, these would have preserved the needful balance between the roots and the top-growth; whereas the repeated layering of all the shoots ended in the destruction of the plant.

Where as large a number of young plants as can be obtained are wanted, most of the bed in which the specimens to be layered from are growing is covered with new soil and the shoots layered evenly in it. But where only a limited quantity is required a narrow strip on one side of the bed will be sufficient. It may be about 12 inches wide by some 4 inches in depth, and long enough to take the shoots that are to be layered straight out.

The soil used should be peat of medium texture, containing a fair amount of fibrous matter. It should be broken quite fine and have sufficient sand added to keep it moderately open. In layering all that is necessary is to peg the shoots down in the soil, covering the stems so that about one-half of each leaf is left above the surface. Press the soil firmly down to make it come in close contact with the covered shoots. In the winter it must be kept moderately moist. When the young shoots make their appearance, each will require to have a stick inserted in the soil to support it. To these the shoots must be kept regularly trained as they extend. When the young growth has made some progress more water may be given.

In the summer, when the greater portion of the season's growth has been made, the shoots with their roots attached must be taken off and potted. They must be severed from the old stems carefully and equal care is necessary in potting them. Do not use pots too large in size. Drain well, and use soil of a like description to that in which the layering was done. The young stock should be taken off and potted whilst there is still some growth to be made, otherwise if the work is deferred until the season is too far advanced, the roots will not make any progress in the new soil, and will be liable to suffer during the winter. Nothing further is required afterwards, but to give additional pot room as wanted until the plants are turned out in the beds or borders where they are to remain. T. B.

Correa bicolor.—This, although not a very gay coloured flower, is nevertheless very showy, and it well deserves preservation on account of its early flowering. It is, moreover, very leafy, which is very different to some of those with more brilliant flowers, for instance, *C. cardinalis*. This is, perhaps, the most showy species in the genus, yet it almost always presents a miserable appearance from being destitute of leafage, but *C. bicolor* is more robust, grows well, and flowers abundantly. It has been very fine in Messrs. Laing's establishment.—W. G.

Ficus elastica albo-variegata.—This was first brought into notice about seven or eight years ago, yet it does not appear to have attracted much notice until quite recently. It is, however, a plant deserving of extensive cultivation. Although not quite so hardy as the well-known India-rubber plant, it will stand better than most variegated foliage plants, and should find a place in every collection. To have plants of a useful size for table and other purposes, they should be propagated annually. Early in the spring, while the plants are dormant, is the best time for propagating. The tops may be taken off with about three leaves. A little dry sand should be applied both to the cuttings and the plant to stop the milky sap from flowing. The cuttings should be put in singly into small pots, using sandy loam and a little extra sand at the base. The pots should be plunged in the stove propagating pit, and if kept fairly moist, with a good, brisk bottom-heat, the cuttings will soon root. Where it is desirable to make the most of the stock, plants may be established from eyes. These should not be taken off until the wood bud has started, and the leaf must be preserved. As

soon as they are well rooted the plants should be potted on, using good loam, with a little leaf mould and manure added. During the early part of the season the plants may be grown on in heat, but later on they should be well exposed in a greenhouse temperature, where they will make short-jointed growths and the variegation will be more distinct. They must not be subjected to a low temperature towards the autumn when the weather is cold and damp, or the white parts of the leaves will change to a rusty brown. Too much moisture at the root or on the foliage will also cause discoloration.—F. H.

USEFUL PLANTS FROM SEED.

ARUM LILIES.—It is not generally known how very easy it is to get up a stock of the *Arum Lily* (*Richardia aethiopica*) from seed. Last spring I wanted to raise a large stock of this plant, and to purchase young stock to grow on would cost a considerable sum of money. Seeds were cheaper, and so I decided to raise my stock in this way. It is quite practicable to sow now in heat and have plants strong enough to flower next winter. The seeds soon germinate in heat; whether plunged in a hotbed or not does not signify much, provided there is a temperature of 65° to 70°. As soon as the seedlings are large enough to handle prick them off into boxes or pans filled with light rich soil. About an inch apart will be a suitable distance for the young seedlings at first, and when they require more space, either put them singly in pots, which is the plan I adopted, or harden them off, and early in June plant in the open air in a bed of rich soil with its surface sunk a little below the natural level for the convenience of watering. The kind of bed that is commonly preferred for Celery, where the bed system of planting is adopted, will suit them very well. The plants should be lifted in September and potted into sizes that will hold them comfortably. Six-inch pots will in most cases be suitable for seedlings at the end of the summer, though if well attended to, a few plants may require pots a size larger. Those grown in pots will require shifting into a larger size as the season advances. A coal-ash bed in a sunny position will be the best place for them until it is time to place them under cover in October.

ARALIA SIEBOLDI.—Every good seed of this will grow if sown now in heat. The seeds ripen in a warmer climate than ours, and are best sown as soon as they are received. This is one of the best plants for a cold greenhouse or conservatory. *Aralias* are always valuable for decoration. Seedlings, say, six months old and in 3-inch pots may be turned to a useful purpose in filling small vases in the room mixed with small Ferns to meet a prevailing fashion. The variegated variety cannot, of course, be obtained true from seeds, but root cuttings obtained from large old plants will strike readily. Both this and the stronger-growing species, *Aralia papyrifera* (Rice-paper Plant), are difficult to obtain from cuttings in the ordinary way, because the plants make so few; but get hold of an old plant with thick fleshy roots and a stock may be raised quickly. The roots should be made into cuttings about an inch or a little longer and dibbled into pots filled firmly with sandy peat, the tops of the cuttings being just level with the sand on the top of the soil, and the pots be then plunged in a propagating bed and kept close till new roots and buds are formed.

DRACENAS AND YUCCAS may easily be raised from seed under similar conditions to those named above. Seeds of *Rochea falcata*, a pretty greenhouse succulent, will soon germinate if obtained as soon as ripe, but being very minute, their vitality soon disappears if kept long in the packets. The same may be said of *Ficus elastica*, which may be raised from seed if the seeds are new and good and started in a strong heat. *Grevillea robusta*, *Isolepis gracilis*, a pretty little Grass, *Cyperus alternifolius*, and the broad-leaved variety, which is even more effective, may be easily raised from seeds and grown to a useful size in $\frac{1}{2}$ -inch pots in one season. E. H.

Aphelandra aurantiaca.—A group of this beautiful indoor flower in the Royal Gardens, Kew,

reminds us of a class of plants that has suffered, in common with many other good stove things, from the increased culture of Orchids. The orange-scarlet spikes of flowers are of intense depth of brilliancy, made more striking when associated with Ferns and foliage plants. The culture of *Aphelandras* was fully described in THE GARDEN of Feb. 1 (p. 110).

FLOWERING PLANTS FOR A COLD HOUSE.

THERE are two plants that at this season of the year light up my cold house with a pleasant glow of floral life, viz., the pure white form of *Cydonia japonica* and *Saxifraga ligulata*. My form of the white *Cydonia* is that introduced a few years ago by Messrs. Veitch & Sons under the name, I think, of *virginialis*; the flowers, unlike those of the old type, which are creamy white, are pure white, of fine form, freely produced, and they remain fresh on the tree for several days. The plant is in a good-sized pot, and it is an occupant of the cold house only during the depth of winter and while it is in flower, then it goes out of doors for the summer and autumn. I find that when kept long indoors the leaves soon drop, so it has a great deal of exposure in the autumn. In the case of a cold house one's chances of having much bloom during the winter are small, but the three varieties of *Cydonia japonica*, the ordinary type and the two white forms, are very useful indeed for the purpose and easily grown. My white variety is in a good-sized pot, the compost a good yellow loam, and during the summer it has a mulching of manure. I keep the plant of a compact habit by shortening back the longest shoots in autumn.

I daresay that to some *Saxifraga ligulata* appears a common border plant hardly worthy of notice. It flowers very early in the open, but the weather frequently damages the precocious blossoms. Good well-established clumps in large-sized pots will always flower very early. I have some fine spikes of bloom now, and much finer and more delicate in tone than in the open. I have several specimens in pots; they are well established, bloom profusely, and are decidedly charming at the end of January and during February. In common with the *Cydonia*, the plants go out into the open as soon as possible in the spring, and come in very useful for ornamenting the forecourt garden. They are mulched during the summer and kept well watered, and in autumn the flowering shoots swell up to a large size.

Roman Hyacinths are well in bloom, assisted only by such sun-heat as can warm the atmosphere. They flower freely and give something to eat from. Clumps of *Helleborus niger angustifolius*, a pure white variety, under glass are most welcome. Strong plants afford a useful lot of bloom, and a few flowers at this season of the year are always of great value. Hepaticas in pots are also in flower; the single red and single blue are delightfully bright and pleasant. Auriculas in the sunniest part of the house are throwing up trusses of bloom, but they come on very slowly indeed. *Prunus Pissardi* will soon expand its flower-buds, and *Primula obconica* has never been without flowers since April last. What a very useful plant it is; and if it has the bad characteristics imputed to it, it is yet constant in flower and free-blooming. R. D.

Æchmea glomerata is a conspicuous plant now in the Victoria Regia house at Kew, where there is a strong specimen bearing a tall flower-stem that keeps in beauty for a considerable period. The ligulate leaves are deep green, nearly 2 feet in length, and somewhat spiny at the margin; the flower-stem rises to about 3 feet in height, with blue petals that, however, scarcely protrude from the dense mass of rich red bracts that give the plant its peculiar and striking beauty. We lose much in England by not giving more care to the Bromeliads, which, as shown by the collection at Kew, not only have distinct and singular characteristics, but the pendent spikes of brightly coloured flowers and bracts have a warmth and effect few of the commonly cultivated stove plants could give.

Continental gardeners know well the value of Bromeliads, and cultivate them with that attention and skill they thoroughly merit.

KITCHEN GARDEN.

EARLY VEGETABLES.

ACCORDING to my experience, the owners of small, or comparatively small, gardens are not nearly so well supplied with early vegetables as they might well be. In some instances they have themselves to blame, in that they are somewhat niggardly with regard to providing a few frames, rough or otherwise, and not unfrequently they saddle the gardener with very much work that ought not to fall to his lot, the consequence being his inability to do much that he would like to do. In other cases the gardener does not make the most of his opportunities, paying more attention, it may be, to the production of flowers at the expense of the dining-table. Occasionally instances are to be met with where the principal attempt to grow a few early vegetables consists in the cultivation of either a few Peas, Potatoes, or Kidney Beans in pots, a front shelf or the sunniest part of a border in a vinery or Peach house being given up to these. Undoubtedly early dishes of each and all of these vegetables are fully appreciated by those to whose lot it falls to taste them; but, as a rule, the satisfaction is but short-lived unless a fairly regular supply can be maintained. Instead of wasting time, labour, and space on these puny attempts at forcing, it would be far better in many cases were more pains taken in forwarding more serviceable crops in the open. Much may be done without the aid of either hotbeds or frames, and still more with. Well-made garden frames and glazed lights are, I am well aware, somewhat expensive, but these may well be supplemented with cheap, roughly home-made frames, such as any fairly ingenious gardener or labourer could construct, and if of much the same dimensions as the lights belonging to the other frames so much the better, as in this case they can have the glass covering for a time or till a good start has been made, rough protection being subsequently afforded.

With the aid of frames, glazed or otherwise, and slight hotbeds, good crops of Potatoes, Carrots, Radishes, Lettuce, Mustard and Cress, and Kidney Beans can be had at least a month in advance of anything obtained from the most sunny borders, the quality in every instance being also superior. Asparagus, Rhubarb, and Seakale, when roots of either or all of these can be spared, also can be forced readily in rough frames and with very much less trouble than in the open ground. At the present time a good heap of heating material, nothing being better than leaves and stable manure, ought to be collected, and this having been turned two or three times ought to be sufficiently sweetened and moderated for making into hotbeds. A great depth of heating material is not wanted in any case at this comparatively late date, and if the bed is made 12 inches wider all round than the frames to be set on it, 30 inches deep at the back, and 2 feet at the front, this ought to be ample. It should be firmly put together, and if screened from cold winds the temperature will not fluctuate greatly. Another heap ought also to be collected, this time of light soil, such as the siftings from the accumulations in the potting shed, old Cucumber, Melon, and Vegetable Marrow bed surfacing, and, in fact, any kind of sandy mixture, to all which leaf soil may always be freely added with advantage. A two-light frame may

well be devoted to Carrots, and for these 8 inches of soil raised up to the light with manure underneath is sufficient. Sow one of the stump-rooted or Horn Carrots thinly in shallow drills drawn 8 inches apart, and midway between these form other drills for early Radishes, either Wood's Frame, French Breakfast, or any of the newer forcing varieties being suitable. If the soil is at all dry, it is advisable to moisten the drills just prior to sowing the seed, the latter being lightly covered with soil. Should glazed lights be available, use these as long as they can be spared, any rough kind of protection during cold nights answering nearly as well later on. Failing lights at the outset, cover with mats, old carpets, or thatched hurdles day and night till the plants appear, after which the coverings must be left on during very frosty days and in the night-time only. The Radishes if not crowded will be ready for use long before the Carrots, and their early removal will greatly benefit the latter. Numerous excellent dishes can be drawn from these small beds, quickly-grown young Carrots being most delicious. The supply will last till the earliest crops on a warm border are ready for use.

A larger hotbed, or one capable of holding one large rough frame or two three-light frames, would not be too much for Potatoes, though several good dishes can be had from a two-light, or rather larger frame or pit. Many years ago I found it necessary to adopt various makeshift methods of forwarding vegetables, and found a long, rough, permanently fixed frame, with canvas-covered shutters in lieu of glazed lights, of the greatest service for early Potatoes. This was 30 inches deep at the back and 2 feet at the front, and 6 inches of soil being excavated, we were enabled to form a fairly good hotbed inside, a depth of about 9 inches of light soil being placed on the top of this. The Potatoes were planted towards the end of February or early in March, and with the aid of the bottom-heat and top coverings by night, or whenever the weather was frosty, excellent early crops resulted. Whether glazed lights are used or not the cultural details are much the same at first. A good early form of Ashleaf, or quick-growing short-topped variety, notably Victor, are most suitable for forcing, the sets being well sprouted prior to planting. Drills should be opened about 15 inches apart, and not less than 5 inches deep, the soil being then carefully levelled about, but not ridged over them. A sprinkling of Radish seed may also be distributed about the surface of the bed and lightly covered, and unless the Potatoes come on very rapidly, these will be fit for use before they are smothered by haulm. If glazed lights are used, these naturally materially forwarding the crops, give air in the daytime, and freely in warm weather, in order to keep the haulm sturdy, closing rather early and covering with mats or litter in the night-time. Tilt up the frames when the haulm presses against the glass, and apply tepid water whenever the soil is getting dry. Much may also be done in the way of forwarding Potatoes in sunny corners and at the foot of warm walls by protecting the haulm with the aid of hoops and mats. Unprotected, the tops are liable to be cut down by a late frost, this greatly checking the plants and weakening the crops. For all such crops very light compost should be used, this being substituted, if need be, for any naturally heavy soil.

It is yet too early to start Kidney Beans in other than well-heated houses or pits, but a fairly early and good crop can be had by the aid of gentle bottom-heat and frames of any kind if the seed is sown a month hence. The

beds that have just been cleared of extra early Potatoes are not unfrequently turned to good account for the production of a crop of Kidney Beans; but it is not often this happens in small gardens, and a shallow hotbed has to be formed specially for them very much as advised in the case of Potatoes. The seed should be sown in drills not less than 15 inches apart, the plants being eventually thinned to about 6 inches apart and lightly supported by stakes. These, again, will be much earlier if covered with glazed lights, in addition to the nightly covering of mats or litter, but they will also do well with the makeshift protection previously alluded to. To succeed these, more seed ought to be sown on a warm border or at the foot of a south wall early in April, the plants in this instance either having the benefit of protection from spare lights, or else be covered nightly with mats, only a very slight frost crippling them. For both the beds and warm borders the compact-growing early varieties ought to be preferred, the best being *Ne Plus Ultra*, and, failing this, *Osborn's Forcing* should be grown.

Lettuces, notably the *Early Paris Market*,

site is come to, a capital supply of superior salading with well blanched stems can be had.

Nor are glazed frames needed for forwarding lifted roots of either *Asparagus*, *Seakale*, or *Rhubarb*, all being the better, in fact, for being grown principally in the dark. The roots in each case should be closely packed together and well covered with soil. Over-heating and dryness must be guarded against, and light admitted to the *Asparagus* only when it is well through the soil.

W. IGGULDEN.

CAULIFLOWERS AND BROCCOLI.

I HAVE read with interest the remarks in *THE GARDEN* on the above useful vegetables, and my motive for these notes is to call attention to the useful, though old variety *Walcheren*, one of the most reliable for summer work we have. Having a very light, sandy soil to grow this vegetable in, and Cauliflower and Broccoli being wanted all the year round in a small state, I found it impossible to keep the summer varieties from bolting. *Early London* was useless, and after the early lot of *Snowball Cauliflower*,

such as *Late Queen*, is grown. This will keep up the supply till the early kinds of Cauliflower, such as *Snowball* and *Veitch's Early Forcing*, come in. This latter is a valuable variety, and does well if frame room can be afforded it. Sowings should be made in the autumn and again in pans or boxes early in January; after this the *Walcheren* fills in a long gap. *Autumn Giant* will last a long time if two sowings are made, one in a little heat in a frame early in January and the other in the open as early as possible. To succeed these, *Veitch's Self-protecting* keeps up the supply till Christmas. This is a valuable variety, withstanding a few degrees of frost better than many kinds, as the



Cauliflower *Veitch's Autumn Giant* (*Chou-fleur geant de Naples hâtif*). One-tenth natural size.



Cauliflower *Early London*. One-tenth natural size.

leaves so well protect the heads. When this is given an open space with plenty of room, the plants are more hardy and do not become drawn. *Snow's Winter White* comes in after the above. To get good Broccoli early sowing is necessary. I have found *Penzance Early White*, *Cattell's Eclipse*, *Miller's Dwarf White*, *Leamington*, *Cooling's Matchless*, all good for succession.

GEO. WYTHES.

Syon House.

Sparrows and Peas.—The sparrow question is becoming a very serious one, as this bird is increasing to an alarming extent throughout the country, and not only are farmers suffering heavy losses from its ravages, but gardeners are put to their wit's end to keep these enemies away from their Peas. Some make use of the galvanised wire guards made and sold for the purpose, and very good protectors they are, but those who are not so fortunate as to possess a good stock, or have none at all, may find a good substitute in a few lines of cotton, that which is black being the best. This should be strained along the rows just clear of the Peas, and supported every few yards by running it round small sticks, so as to keep it from dipping. The sparrows, when they alight for the purpose of taking a meal off the tender leaves, do not see the cotton, but the moment they touch it they are alarmed, and clear off as quickly as possible. So far as regards the plants, we can cope with the sparrows, but when the Peas pod, then comes the difficulty, and I must own to having been defeated last year in keeping them off, and in losing nearly half of the crop, as they came in such numbers that they quickly devoured any left that were full or ready for use.—S. D.

Peas on shallow and dry soils.—It may be said, Why sow Peas on a dry soil? But what is a gardener to do if such is the prevailing one in his garden? The sites of kitchen gardens are not always selected on account of the suitability of the ground, but from considerations of convenience; and there are districts in the country having soil both shallow and dry, and none other. A dry soil can be helped by trenching and deep digging; indeed it may be said that all vegetables thrive

grow rapidly under glass, and also come on well in rough frames placed on a slight hotbed, and well repay for a little extra trouble being taken with them. Even Beet can be had a month earlier by sowing the seed now in a pan and placing this in gentle heat, the seedlings being duly hardened off and pricked into a warm spot, with or without bottom-heat, temporary protection being afforded; but it is only the Egyptian, or Turnip-rooted, that succeeds satisfactorily when thus treated. Mustard and Cress can be grown without the aid of a glazed frame, but need bottom-heat for several weeks to come. A good position for this is at the most sheltered end of a hotbed holding a frame or frames. This should be made firm and level, and lightly covered with fine soil. On this sow a patch of Mustard and Cress separately very thickly, pressing all into the soil, but lightly covering the former only with fine soil. Place hoops over, and keep closely covered with mats or old carpet till the salading is about 2 inches long, when light may be admitted. By sowing frequently, changing the soil each time an old

which is a favourite variety, the only kind that would stand during the hot season was *Walcheren*. This was always reliable, but I have seen the same kind not nearly so satisfactory in some gardens, and have come to the conclusion that it was not *Walcheren*, but an inferior variety. I have had seeds of the true *Walcheren* for years, and always depend on it in hot, dry summers. Where there is only a limited supply of water at command and only a few inches of soil over a sandy bottom, I would strongly advise a trial of the *Walcheren*. To obtain a succession of Cauliflowers frequent sowings are necessary, and I used to sow them in the autumn and winter them in pots in frames, planting out early in the spring according to the season. Another lot I planted out under hand-glasses on a south border; these succeeded those in the pots.

Heavy mulching with manure is necessary during the summer months, and the ground should be cleared as soon as ever the heads are cut. No difficulty will be experienced in keeping up a succession if any good late Broccoli,

best when grown in soil so treated. In trenching shallow soils care should be taken not to bring to the surface a subsoil that is not of much value to the plants. Loosen it by all means, and place a good dressing of manure over it and anything in the way of burnt rubbish that can be spared for the purpose. What the gardener should aim at is a cool moist bottom, with something good to maintain the plants when a spell of hot dry weather comes. I know one gardener who has to contend with a dry soil. He sows his Peas in trenches, and when they are coming into bloom he mulches the plants with good half-rotted manure, and does not spare the hose when necessary. He throws up the soil in ridges in autumn, and when the time for sowing comes round, he takes out a trench, fills in with manure and burnt refuse, shovels in some well-pulverised soil upon it, and then sows, treading down the soil a little firmly on both sides so as to secure a trench. In the driest season he has good crops of Peas, and his employer being somewhat fastidious in regard to this vegetable, no labour and attention are spared to ensure good results.—R. D.

SMALL & LARGE CABBAGES.

LARGE Cabbages do not find much favour where quality is the first consideration. They are usually coarse in texture, later in turning in, and stronger in flavour than such kinds as Ellam's Early Dwarf Cocoa-nut, or the still smaller Atkins' Matchless, and Little Pixie. The old Nonpareil Improved is a good useful Cabbage either for a large or a small garden. Though at first it might appear that the advantage in point of weight of crop must rest with the large varieties, this gain is frequently more apparent than real, as the small sorts do not require more than half the space that is usually given up to the large kinds. If plants of Ellam's Dwarf are set out 1 foot apart each way, this space will be found sufficient for all to attain full size, as the moment a Cabbage is fit to cut it is removed, and more room is left for its neighbours. In many gardens a good deal of space is wasted over the Cabbages. They are not like a field of Corn or any other crop where all the plants are ready at the same time, though the seeds are all sown together. There will be weeks, and in the case of the large kinds months will elapse between the hearting of the earliest and the latest plants; in fact there is hardly any other vegetable requiring so wide a range of time in arriving at maturity. Some years ago I had a Cabbage that had for years been grown in the same garden and kept true, because no other sort was sown near. The heads were nearly all ready at once; in fact so much was this the case, that we found purity of stock rather a disadvantage unless the family could live on Cabbages. Of course more frequent sowings and plantings obviated the difficulty, but in a general way where only one sowing is made in August or July, according to latitude of district, and another in spring, a little mixture, provided there is no deterioration in quality, is not altogether an evil. It is always a good plan to plant a few of the earliest Cabbages on the early border; they will appreciate the warmth and shelter and respond by turning in several weeks earlier, and a young Cabbage in March or April is never out of place. As fast as the heads are cut the stalks can be pulled up and the ground prepared for New Zealand Spinach, ridge Cucumbers, or some other crop. E. H.

Dracæna-leaved Beet.—I was able to give this elegant Beet a fair trial last season, and am well pleased with the result. It is perfectly distinct from any other variety I have yet seen or grown, and it is by far the best that can be had for bedding out; in fact this is its principal recommendation. With us it attained a height of about 6 inches, the leaves being numerous, narrow, gracefully recurving, and of the same dark colour as those of Dell's Crimson. It ought to prove an excellent substitute for Iresine Lindenii, the colour being more striking, while in point of hardiness it is not surpassed by any of the better known coloured Beets. Our plants were not injured by a moderately

severe frost, and this being so, the variety should also be of service for filling the beds during the winter. The variety being comparatively new, rather small packets are distributed, and consequently it would be unwise to trust this in the open borders or beds, the better plan being to sow the seed thinly in boxes some time in April. All that is sound would germinate quickly in gentle heat, and being gradually hardened off, the seedlings could late in May be planted out with a trowel or even a dibber where they are to remain. Many that object to the introduction of the ordinary Beet into the flower garden might probably approve of the new form.—W. I.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

FORWARDING RHUBARB.—It will have been noticed that Rhubarb, in common with various other plants and roots that have enjoyed a period of rest, is starting into growth considerably earlier than usual. Unless, however, some kind of protection is afforded to a portion at least of the stock, the progress will most probably be very slow, cold frosty winds crippling the delicate leaf-stalks. If a few clumps are covered now with tubs and a moderately large heap of fresh and old forcing material, well mixed together, formed over these, and, more, only lightly protected in some way, a good succession may be had. Flour and cement tubs inverted over the clumps will alone forward the stalks materially, and a covering of dry litter of some kind would still further assist in quickly drawing up the Rhubarb to a good length. Much may also be done with the aid of the more branching pieces of good fagot wood, the Rhubarb being well enclosed with this and a covering of dry straw litter or Bracken given. Market gardeners cover the clumps in large breadths of Rhubarb with heaps of the most strawy portion of manure, and this being loosened or lifted up occasionally wards off late frosts and forwards the crops by at least a fortnight.

PLANTING RHUBARB.—The best time to form fresh plantations of Rhubarb is just when the crowns are bursting, the roots at this time also commencing active growth. We prefer to increase the stock by division, as seedlings cannot be relied upon to come true to name. It is also found that quite small pieces with a good crown and a few roots attached to each, these being placed three or more at each station, are preferable to planting much larger pieces, as they take the most quickly and surely to the new soil. The old clumps should be split up with forks as much as possible, and the sooner the divisions are replanted the better, though they will stand rather rough treatment. For Rhubarb, the ground cannot well be too heavily manured and too deeply dug. Abundance of good solid manure ought, therefore, to be well forked into or mixed with both top and bottom spits, the soil being thoroughly broken up. If it cannot be got into a fine condition, the Rhubarb, when planted, should be surrounded with added light and rich soil, which the young roots will quickly lay hold of. The rows may be 4 feet apart, a distance of 3 feet dividing the groups. A quarter outside of the garden walls is usually chosen for this crop, this being especially desirable when much of the forcing is done without disturbing the clumps.

BEST VARIETIES OF RHUBARB.—Any variety of Rhubarb will force fairly well, but the early red-stalked forms are much to be preferred to those with green stems. Besides being earlier, they are also the most attractive in appearance, and as a consequence are much the best for the markets. These early forms very much resemble each other, so that if either Johnstone's St. Martin, Linnaeus, Dancer's Early Scarlet, or Royal Albert are grown, there is little need to seek elsewhere for superior varieties. If extra large stalks are needed, these being best for either making into preserves or wine, then the very fine Myatt's Victoria may be grown,

this also forcing well, as well as being of excellent quality for ordinary use.

BLANCHING SEAKALE.—Seakale is really within the reach of all having a garden, as should it not be convenient to force it in any way it can yet be had well blanched and of excellent quality, if somewhat late, by blanching it where established. If the clumps are in rows, these may be covered with long narrow boxes a foot or more in depth, with movable lids either of wood or slates. Single clumps may also be covered with ordinary Seakale pots, and, failing these, large flower-pots or other substitutes can be placed over them. In any case the coverings should be well enclosed either with soil obtained from each side of the rows or brought to them, or litter of some kind may be used. The sooner a portion at least of the crowns is covered the better, but all should be enclosed before top growth commences or there will be too much colour in the Seakale. Although we force a considerable quantity of Seakale both lifted and where it is grown, we yet find it advisable to blanch a portion without forcing it. Not having sufficient pots for covering the crowns a ridge of either leaf soil or spent tan is substituted, this in its turn being well enclosed by the ordinary garden soil. A good-sized ridge or mound must be formed over Seakale, or the shoots become too quickly exposed to the light. Seakale that is enclosed in any way should be frequently examined, or much of it may be spoilt before it is known how forward it is.

BROCCOLI.—A change from warm weather to frosts and cold winds will doubtless have the effect of checking the too rapid progress of Broccoli. In any case the breadths of plants ought to be frequently examined, mild weather long continued causing the earlier and midseason varieties to come on more rapidly than desirable. Whole breadths may be spoilt by a sudden frost before it is known the hearts are fit for use. These somewhat prematurely formed hearts are almost certain to be smaller than usual, but they are worth taking good care of all the same. The only way to be certain of saving them at this comparatively early date is to lift all that are hearting in with as many roots and as much soil as possible attached, and bed in thickly either under cover or in a convenient spot for covering over with mats whenever necessary. It is not yet too late to transplant a portion of the breadths of Leamington, Model, Cattell's Eclipse, Victoria, Latest of All, Champion, and Late Queen to a cool border for the purpose of retarding them. Naturally this may result in a considerable reduction of the size of the hearts, but if the roots are well and firmly surrounded by either rich soil or plenty of manure, the tops not being unduly crowded, those who try the experiment will be agreeably surprised with the result.

CELERY.—It is doubtful if there will be much very late Celery this season. An examination of the rows of the latest raised plants disclosed the fact that a considerable number of them are likely to run to seed very much earlier than desirable; while the main crop plants are already much further advanced towards seeding than we cared to find. Seeing that the seed was not sown in strong heat nor very early, the plants also not experiencing a severe check of any kind from first to last, we must blame the mildness of the winter for this unfortunate state of affairs. On making inquiries, I find that others are in a much worse predicament, the flower-stems of almost all the plants being nearly above ground. In the latter case any preventive measures will not be of any avail; but where the hearts are still in a fairly backward state, lifting the plants carefully with a ball of soil and roots, bedding these in deeply and closely on a north border is advisable. This will greatly retard the growth of the seed-stems, the quality of the hearts being improved rather than otherwise in consequence.

CELERYAC.—This is in greater demand just now than at any other time during the winter. It is much liked as a vegetable, and is superior to the ordinary Celery for flavouring soups. A portion of our crop left in the open and not protected in any way is quite sound and good, this proving the

newer French varieties, notably the Apple-shaped and Giant Prague, to be fairly hardy, as well as superior to the old form in point of compact growth and the size of the roots. W. I.

FRUIT HOUSES.

PINES—EARLY FRUITERS.—As most of the plants forming the early batch will now be throwing up their fruit, the temperature may be raised to 70° at night and 80° by day, with a rise of 5° after shutting up with sun-heat and moisture, which, by the way, must be produced by damping the bed and other surfaces. When the Pines are up and past the flowering stage will be quite early enough to commence dewing overhead with the syringe, and then only on fine days, when the water will be quickly absorbed by the atmosphere. Maintain a bottom-heat of about 85° by adding a few fresh hot leaves to the surface if necessary, water carefully, but freely, using weak liquid and guano water alternately when, but not before, the roots are on the dry side and actually require stimulants.

GENERAL FRUITERS from which the above were selected may now be set going by the renovation of the bed to raise it to 80° or 85°, and when this temperature is secured by carefully administered supplies of water at 85° to 90°. Remove all loose material from the surface of each pot and make the plants firm by packing lumps of dry turf round the collars. Keep the atmosphere fairly charged with moisture, but here, as in the earliest house, carefully avoid getting water into the hearts, as drip from the roof, which is cold and incessant, or spray from the syringe may cripple the best shows before they become visible. Gradually raise the temperature from 65° to 70° by night, to 75° to 80° on fine days, give a chink of air in the forenoon and close about 1 p.m. to keep in moisture and economise fuel.

SUCCESSIONS.—If former directions have been followed, all plants requiring potting will have been gradually moistened with warm water, and the surface of the bed syringed to set the roots in motion. Pots and compost, too, will be dry and warm, and the mechanical part of the work being thoroughly understood, the operation must be got over as briefly as possible. If the plants are to be divided into sections for succession, the strongest and best should be taken first, and so on until the weakest and late suckers have been overhauled and disposed of. If any of the latter batch have not filled their pots put them back for a time, or, being in bad condition, shake them out and repot in the size used for suckers. Pot very firm, plunge in a sweet, moist bottom-heat of from 75° to 80°, keep close and moderately moist by syringing the walls and other surfaces, but defer watering until the roots have taken to the new compost.

MELONS.—Very early plants will now be making their way to the trellis, if already they have not reached it. Pinch out all side shoots and male blossoms below the wires, but carefully preserve the main leaves, and stop the leaders when considered strong enough to throw laterals which will show fruit with certainty. Pinch each of these close to the fruit or at the first leaf beyond, and fertilise from day to day as the flowers open. Aim at a bottom-heat of 80°, a night temperature of 70° and 80° by day from fire and sun combined, and close in time to run up to 85° with moisture in the atmosphere. If plants in pots are weak, an occasional watering with tepid liquid will do them no harm, but, the soil being good, they will not require this aid until after the fruit is set, when they must receive the final top-dressing and generous liquid as often as may be found necessary. Make fresh sowings of seeds singly in small pots or on squares of turf for succession, get compartments ready for them, and throw away surplus plants the moment it is found they are not wanted, as these cripples not unfrequently form the early home of red spider.

CUCUMBERS.—Where the winter plants have been carefully husbanded, the season having been favourable, they will now be producing fruit and making plenty of laterals. As space does not now allow my entry into details, I may say the main

points in this department are a bottom-heat of 80°, a top-heat ranging from 70° at night to 80° or 85° by day, plenty of good liquid a little warmer than the bed, and a sweet, moist atmosphere, not from direct syringing unless the day is bright and mild, but from a thorough damping of all available spaces. If their tenure is short and fruit the object, the hills or pots may be well mulched with rotten manure free from worms, but otherwise good turfy loam, lime rubble, and a little bone-dust will best answer the purpose. If space admits, train on the extension principle, stopping the strongest shoots only, crop lightly, cut young and wage war with insects by the timely use of suitable insecticides, aided by good culture.

SPRING-SOWN PLANTS intended for an early succession to the above may now be pushed forward under high pressure if absolutely necessary, care being taken that the bottom-heat be good and high figures prevail through the brightest part of the day, especially by means of very early closing, when 90° for a short time will allow for rest through the hours of darkness. Train single vines to and over the trellis, pinch out all male flowers and side shoots below the wires, stop when they have made two-thirds of their allotted distance, and tie out the laterals a foot apart in a horizontal position. If the plants are in pots, renovate the beds with fresh hot leaves or tan the moment the heat begins to subside, give a little light rich compost as the roots appear, keep the house sweet and clean by the removal of confervæ from the glass and decaying matter from the surface of the bed, and bathe the foliage with water at 85° when the sun favours closing at a high temperature. Here, as in the Melon house, sow a few seeds at short intervals, as it is better to destroy plants than feel the want of them, but never allow them to stand about to breed spider and mildew.

W. C.

PLANT HOUSES.

HARD-WOODED GREENHOUSE PLANTS—TRAINING AND TYING.—Whatever work in training and tying remains undone should be attended to at once, as it ought to be completed before the young growth begins to start. When the plants are only wanted for the greenhouse and conservatory, too many sticks and ties to support the branches and keep the specimens shapely should be avoided. When flowering plants are to be exhibited, even if the distance they have to be conveyed is short, the shoots must all be secured. If this is not done, the flowers will be so rubbed and chafed as to spoil their appearance. Young hands at exhibiting often make mistakes in this way when the plants have not to be moved far. It is not unusual to see well-flowered specimens that have been grown not more than a few miles from the place of exhibition with their flowers much injured. However well evergreen plants are managed, the time comes when the old leaves turn brown and lose their vitality. Before tying, these should be removed. Sticks that are any thicker than is necessary to give the requisite support should never be used, as the less perceptible they are the better. For this reason they ought always to be painted dark green, which is the shade that shows up the least. The unpainted deal sticks sometimes used spoil the appearance of the plants.

TRAINING YOUNG PLANTS.—All young stock should at the proper season have attention in stopping and tying. Where short pinching is properly carried out during the growing season there is little need for the use of the knife, which, with plants in their early stages, means a waste of strength, and also of time, for if the shoots that are inclined to take an undue lead are stopped in time, there will be no need for cutting back. In training young plants of any kind that require their branches being opened out, it is necessary to bend the strongest shoots in a horizontal position, leaving the weaker ones more or less erect. This tends to equalise the strength of the whole, as the sap always has a tendency to run more freely in the shoots that are left erect than in those that are bent down. Want of attention to this whilst the

branches are young and pliable results in the leggy, bare-bottomed, unsightly specimens that are often met with amongst hard-wooded subjects when they should be at their best.

CAPE HEATHS.—There is sometimes an idea that Heaths cannot be well grown unless they have a house solely devoted to them, which is so far a mistake, as some who have been the most successful in their cultivation have not had any convenience for growing them except an ordinary greenhouse, where the Heaths were associated with a general collection of other things. With a fairly light house, and the plants stood well up to the roof, so that they will receive sufficient light, and the winter temperature kept down to prevent an undue excitement of growth during the dull season, there is nothing to prevent Heaths being well grown. Large and medium-sized specimens that require re-sticking and tying should now have attention. The decayed ends that are in the soil ought always to be taken out; if allowed to remain, their wet spongy condition during the last stages of decay injures the roots. Beyond this it is necessary to remove them to make way for the new sticks, which should be put into the old holes, to avoid breaking the roots in the way that takes place when they are thrust into the soil in fresh places. The course advised should always be followed in tying hard-wooded plants of all kinds, either large or medium-sized, especially if they are required for exhibition, when, as already said, it becomes necessary to use more than an ordinary number of sticks.

AZALEAS.—Plants that have been forced so as to bloom about the end of the past and beginning of the present year should as they go out of flower be immediately put in a house where they will have sufficient fire-heat to keep up a genial growing temperature. It is necessary to subject them to this, as they will have begun to make new growth simultaneously with their flowering, and the longer they are kept in cool quarters the less chance there is of the season's growth being free and strong. When speaking of Azaleas for early forcing, the merits of the old varieties, such as Fielder's White and the common sort, have before been urged. None of the newer kinds can compare with them for general usefulness. Their freedom of growth admits of the plants attaining a size that enables them to produce flowers in quantity, such as the newer varieties cannot approach. Coupled with this, the old kinds named will bear their flowers being annually cut with a good portion of wood attached to an extent that would prevent the newer sorts from either increasing in size or flowering satisfactorily. If the plants receive the necessary support in the shape of concentrated manure applied to the surface of the soil, or manure water given in the ordinary way, they seldom require potting. But to keep up the vigour that will enable them to make the requisite amount of growth the stimulants must be given regularly from the time the plants are put in heat until the flower-buds are formed. With the needful amount of support, old plants that are already in pots or tubs as large as it is desirable to give them may be kept for a dozen years with their vigour unimpaired.

CALADIUMS.—A portion of the roots that have been in a dormant state since autumn should now be started. Drain the pots well and give a fair amount of fibrous matter in the soil to prevent the large quantities of water which the plants require carrying the soil down into it. Caladiums will grow in either peat or loam, to which add some rotten manure and sand. In potting, the tubers should only be just covered. Small or medium-sized examples are more useful than large specimens, as the former come in better for arranging amongst flowering subjects, Ferns, Palms, or whatever they are associated with. For this reason it is necessary to propagate young stock annually. In an ordinary stove temperature the plants will soon push new growth. Large tubers produce numerous shoots, and when these are 6 inches or 7 inches high and the leaves are beginning to unfold, they should be taken off with the roots which they will have made at the base. Put them singly into

4-inch or 5-inch pots, using soil of a like description to that in which the tubers were started. Cover them with propagating glasses, or stand them in a cutting box, but do not give them so much heat as ordinary cuttings require, neither is it well to confine the atmosphere so much. Provided the leaves do not flag they are better with a moderate amount of air. When the soil is fairly filled with roots move them into 6-inch or 7-inch pots.

CELOSIA PYRAMIDALIS.—Few annuals are equal to this either for grouping with plants of a more formal character or for the elegant appearance which the bright feathery sprays have when mixed with other flowers or with Ferns. To keep up a supply all through the season it is necessary to make two or three sowings. A pinch of seed should be put in now. Seed of a really good strain of this *Celosia* is scarce, and as it will keep for several years it should be used carefully. Sow thinly and cover slightly. Stand in a moderately warm temperature; as soon as the plants appear raise them close to the glass, and pot off singly directly they are large enough to handle. T. B.

MARKET GARDEN NOTES.

YELLOW AND BRONZE CHRYSANTHEMUMS.—Contrary to what is usually the case, yellow *Chrysanthemums* have this year made as much, or more, in the London markets than white kinds. At the present time yellow blooms are making a higher price in Covent Garden than in any previous year within my recollection. Crimson and bronze-coloured flowers have also been in great demand throughout the season, and no kind has sold better than Cullingfordi. In the last week of the year good blooms of this colour were making 4d. each, a really good price for that season. Perhaps next season this colour will not be nearly so much in demand, although fashion in flowers, as in other things, generally runs a course of several years, gradually giving place to a new one. If a *Chrysanthemum* grower could only foresee what colours in ladies' dresses are going to be fashionable a year or two hence, he would be able to put forty or more per cent. value on his flowers. Happening to remark to a lady of my acquaintance that bronze-coloured flowers were so much in demand, she replied that this was easy to understand, as the colour harmonised so well with dresses worn now. It will thus be seen how important it is for market growers of this flower to be in a position to meet the demand for any particular tint that may be coming into favour. The man who sells his own produce can fairly accurately feel the pulse of fashion, but he who does not attend the markets himself is generally just a little behind. His better informed brethren have taken the cream, and by the time he has worked up a stock of the desired colours a change is probably beginning to take place, or the price is lowered through extra large supplies. It is with *Chrysanthemums* as with everything grown for market, the difference in the price of selling one's own produce and that obtained through the medium of the salesman is often just what remains of profit after cultural expenses are reckoned up.

PROPAGATING PELARGONIUMS.—The usual method of cutting down plants that have bloomed and putting in pieces of mature wood is frequently departed from by some who grow decorative *Pelargoniums* for the London markets on a large scale. So early as May I saw some thousands of cuttings that were beginning to root in a large London market garden. They were taken from plants that were growing freely in a cool temperature, and were standing then in a house, where blooming plants were being brought along gently into flower. The grower said that in this method of propagation considerably more care was required in watering, as the cuttings were, as might of course be expected from their succulent nature, so liable to damp off. The greatest discrimination must be exercised in watering, or whole batches of cuttings will die off in a few days. If it were not that this system has advantages in other ways it would never be adopted, but it offers facilities for quickly getting up a stock of any particular kind, and gives the

grower a fine start in the production of plants for early bloom. Plants from cuttings struck in May can be placed in their flowering pots at such an early period that they become thoroughly root-bound by the time they go into warmth. A great point with growers of this plant, especially those who grow perhaps 50,000 of them, is to begin the season as early as possible when prices are at their highest. A houseful of *Pelargoniums* in bloom in May represents money, and by the ordinary method of summer propagation plants that will bear the warmth necessary to bring them into a marketable condition at such an early period can scarcely be obtained.

WHINHAM'S INDUSTRY GOOSEBERRY.—Although this Gooseberry has been in existence nearly half a century, it is only just coming into cultivation, a fact which shows that fruits with a local reputation only should get a fair trial at the hands of those competent to judge of their merits from a profitable point of view. The good opinion formed of this Gooseberry several years ago has been confirmed now that its culture has been extended. A good authority on hardy fruits says that for economy, profit, and general usefulness, it is the best kind in existence, and that it will be best to destroy all Gooseberry bushes and fill their place with this kind. Whinham's Industry Gooseberry is evidently a good all-round kind, cropping heavily and with as much regularity as can be expected from any hardy fruit. Its erect habit and its suitability for jam-making are all in its favour. Market growers cannot afford to ignore such a combination of good qualities, but men having experience in the culture of hardy fruit for profit know that there is nothing like having more than one string to one's bow, for seasons do not affect all varieties alike, and sometimes one kind will bear fairly well when others fail. It will not do to discard old tried kinds for others whose merits have to be put to the proof, and then there is the all-important matter of succession to be borne in mind. It would not do to have half a dozen or more acres of Gooseberries all coming in at the same time, and this must be the case where but one kind is grown. J. C. B.

THE WEARING OUT OF VARIETIES.

MATTER is constantly assuming fresh forms to which new names are given, but still the much-quoted aphorism, "There is nothing new under the sun," may still be true. The subject has always been to me an interesting one, and as one gets older early-formed opinions are often regarded doubtfully. That varieties disappear is certain; but are they worn out? Are they not more generally merged by some combination of circumstances into a fresh, possibly an improved form? Take the case of the Early Charlton Pea, that always headed the lists of Peas at the beginning of the century. The name has gone, but the best quality of earliness has been retained in our Ringleaders and other early Peas of the present day. I believe it is possible to take examples of any variety of plant, and by constant and careful selection to improve it, both as regards vigour and fertility. Why is it that the Ashleaf Potato is certainly as good, possibly better, than it was at the beginning of the century, whilst all other varieties then cultivated have disappeared? Is it not because more care has been taken in the selection and keeping of the variety? Again, the Black Hamburgh and Muscat of Alexandria Grapes are as good as ever they were. Neither has there been any falling off in the good qualities of the Jargonelle Pear, Green Gage Plum, Warrington, Crown Bob and Whitesmith Gooseberries, all of which were among the best things in gardens a hundred or more years ago. It is true the Ribston Pippin Apple may be quoted as an instance of the wearing out of varieties; but I question if the Ribston ever possessed a constitution adaptable to all situations. I have watched the behaviour of this Apple for a good many years, under different conditions and under unfavourable circumstances as regards soil, especially when permitted to root deeply. As the trees got old there has in many places been more or less canker; but

as I consider that this can be prevented, it should not be taken as evidence of wearing out. The Keen's Seedling Strawberry is sometimes quoted as an instance of wearing out. I can only say I saw fruits of this as good last year as I ever remember them. King of the Pippins Apple is one of our oldest varieties. Has anyone ever observed any traces of wearing out in it? There are many old decrepit trees in the orchards, I grant, but this variety grows as vigorously as it did in the last century. E. H.

GARDEN FLORA.

PLATE 740.

THE ZEPHYR FLOWERS.

(WITH A COLOURED PLATE OF *Z. CANDIDA*.)

OF the thirty species of *Zephyranthes* described, not more than half a dozen have hitherto proved of any real value as garden plants. In size and beauty of flowers the genus is about the equal of *Crocus*, but in cultivation the *Zephyranthes* are, with few exceptions, difficult to manage. Such at all events is the outcome of some ten years' experience with them at Kew, where there are now twelve species in cultivation, and where various methods of culture have been tried for them. But whilst some of these have not proved a success, others have been pre-eminently so, and the most satisfactory of all is that represented in the plate this week, viz., *Z. candida*. This species differs from all others known to us in several particulars, the chief being its hardiness and easy management under ordinary cultivation in a sunny border out of doors. We have tried almost all the other species of *Zephyranthes* with this treatment, but they every one failed, whilst *Z. candida* flourished and multiplied rapidly, until we have now a border filled with it. This border is against the south wall of a greenhouse, and it is always moist. The soil is ordinary loam, in which the bulbs were planted about 4 inches apart. They have each since become crowded tufts, their leaves completely hiding the soil. This border was as gay with the flowers of the *Zephyranthes* last autumn as any border of *Crocuses* in spring. On very sunny days the flowers opened quite flat, and glistened like snow in the sunshine. Another character which distinguishes this species from the others is its evergreen foliage. The severe frost of the present winter has not injured the leaves in the slightest; they are of as deep a green and as perfect in health now as they were in the summer. This peculiarity was first observed by Dean Herbert, whose interesting note on this species is worth quoting:—

This plant, conspicuous by its fleshy, semi-cylindrical and Rush-like leaves, which resist the frost of our usual winters, has ripened its seeds with me after snow had lain upon them for three weeks. . . . There is no difference in the hardiness of the constitution of the bulbs from Lima and those from Buenos Ayres, where the banks of the Plata are so covered with it that it is understood that the river was called La Plata, meaning silver, on

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 14, 1889. Lithographed and printed by Guillaume Severeys.



ZEPHYRANTHES CANDIDA.

account of the profusion of its white blossoms on the shore. I have had seventy flowers expanded at once on a small patch of the plant at Spofforth. It is strange that this plant, which thrives in the hot valley of Lima, should have stood out of doors here nine or ten years unprotected without ever losing its leaves entirely. . . . There is, however, a mystery in the constitution of plants, which does not always depend upon their native climate.

Differences in the flower characters are also mentioned by Herbert, and he appears to doubt its being a *Zephyranthes* at all. What he says respecting the seeds is borne out by what occurred at Kew this winter, for the crop of seeds, a very prolific one, was not gathered until a few days before Christmas, and they were all plump and sound. Clearly, therefore, we have in this *Zephyranthes* a

it grows in abundance in Carolina, Florida, &c., in swamps and other damp places. It is, when healthy, a robust-growing plant, about a foot high with narrow linear leaves, and flowers larger than those of *Z. candida*, pure white, the buds bright red. So far as I can learn, this species had not yet been established in the open in England, although some people have tried it as we have at Kew. It does not thrive here except when planted in a pot and grown in a cool frame or greenhouse where it must be kept dry in winter. If anyone has established this plant out-of-doors, some information as to the conditions which suit it would be appreciated by bulb growers.

The third white-flowered kind is *Z. Treatiae*,



Zephyranthes Atamasco.

plant of no ordinary value for the out-door garden. It might be plentifully used as a sort of turf for the front of south buildings; and the summer effect when the flowers expanded would be delightful. I have read somewhere of a border against a conservatory, I think in a Manchester garden, which was planted with this *Zephyranthes* and *Oxalis Bowiei*, whose flowers are nearly 2 inches across and coloured deep rose-red. The effect of this combination must be particularly good.

Apparently this *Zephyranthes* does not object to somewhat excessive moisture at the root all the year round.

There are two other white-flowered species in cultivation, viz., *Z. Atamasco* (here figured), the *Atamasco Lily* of North America, where

which was introduced some ten years ago from the swamps of Florida by Messrs. Veitch and Sons, and flowered at Kew in 1880. It is not easily distinguished from *Z. Atamasco*, and it does not thrive except when treated the same as that species. *Z. tubispatha*, also white-flowered, is smaller and requires warm house treatment, being a native of the West Indies, New Grenada, &c. It is cultivated in gardens in Demerara and India. It was figured in *THE GARDEN* in 1877, plate 84, along with *Z. rosea*, a small red-flowered species.

Of the red-flowered kinds the handsomest is *Z. carinata*, of which a figure was published in *THE GARDEN*, Jan. 7, 1888 (p. 10), where it is called *Z. Atamasco* by mistake. I have

seen this plant in July with flowers a foot high and 3 inches across, about a dozen of them in a 6-inch pot. It will not thrive out-of-doors unless when lifted in winter. In India it is naturalised as well as being plentiful in gardens even in such tropical regions as Penang, where Mr. Burbidge saw a meadow full of it and splendidly in flower. *Z. grandiflora* is another name for this fine plant. It thrives when planted in sandy loam in pots and grown in a sunny greenhouse. It must be kept dry in winter.

W. W.

FLOWER GARDEN.

STORING GLADIOLI.

MANY growers have different plans for keeping the corms of their Gladioli (hybrids of *gandavensis*) during the period when they are out of the ground. I have always had the same plan, and my experience of the present season fully confirms me in its wisdom.

I have often questioned the usefulness of the plan adopted by your correspondent "W. J. M." for several reasons. In the first place, it is not every amateur who has the facilities for laying out his corms with the earth attached to them in any place where they will be free from frosts, and this is absolutely essential. Your correspondent speaks of a potting shed, but this, I suppose, is heated in some way, for we could not venture on storing ours in such a place in this part of the world (Kent). Then they must be grown in a tolerably stiff soil to get them up with sufficient earth adhering to them to be of any practical benefit. On my soil when I take up the corms, the greater portion of the earth adhering to them drops off, so that if there is any advantage in the soil it would be done away with; and then, if a grower wishes to save the spawn of the bulbs, it has to be put off until the time for planting, when there is so much to do. Another plan is to put them in paper bags and hang them up or lay them out on a shelf. The disadvantages of this I have more than once alluded to, and my experience this year, as I shall show presently, has quite strengthened my views regarding it. My own plan (for which I am indebted to my friend Mr. Bowles) is to lay the bulbs out singly on trays, which are formed of laths an inch wide and a space between them of about half an inch. These trays fit into an open work or lattice frame, which is kept during the winter in my study. Here the bulbs are under my eye and are safe from frost and have plenty of light.

The reason for the diversity that is expressed on the subject of the winter storing of the Gladioli is that they are supposed to suffer from being so long out of the ground, and that this is the cause of their failure, or, as some people are pleased to call it, the degeneracy. But I believe this to be a groundless fear after all. The crowns are not, or ought not, to be more than four months out of the ground. They are not harvested until the middle of November, and are generally planted before the middle of March, and there are other corms which are quite as long out of the ground—the *Crocus*, for example, which is harvested in April and not planted again until October. I do not believe in what is called degeneracy. I believe that the Gladiolus is subject to a disease which attacks seedlings as well as established sorts, and while some places are more calculated to encourage it than others, some seasons seem more favourable to the growth of the fungus which

causes the loss of the corms, and some varieties are much more subject to it than others. Some, such as Mme. Desportes, I have never been able to keep, and I presume the same difficulty is experienced at Fontainebleau; for although sent out more than twenty years ago, it is now dearer than some of those sent out last year. Of course, another reason may be that some kinds are very slow in producing spawn.

That this supposed injury to the bulbs from their being so long out of the ground is a myth is clearly proved by the character and condition of the bulbs which are sent out by the great firm of Souillard and Brunelet at Fontainebleau. I have had the pleasure of seeing their *magasins* where their bulbs are stored. They are all laid on shelves divided into compartments, so that each bulb is separate. A good current of air passes through, and frost, which is much more severe than with us, is excluded, and no one who has received their bulbs but will agree with me in saying that they are perfectly harvested, and that very seldom do they fail to grow or to produce fine flowers. I have also had some bulbs from other sources, and I do not at all believe, if they are properly treated, that they suffer from being kept dry. Sometimes a bulb is left in the ground, but I do not find that it produces a better spike of flowers than that which has been harvested in the usual manner.

This beautiful harvesting of the French bulbs led me this season to forego my usual plan. I received some bulbs from Fontainebleau, and seeing how beautifully dry they were and being very busy at the time, I thought that I might leave them in the bags. In some cases there were three or four bulbs, and as these were kept in their usual dry quarters, I in this case did not abide by my own teaching, but left them there. Last week I went to look at them, and, to my horror, found that certainly some had emitted roots, but that others had begun to grow, and they had shoots of an inch or more in length. I did not find that any corm had done both; where it had sent out a shoot it had not emitted roots, and *vice versa*. I found also that, as one might have expected, it was the earlier kinds which had grown most; such varieties as Shakespeare, Adolphe Brongniart, Sceptre de Flore, and Arrière Garde were amongst the most advanced. What under these circumstances was best to be done? I find that your correspondent "W. J. M." planted his out. This would have been utterly impossible with me, as the ground was so saturated with rain. I therefore determined on potting them in small pots in some stiffish soil, calculating that by the time for planting they would have filled the pots with roots, and so would not suffer any check. This I know is the plan recommended by some for those who grow in the north, and is adopted, I believe, for the whole collection. I once tried it when my collection was smaller, but it was so much trouble and was of so little use, that I never tried it a second time. What I should do if I lived in the north I do not know.

I am therefore all the more strongly impressed with the belief that the best way to store the *Gladiolus* in winter is to lay the corms out singly, whether on shelves or trays (if on the former, the base of the root ought to be uppermost), such as I use myself. I believe that the drying off is by no means the cause of the bulbs decaying, as they sometimes do, but that this is caused by a disease, which Mr. Worthington Smith has described, analogous to that which sometimes attacks the *Crocus*, and that we know almost as much about it as we do about the Potato disease, for which no preventive nor remedy has been as yet dis-

covered. But as the bulbs can now be had at so reasonable a price, no one need be deterred by this from attempting to grow a plant which affords us such grand spikes of bloom in the autumn months, blooming from the end of July to the end of October. DELTA.

CHRYSANTHEMUM SEGETUM.

It is perhaps a little surprising, seeing the degree of popularity attained by the yellow Ox-eye or Corn Marigold, that so little has been done in the way of obtaining varieties from it. Some years ago, long before the Corn Marigold became so popular for garden culture as it is at the present day, a writer in one of the garden periodicals, having regard to the natural tendency of the genus to produce double flowers, recommended cultivators to aim at producing a double form, contending that there could be no insurmountable obstacle in the way of producing this. I am not at all sure a double form would be a floral acquisition, but I do think that the cultivation of *C. segetum* in our gardens for cutting has done much to increase the size of the blossoms. I have seen a strain of it that well deserves the appellation "grandiflorum," the flowers of this particular variety being larger in size and of a better form than is usually seen. I sent some seed of it to a well-known Lancashire botanist, and he informed me after he had bloomed it that it was the best form of it he had ever seen.

I am not at all anxious to see a double form of the yellow Corn Marigold. We have doubled some of the annual *Chrysanthemums*, more especially *C. carinatum*, or tricolor as it is generally termed, and the result has been the loss of a great deal of beauty and attractiveness, and the gain of some ill-formed floral monstrosities. In the case of *C. coronarium*, I think the double white and yellow forms, when they are symmetrical and of the best form, are decided acquisitions, but they very often come ugly and distorted.

Attempts have been made to secure double forms of the common white Ox-eye Daisy, but I am not at all anxious to see them succeed. Time was when it was thought that the conversion of a single to a double flower was a great gain both in attractiveness and value; but the fashion has changed, and single flowers find more admirers than double ones. There is one advantage the double flowers have over the single—in very many cases they last longer in a cut state.

We have been taught to look upon the French Marigold as most perfect and attractive when in its finest double form, and a few years ago to hint at a single flower being something of value would have been regarded as a kind of floral madness. But the old order changes in regard to flowers, and now single French Marigolds find their advocates and admirers, although they will, I think, make but little headway in popular favour. R. D.

Russian Violets not flowering.—The causes of the non-flowering of Russian Violets are: late planting, planting under trees where there is little sunshine to produce blooming crowns, and cold wet seasons, in which the plants fail to bloom. Ordinarily, Russian Violets do produce flowers freely enough, but the best time for replanting is as soon as the spring bloom is over. Throughout the London market districts, where hundreds of acres of single Violets are grown for bloom, the dividing and replanting are done early in May. The best material for transplanting is found in the outsides of the clumps, which Russian Violets form when they have stood two years. Planted by handfuls roughly with the dibble, in rows 2 feet apart, in two years these pieces have formed clumps some 15 inches across. The outer edges are chopped off with a spade, a dozen pieces being obtained perhaps from each plant. Being here planted, as a rule, out in the open, the foliage is never coarse and the crowns are stout and invariably full of bloom. A cold wet summer militates against flowering and causes the production of leaves. This is rarely the case when bloom is abundant, and sometimes the

Violet flower crop from 10 acres or 12 acres is an enormous one. As leaves are required for dressing the bunches, it is the rule to plant some specially for leaf-production. Where trees are dense overhead, Violets very seldom produce flowers. In private gardens it is often the case that the soil in which Violets are grown is too rich and light. Out in the fields, where the soil is naturally stiff, it gets trodden hard, and thus is conducive to bloom-production. Where there are evidences of blindness, of course such plants should be rejected, and only those which are free-flowering propagated from. Generally, it is observed that single Violets bloom better from dibbled pieces than from young plants produced from cuttings.—A. D.

THE IRIS.*

IN reviewing the Iris genus I am bringing before you a race of flowers with which you are familiar in general, though perhaps there are individual species and varieties known to you by name only. There is no family that so worthily deserves a careful survey as the Iris. It stands alone, a distinct genus with bold characteristics that proclaim its relationship with another family not a whit more beautiful—the Orchids, and that abounds in rich treasures, of which, unfortunately, not a few English gardens are destitute. Things have changed and are changing still in respect to hardy flowers, and it is now rather the rule than the exception, as in days gone by, to see the great *Iris pallida* lifting its tall spikes of pale blue-coloured Elder-scented flowers in bed and border. No garden, however small or confined, need be without an Iris representative, whether it be the bulbous netted Iris (*I. reticulata*), or the large, robust, sword-leaved German Iris that makes brave masses of the richest colour in the early days of June. And here we have one of the great and enduring charms of the Irises—their delightful variety and succession of bloom, each month having its own special species or group, from the dwarf netted Iris, that often opens its flowers to the winter sun, even though it has to "spear" through a covering of snow, to the lovely *I. alata*, which blooms almost unseen in the dark days of November and lingers until the end of the year to complete the cycle. The wondrous beauty, infinite variety, and richness of colouring of the flowers of this family have called forth expressions of admiration from poets and artists of all ages. Turner wrote upwards of 300 years ago "this hath his name of ye likeness that it hath of ye rayn bow, for Iris is called ye rayn bow," an appropriate tribute to pay a flower that displays almost every shade and hue that could mark a colour chart. The Iris is not a modern flower, as a few are mentioned by Gerard in his famous "Herbal," in which also we find good illustrations of several kinds; and Philip Miller, in his "Icones," makes mention of the Iris and also gives figures. The family is widely spread, and extends over the northern hemisphere, especially along the Mediterranean region, and this nearness to home led to its early introduction into England, and the good culture that was given it by the earliest gardeners. Our native land can only give two indigenous species, the glorious Yellow Flag (*I. pseudacorus*) and the Gladwin (*I. foetidissima*), whose capsules of scarlet fruits are used to brighten decorations and winter bouquets. There are few of the foreign Flags that can rival our native streamside wilding that colours the margins of running streams, brooks, rivers, and stagnant ponds through the summer, revelling in the moisture that soaks about its roots, and suggesting to those who are careful to watch and copy Nature that a little of this rich beauty might be transferred to the garden where there are lakes and ponds unfringed and bare, save for a rude growth of Bulrushes or common Reed. The Yellow Flag is distributed widely in England, more so than the Gladwin, which is found in damp spots, and whose flowers have no remarkable beauty of either form or colour, though interesting in their delicate

* A paper read by Mr. E. Cooke before the Ealing Gardeners' Mutual Improvement Society, February 5.

pencilling of brown. The bulbous Irises range over the Mediterranean region, from the slopes of the Pyrenees, which are beautified by the misnamed English Iris, and find a home even in the far-off region of Palestine, where the lovely *I. Histrio* dwells on Mount Lebanon, while its near relative, the Netted Iris, roves over the east territory of Asia Minor. Southern Europe is the native place of the majority of our Irises, and from thence come the German and Florentine Flags, and the widely distributed Siberian Flag, which also affects Central Europe, a large part of Asia, and the icy regions of Siberia, where in the eastern portion the Kämpfer's Flag reveals its glorious colours that infatuate the Japanese, who hold this flower in peculiar reverence.

There are about 100 species, which have been classified by Mr. Baker into sub-genera and groups, each having its own distinguishing characteristics and peculiar requirements as to cultivation. There are two great sections, the bulbous Irises, or Xiphions, represented by such noble garden flowers as the Spanish and English Irises, and the rhizomatous species, which in place of bulbs have fleshy rhizomes, of which the Bearded Iris, more usually called the German Flag, is the great type.

BULBOUS IRISES.

These belong to the sub-genus *Xiphion*, and in the group called Euxiphion we have the English and Spanish Irises and the charming Netted Irises, with their respective varieties and allies. The English Iris was a favourite of Parkinson, who called it "The great broad-leaved Fleur de Luce," and inhabits a restricted area, chiefly the French and Spanish slopes of the Pyrenees. It has a prodigal wealth of broad leaves, amongst which rise the spikes of flowers in early June, giving a remarkable glow of colour to the garden. This *Xiphion*, named *I. xiphoides* or *X. latifolium*, is called the "English Iris" for no apparent reason. It has no more right to the title than its near ally, the Spanish Flag, which is the great wild flower of Spain and Portugal. The origin of this common name arose probably from the fact that it came to the English first, then to the Dutch gardens. It differs principally from the Spanish Iris (*X. vulgare*) in the growth "spearing" above ground in the spring instead of autumn, by the more fibrous nature of the outer coats of the bulbs, and more distinctly in its broader and bolder flowers, which also differ markedly in colour, to the extent even that in the English Iris yellow is absent, and also the peculiar and distinctive bronze tinge that is apparent in the flowers of the Spanish wilding. I prefer the English group, though there is no Iris I cannot regard but with unfeigned delight, but the varieties of *Xiphion latifolium* have a stateliness of character, a richness and variety in the colours of the flowers, and an abundance of foliage that class them amongst the finest hardy flowers. The range of colour is as extensive as it is beautiful. The falls are massive and of great width, the standards sometimes coloured with the deepest purple, as velvety and intense as the throat of *Dendrobium* noble, and again of a paler shade, then blue, and even pure white. A noble flower is the white English Iris, of spotless purity, bold, and massive—as pure an ornament as can grace the garden. In some of the forms there is a mixture of colours, a spottiness that we find on the broad falls of *I. Kämpferi*. Any tendency the flower may develop in this undesirable direction, but which is usually encouraged by artificial means, should be regarded as an evil trait.

The Spanish Iris is entirely different in expression from its English relative; it has almost the same restricted geographical range, being found in Spain and Portugal, both along the coast and to an altitude of 6000 feet, whilst it also extends into Corsica and the south of France. It is dwarfer in habit, and has smaller flowers than those of *X. latifolium*, but they appear ere the buds of the English Iris have half expanded, and thus a succession of several weeks of gay bloom is given. Though *X. vulgare* is a foreign flower to many gardens, it has been cultivated for quite three centuries in England, and is mentioned by

Gerard as one of his treasures in his choice garden at Holborn in 1596. We have now a rich series of varieties, thanks to the Dutch florists, but the flowers lack the striking individuality, boldness of form, breadth of fall, and glorious shades of colour that make the English Iris dear to us. The falls are narrow and long, but there is a fine range of colour, from blue through many bronzy shades mixed with yellow, and there is a self-yellow variety that rather pales, however, against the brilliancy of the sweet-scented *I. juncea*.

To give a practical value to the present paper and open out a discussion, I will in reviewing each group allude to particulars of cultivation, and both the classes described love a sandy, yet rich soil, and the English Iris requires water, unless the season is exceptionally wet, in the summer months. One great secret of success in the culture of the whole family, excepting the Spanish Iris and a few others in some soils, is to leave the plants alone once they have become established. We kill many choice plants by kindness, the various kinds of Flag amongst the number, and the English Iris, once in a good soil, should not be disturbed for at least four years, and then, if considered necessary to break the clumps, wait until the leaves have withered. Seedlings may also be easily raised, and everyone should try and raise from seeds to increase the variety and stimulate interest in the plants. Sow seeds when ripe, and in about four years the labour will be rewarded by the bulbs sending up blooms sometimes even after a growth of only three years. The growth of the Spanish Iris commences early, and is even now spearing through the soil. The bulbs produce great numbers of offsets, and from the initial stage to the full grown plant there is no mystery in their culture. Undue wet is fatal in autumn and winter, and a sandy soil, not however too poor, is requisite, and this many gardens can supply. Sun it loves, also a slight shelter from winds which hurt the rising stems, and it is essential to success not to keep the bulbs out of the ground longer than necessary. A bulb is usually regarded as a thing without life; it is kept dried up in bags and boxes in hot rooms and cupboards, as if a dried mass of husk rather than a living formation that holds the embryo flower.

NETTED IRISES.

The Netted Irises display a quieter, but even more fascinating beauty than the two types we have just considered. Their rich beauty is as sparkling as the crisp snow in the winter sun, and it says little for English gardens that even the type, the violet-scented *I. reticulata*, that decks the mountain sides of Asia Minor, is comparatively rare. It blooms with the Crocuses and Snowdrops, and sends up one flower on each stem, the colour of the richest violet-purple, with an intense yellow line running down the centre. The long, erect, and slender leaves appear with the flowers, and when these have faded, grow to a length of from 6 inches to 15 inches. At Gunton Park, Norwich, this Iris is planted freely in the wilder spots, increases quickly, and is proof against rabbits, which destroy other spring flowers of just as tender an aspect.

Those who have no park need not deter planting in the early autumn bulbs of the Netted Iris, and this is the season also for dividing clumps where additional stock is required. Plant it in sunny nooks on the rockery, along sheltered borders, or banks of rich soil, and where the situation is warm. The bulb is not tender, but a natural shelter protects the slender leaves and frail flowers from storms of wind and rain. A good use is also made of this hardy bulb by growing several together in a 5-inch pot or shallow pan and placing them in a pit or frame, heated sufficiently to exclude frost, when the flowers will appear at Christmas. It is the practice with some to lift the bulbs as soon as growth is finished, as shown by the withering of the leaves, and dry them off, replanting again in autumn. Seeds may also be raised if sown as soon as ripe in a frame that is shaded from bright sun, as is done with hardy flowers propagated in this way. To a beginner in the culture of Irises, or one who only requires a few good representatives

of the genus, *I. reticulata*, the type, should of the dwarf bulbous Irises never suffer neglect. There are several varieties of it, a few that have caught the charming beauty of the type; but there are inferior forms, as the dingy-coloured *purpurea*, better known as *Krelagei*, which has none of the rich colouring of the type, but a dull, depressing purplish shade. The flowers are, moreover, scentless, and an increase of stock can only be made from seeds, the imported bulbs dying out in time. *I. sophenensis* is not so beautiful as the parent, but *cyanea* is pretty, the flowers sweetly-scented, delicate blue, intensified when peeping up through a covering of snow as they appear intermittently from November until March; it is very easily grown and increases quickly. Major is like the parent, but has bolder flowers, which appear at the end of January, and have the same rich colour, made deeper by the striking golden-yellow centre to the falls. Nor has it lost the delicious smell of Violets, that makes the ordinary type so precious, but is even more pronounced. There are also, I believe, other named kinds, but I have never seen them, and therefore cannot venture a description. *I. Histrio*, found on the Lebanon range and Mount Gerazim, is as beautiful in its way as *reticulata*; it blooms early, and has charming flowers of a lovely blue colour, streaked with purple and rich yellow. A close ally is *Vartani*, a new, but scarcely beautiful flower from Palestine; the sky-blue colour, as it is called in some books, is too pale and washy. While we have so many striking Irises, we need not have *Vartani*. *I. Rosenbachiana* is also a recent introduction from the high mountains of Eastern Bucharra, Turkestan; it is the bulbous Iris of the future, and resembles *persica* in aspect, but the plant is more vigorous and is quite hardy. The flowers vary in colour, but the darkest forms are the finest. Those who have a genuine love for Irises welcomed the arrival last autumn of *I. Bakeriana*, a precious gem, and named in compliment to Mr. Baker, of Kew. It was found by the Rev. G. F. Gates in Armenia, and bears a likeness to the ordinary *reticulata*, though entirely distinct. It seems hardy, robust, and free, the flowers about the same size as those of the common Netted Iris, and of a pale blue colour in the standards, but the falls are of the deepest royal velvety purple at the apex, the centre of the claw white, blotched and spotted with the same intense and delightful colour. We must certainly regard this Iris, though it is yet new to us, as a rich acquisition to the bulbous section. There is another new bulbous species, introduced from the same country, and named *Danfordiæ* (Bornmüller). It is as distinct as any Iris that appears in mid-winter, and has a peculiar characteristic in the almost entire abortion of the three inner segments, usually called the standards, and a marked feature of the flower. The blossoms appear through the soil without the leaves and are rather small, the colour bright orange-yellow, set off by a few pale brown spots. A dainty gem as this, sending its buds through the cold soil in the depth of winter, is a treasure of no mean value.

Before dismissing the bulbous section a word must be said for the beautiful *I. juncea*, which should be grown in every garden worthy of the name. It comes from Spain and Northern Africa, its graceful habit, slender leaves, and rich yellow fragrant flowers giving the plant a unique value. It should have a rich, but light soil, a fairly warm situation, and not suffer from wet during winter. Bulbs of it are not expensive, and they increase fairly fast if in a good soil and position. Another noble bulbous Iris, still rare, though found years ago in Tangiers by Schonsboe and Satzmann, is *I. tingitana*. It is not a kind I can recommend for universal planting, but cannot refrain from mentioning it in reviewing the genus. It seems to require a cold frame to develop to the fullest perfection the glorious colour and striking form of the flowers, which are twice the size of those of the Spanish Iris. The falls are broad, white with a tinge of blue, and enriched with a glowing orange signal that sets off the delicate lavender shade of the standards.

The Christmas Iris, *I. alata*, that sends up its

blue-lilac flowers in winter, and the Turkestan *Kolpakowskyana*, the flowers deep violet-purple, are two Irises that will be in every good collection. *I. alata* must be considered amongst the most interesting and beautiful of the whole series of bulbous kinds, especially those hailing from the region of the Mediterranean. It was introduced from Algiers in 1801, and is called *Xiphion planifolium* by Miller. It commences to produce its flowers in October and they continue to appear until the new year.

A lovely early kind is *I. persica*, placed together with *I. caucasica* by Mr. Baker in the Juno group. The Persian Iris is commoner than most of the early-flowering types. It is very dwarf, hardy, and loves a sandy, light soil, with, if possible, a sheltered spot to give some protection to the beautiful flowers, which are pale blue, blotched with velvety-purple, and the usual yellow signal.

ONCOCYCLUS IRISES.

This is a remarkable group, placed under the sub-genus *Euiris*, and containing the "wonders" of the Iris family—*I. susiana*, *iberica*, *paradoxa*, and the new *Gatesi*. The roots are rhizomatous, and the flowers of great distinctive character. It is not uncommon to find the Mourning Iris (*I. susiana*) well grown in gardens, and on the warm soil of Dangstein Mr. Batchelor succeeds well with it. In cold districts and where the land is heavy, it is wise to keep this section in a frame filled with gritty, rich soil. Prof. Foster plants the roots about the beginning of August and keeps them dry. The plants are fully exposed, except in the autumn if the weather is unduly wet, when the lights of the frame are put on to prevent injury to the roots. When June arrives a light is placed over them to let in plenty of air round the sides, and they are treated thus till August, when the lights are removed. If there is one clump of *I. susiana* and no other representatives of its group, a common hand-light will suffice to give shelter from rains when the flowers appear. *I. susiana* is figured by Gerard remarkably well in his "Herbal," and was cultivated by him. According to Clusius, it came from Constantinople about 1573, and was introduced into England in 1596, its native region extending into Asia Minor, Persia, Syria, and Mesopotamia. Its name is possibly derived from Susa, a town in Persia. The flowers are large, and appear in early June, the standards and falls being of almost equal size. The colouring is distinct and remarkable, a forbidding tone produced by a multitude of spots and lines of brownish black on a grey groundwork, the blade of the stigma violet. *I. iberica*, a native of Iberia, on the hills near Tiflis, and the Caucasus, is as remarkable in its way as *susiana*, to which it bears some likeness. It grows from 4 inches to 16 inches in height, the flowers of immense size, and remarkably coloured. The outer segments or falls are deep purple-red, veined and streaked with a tawny shade and marked by a velvety black spot in the centre; the inner segments or standards are larger, spreading, and erect, deep purple, streaked with a deeper colour, and veined with grey about the base. It requires the same soil and treatment as the Mourning Iris. Another *Oncocyclus* type that comes from Northern Persia is *paradoxa*, which in habit and leaves resembles *I. iberica*, but it does not rise more than a foot in height. The standards are larger than the falls, a reversion of what is the general rule, and purple, lined with black; the falls spreading, purple, marked with black and margined with white.

GERMAN IRIS.

In the great *Pogoniris* group we have Irises that are common in even cottage gardens, as it contains the great Bearded or common Flag, which makes magnificent clumps of sword-shaped, glaucous leaves in many suburban plots. One of the most commonly cultivated species of this division is *I. pumila*, a dwarf type, which seldom rises more than 9 inches high, and bears its lovely flowers during April and May, finishing just before the great German Flag opens its bold, handsome blooms. This dwarf Iris is found in Central and South-eastern Europe, extending into Asia Minor, and is men-

tioned by Parkinson. There is more than one use for this dwarf Flag. Single beds of it are rich and handsome, and it may also be planted as an edging to large beds or to make clumps on the rockery and border. It grows freely in ordinary soil and may be easily increased. The finest is the type, whose growth is hidden in late spring by the rich purple flowers, as intense and strong in colour as those of the great German Iris. There are several other forms in which purple predominates, though there is a yellow and even a white variety. A pretty Iris, blooming about the same season, is *I. Chamæiris*, that grows about 6 inches high, and is a native of Southern Europe. For an ordinary garden, unless there is an ardent desire for Irises, it is scarcely necessary to plant this as well as *pumila*. *Iris obliensis*, that expands its buds as the flowers of *pumila* are fading, gives a profusion of bloom which offers considerable variation in colour when several varieties are grown. *I. biflora* should also not suffer neglect.

Iris germanica group is a broad definition. It is made to include all the broad-leaved Irises, as *pallida*, *squalens*, *sambucina*, *neglecta*, *amœna*, and *aphylla*. There is no flower that gives a bolder effect to the garden scenery than masses of the Bearded Iris in one or another of its many forms; and in planting choose distinct and striking colours, not the æsthetic mixtures, quiet, curious, and in a sense tasteful, that we find in the forms of *squalens*. *I. germanica nepalensis* is a noble variety, the flowers larger, richer in colour, and more striking than those of any other form. It was introduced by Wallich about fifty years ago, and is an Iris everyone should have, from the cottager to the duke. The Florentine Iris is of course essential to every good garden; it blooms before the great army of *Pogoniris* are in their fullest beauty, and its soft blue flowers give a delightful shimmering of colour in the distance. It was introduced from Southern Europe over 300 years ago, and is described by Gerard in his "Herbal," besides receiving culture at the hands of this great gardener. There is no botanical difference whatever between this and the ordinary *germanica*. The great blue elder-scented Iris, *I. pallida*, is one of the best of the species in cultivation, and was included in the collection of Gerard in 1596. It is also called the Dalmatian Iris, but whatever its name there is no Flag that can rival its bold characteristic beauty. The strong stems rise about 4 feet high from the rich growth of leafage, and carry clusters of from eight to ten, or even more of the large blue flowers, which are as delicate in their shading as those of the pretty little winter-flowering *stylosa*.

One of the greatest favourites is the variety of *aphylla* called *Mme. Chereau*, which is sent into the market in large quantities, the flowers always finding a ready sale. Both standards and falls are white, feathered at the margin with lilac. Another fine form is *Celeste*, which bears a number of large deep lavender-coloured flowers bearded with orange. There are many other beautiful forms in which the colours are bright, varied, and finely contrasted, and a reference to a good bulb catalogue will give the desired information, but those that have been mentioned will not be too few for gardens where bold breaks of glowing colour are sought rather than a list of varieties. The large garden that gives space for half-wild spots where flowers are permitted to grow and bloom in their own way should have the German Irises, which soon become at home in quiet retreats where the Peonies are allowed to spread out their noble wealth of leaves. Good, light, loamy soil, full exposure to the sun, and a warm position where the roots are not soaked with wet in winter will suit the German Irises. As you are close to the Chiswick Gardens of the Royal Horticultural Society, you have a unique opportunity of studying this particular group, which in its several divisions is there planted in rectangular beds. The growth made is remarkably robust, partly from a good soil as a foundation, and partly from the wisdom of allowing the roots to remain unmolested.

An Iris that is doubtless known to few of you is *I. Korolkowi*, which is a distinct and beautiful spe-

cies found by Korolkow in Turkestan. It is as yet rare and not easily grown, so that it is likely to remain so except to the enthusiasts, who cannot but admire the graceful flowers, exquisitely veined and showing a variety of unusual colours, blackish purple with a shade of brown in it, and soft creamy white that forms the groundwork of the falls and standards. This Iris is most nearly allied to the *Oncocyclus* group, and together with a few more has been placed in a new section called *Regelia*. It requires similar treatment to that given the *Oncocyclus* Irises.

APOGON IRISES.

This section is of vast importance, as in it we find the Siberian and Kämpfer's Irises, and such noble species as *ochroleuca*, *Monnieri*, and *spuria*. The Siberian Irises are strangers to many, though why is not easy to understand. No hardy garden flower has the grace and freedom of the widely spread *I. sibirica*, that makes a rich growth of gracefully arching foliage, from out of which rise, to a height of 2 feet or more, the tall slender stems, bearing usually two of the blue and delicately veined flowers, with sometimes another lower down on the same spike. It has been recommended as a water plant, and as by nature it loves moisture, those who have ponds or lakes in their gardens unadorned by any margin of flowering plants should plant roots of the Siberian and Kämpfer's Irises. The grassy leafage, that is stirred by the least wind, would give a wild, unusual beauty to the garden. When grown in the border or bed, a rich, damp soil is best, though it does not mind drought if not too severe and of long continuance. Its old name of *pratensis* suggests its relish for moisture and a full exposure to sun. One of the finest Irises of our gardens is *orientalis*, a mere form, also known as *Melpomene*, and that has close relationship to *sibirica*. It grows freely, and has bolder and richer coloured flowers, which are of the deepest possible blue, the base of the wide fall dull guinea gold colour, spotted with red, and surrounded by a suffusion of white, the bud being tinged prettily with crimson. It comes from the same country as *sibirica*—Eastern Siberia—and was figured in the *Botanical Magazine* as *I. sibirica sanguinaria*. A variety of the Siberian Iris that is worth culture is *lactea*. The growth is rather more robust than that of the type, the stems a little taller, and the flowers of about the same size, with the colour changed to milky white, not sickly, but, in a sense, charming. *Acuta*, which has acute foliage, is very distinct, but not wanted in a small garden. It only grows about 18 inches in height, the flowers blue, pencilled with white. In the dwarf and stiff variety we miss the delightful grace of the type.

A noble beardless Iris is *I. aurea*, a native of Cashmere, from whence seeds were brought by Royle, and Dr. Aitchison also found it in Shrinagar, in the same country. It grows about 4 feet in height, and has self golden yellow flowers of striking beauty. This and the Levantine *Monnieri*, that rises to about 3 feet high, and bears large, fragrant, bright orange flowers, together with the glorious *ochroleuca*, are three of the best Irises of the garden. *Ochroleuca* is a South Russian species, about 3 feet in height, and with large bold flowers of remarkable beauty. The flowers are each fully 5 inches across, both standards and falls clear ivory white, the latter richly and distinctly blotched with the deepest yellow. Its robust, sword-like foliage and noble flowers give it strong character. Then we have the common South European *I. spuria*, that grows to a height of about 2 feet, and bears, in clusters of three or four, sessile lilac flowers. This class of summer-flowering "Flag" is not difficult to grow well, and makes imposing groups in the borders amongst taller herbaceous plants, or on the fringes of shrubberies where the soil is not too dry, but stiff damp loam, and the position sunny. Seeds sown as soon as ripe will produce seedlings that will flower in the third or fourth year. The way to increase the stock is by division of the roots in autumn. Our common yellow Flag of the stream and brook-side belongs to this group, also the Gladwin, *I. versicolor*, *I. setosa*, and *I. stylosa*.

Iris stylosa is a winter-flowering species from Algiers and the same as *unguicularis*. From amongst the abundance of foliage rise intermittently the pale blue, sweet scented flowers, which when cut in the bud open out in their fullest beauty in water. It should have the protection of a cold house, and loves a light loamy soil, fairly dry, and to be left alone. The variety *alba*, which blooms at the same season as the type, bears frail and delicate flowers, white, with just the faintest suspicion of blue, and most chaste arranged with those of the parent.

KÆMPFER'S FLAG.

This is the great *Iris* of the section now under consideration. No *Iris* is like it, though our common stream-side wilding bears it some resemblance that suggests, perhaps, some affinity of relationship. Its flowers show a range of colour as delightful in variety of shade as those of the great *germanica* group, a boldness of form, breadth of segment, and robustness that constitute valuable and distinct features. There is purple of all depths, dull red, white, and varied tints, sometimes self, and again distributed in a network of veins, splashes, and spots. This noble *Iris* and the *I. lævigata* of Fischer are synonymous, and we designate the group as "Kæmpfer's." It is a native of Eastern Siberia, Japan, Dahuria, and Manchuria, and was first introduced from the Japanese gardens by Siebold. The flower is regarded with great respect by the Japanese, who cultivate it with the same assiduous care that is bestowed on the Rose in England. In the photographs of Japanese gardens are little plank bridges spanning an artificial stretch of water, in which delights to grow the moisture-loving Kæmpfer's Flag, and the picturesque plank bridges give readier access to the plant. During the past three or four years the Japanese Flags, represented by such a type as is now under consideration, have been carefully grown in gardens, but failure has too often resulted from a want of knowledge as to the likes and dislikes of the plants. Thousands of roots are imported each season, and sometimes planted in a dry border, where, as it is against their nature to thrive without moisture, death soon follows. Now their cultivation is better understood. We see them by the waterside, where they revel in the water that moistens the soil about their roots, and if there is no sheet of water in the garden, a bed has to be made for them, sunk a few inches below the surface, made up of good strong loam mixed with manure, and kept well watered to support the bright green growth that rises quite 4 feet. Once planted, leave the clumps alone; nothing is more injurious than constant disturbance. A stronger growth and also roots that do not "give out" so quickly as those imported may be had from seed, and there is the anticipation of obtaining new, distinct, and beautiful forms. Sow the seeds as soon as ripe in good soil, kept carefully watered, and the best time to divide the roots, if it is absolutely necessary to interfere with them, is just before growth commences. There is a long list of named varieties, and in the rage for novelty mere size is likely to destroy the natural grace of the flower. Some of the varieties have flowers each 7 inches and 9½ inches across, and disfigured by mottlings and spots of colour that make the bloom like a bit of bad mosaic. Grow only the bold self-coloured varieties, purples especially, and the pure white, which peering up in the garden, have an indescribable charm in August. There is a tendency to double the flower, increase its normal whorl of falls, and so create an undesirable lumpiness and fulness. The double *sibirica* is a burlesque of a lovely flower; so must be a double Kæmpferi, which we shall possibly and, unhappily, attain. Those who have boggy places in their gardens are recommended to plant roots of this *Iris*, *sibirica*, and the common yellow Flag to furnish a succession of bright bloom in summer.

There are two remaining groups of less importance to the gardener; these are *Evansia* and *Dietes*, the first containing the greenhouse *I. fimbriata*, a beautiful flower, crimped and crested, and rich blue in colour, save for the yellow and white centre. *I. tectorum* is also of this section; it is a useful June flowering species, the flowers purple-

blue; it loves a dry soil and full exposure. *I. bicolor* and the Wedding *Iris* (*I. Robinsoniana*) are the representatives of the sub-genus *Dietes*. The Wedding *Iris* is found in Lord Howe's Island and the east coast of Australia, and grows over 6 feet in height, bearing white flowers each about 4 inches across, which quickly fade, but are succeeded by others. It blooms in the open air at Tresco Abbey, Scilly, and a note records that in 1888 it bore about sixty of its handsome blooms.

This closes a brief review of a genus which is full of interest to those who wish for beautiful gardens.

TREES AND SHRUBS.

THE SILVER FIR.

(*ABIES PECTINATA*.)

UNLESS it be under very exceptional circumstances, no forest tree commonly cultivated in this country approaches the Silver Fir either

are many fine old trees of the Silver Fir, two in particular named "Adam and Eve," one of which is well represented in the accompanying figure; it has certainly few equals in this or any other country. They were planted over 200 years ago, and are now respectively 130 feet and 124 feet in height, the cubic contents of the two trees being computed at 2500 feet. "Eve" rises to 124 feet in height, and girths at 3 feet and 5 feet 22 feet 8 inches and 21 feet 8 inches respectively. At 1 foot from ground level "Adam" girths 28 feet 10 inches in size of stem, and the height is exactly 130 feet.

England can likewise boast of several giant specimens of the Silver Fir, one at Poulton's Park, outside the New Forest, being 130 feet high, and with a well rounded bole girthing 14 feet at a yard up. There are several other specimens upwards of 100 feet in height, and one at least 130 feet in England.



Silver Fir "Adam" in the grounds at Roseneath. Engraved for THE GARDEN from a photograph sent by J. D. Cox, Woodford, Broughty Ferry, N.B.

in height or for the quantity of wood it produces in a stated time. As conspicuous landmarks throughout the country, towering 30 feet and 40 feet above any of its neighbours, the Silver Firs are known in almost every district, the great spiry heads of Yew-green foliage standing well out on the horizon and seeming to defy both the sweeping winds and the intense cold to which they are subjected.

Throughout the country there are many Silver Firs ranging from 100 feet to nearly 130 feet in height, and with clean straight stems that often girth fully 20 feet at a yard from the ground. On the Duke of Argyll's property at Roseneath

From observations I have made, it is pretty evident that a sandy or gravelly subsoil is most beneficial for the rapid growth and general welfare of the Silver Fir, but there are not a few fairly good examples on light alluvial deposit. My notes do not show that chalk is a happy soil for this Fir. That the value of the wood of the Silver Fir is not so generally well known nor appreciated as it deserves I am quite convinced. A number of experiments carried out prove fairly conclusively that when properly matured Silver Fir wood is very lasting; indeed, quite as much so as that of either Larch or Scotch. We have used it largely for

covering outbuildings, and with marked success too, for the wood has stood quite as well as some of the foreign logs alongside which it was placed. The growth of the Silver Fir after it has attained to say 20 feet in height is very rapid, examples being frequently known of its having added about 12 feet of timber annually for forty-nine years.

Somehow or other very few trees of the Silver Fir are now planted, at least in comparison with such others as the Larch, Scotch, Laricio, and Austrian; but that it is well worthy of more extended culture cannot be denied from actual results obtained in this country.

For planting in conjunction with the Douglas Fir the tree in question is most valuable, the little shelter afforded by the Silver Fir being just what is wanted to save the rather tender and brittle leaves of the Douglas kind.

As an ornamental tree perhaps we cannot speak very highly of the Silver Fir, yet in its younger stages, and particularly if allowed plenty of room for the development of its lower branches, it is by no means stiff or unsightly even when used as a lawn specimen.

A. D. WEBSTER.

ARRANGEMENT OF SHRUBBERIES.

GROUPING is the simplest and best method of arrangement, and certainly the most natural. There is nothing of a satisfactory nature in the present method of indiscriminately mixing trees and shrubs without due regard to their habits, requirements, or fitness for the purpose. In many shrubberies choicer things have been choked to death by hungry Box or Laurel. Good shrubs are plentiful and cheap. If the area to be planted is very extensive some of the commoner things may be used, but even then we may confine their use to the less important positions, and group the choicer things nearer the margin of the shrubbery and in the more conspicuous places.

Arrangement by grouping is very simple, because if we have three, six, or a score of plants of any one thing, we have only to group them boldly in sufficient space to allow room for the development of each, and follow the idea throughout till all the things are planted. The result would be far more satisfactory than many of the mixtures of shrubs so common in gardens at the present day. Moreover, with extensive families like the Spiræa, Philadelphus, Deutzia, or other flowering shrubs, grouping affords a good opportunity of arranging the different members of the family in proximity, so that we can have all the effect, and also make comparisons, and learn the distinctions between them.

Assuming that the larger trees in the greater part of the shrubbery are grouped at proper distances, the ground between need not be left bare or annually dug, as there is a host of low shrubs that would carpet the ground between the taller things and not interfere with their growth. Many of these things have been quite excluded from our shrubberies, owing to the crowding together of a variety of things and letting them run into one another, or by that still worse system of annually digging between the shrubs and mutilating them by cutting them into a round mass, till they lose what little individuality they may naturally possess. The margin of the shrubbery is generally either ill-defined, or consists of a border in which a few hardy plants are languishing. Here, again, is a fine opportunity for boldly using small, but choice dwarf shrubs and good hardy plants in broad masses; but these last, if they have to contend with the rambling roots of the shrubs, should be selected with a view to their suitability for the purpose. Many vigorous hardy plants will thrive for years in such situations if the site is first well prepared for them. Many of the Lilies will do well for years if planted in good soil

on the margins of the shrubbery, whilst things like Solomon's Seal, Lily of the Valley, and Wood-ruff will thrive in and among the very roots of the shrubs.—*Field*.

THE WHITE WILLOW.

AMONG the trees of the northern world, I think there is nothing more beautiful than our native white or grey Willow. Yet few seem to be aware of its merits, and perhaps its name would not be found among forest trees and underwood plants in many a catalogue. People who ransack the world for trees commonly do not take so much notice of their own; but none that we can ever bring home from the farthest country will be more beautiful than this for our landscape, or more useful in our woods. Those who know the eastern counties will have seen many beautiful natural plantations of it in Essex and in the eastern marsh country. Pictures could be made of it and have been made of it in great part, although few of our artists, as yet, pay much attention to trees as forming the main elements of a picture.

Occasionally we find wonderfully large specimens of this tree in one or other of its varieties in rich bottom lands and in parks where it has room to grow; but, after its native swamps, it is, perhaps, most beautiful in groups and colonies in woods, where the effect of the leaves when tossed by the wind is often as pretty as that of the Olive tree in the south of Europe. The tree is well worth growing for its beauty, but it is also as useful as it is beautiful, making excellent cricket bats, and being useful in other ways as a tree, while as underwood it is readily bought in a younger state than almost any other tree. For example, while the ordinary underwoods cannot well be cut before nine years' growth, the white Willow makes very good growth at seven. The way to propagate it is to simply take some bundles of stout fagots and drive the sticks nearly half-way into the earth at about the distance apart they are required to stand. A curious thing we have noticed about Willows is that the branches from trees that have been chopped seem to make by far the best trees. Another charm of the white Willow we had almost forgotten is its delicate and grateful odour. The pale green-yellow catkins are scarcely visible among the green in spring, until a refined, delicate, and most welcome scent lets one know that the trees are near. It does not last long, but in all the charms of the early year there is scarcely anything more welcome to us than that of the odour of the white Willows. Probably few people have noticed the flowers, as they are so much like the budding leaves in colour. Gilpin is rather shallow about it, and in his description of the effect of the tree in any rural scenery he misses its beauty altogether on the marshes and in picturesque groups elsewhere. It is a tree of wide distribution in Europe. Trees 70 feet or 80 feet high are not uncommon.—*Field*.

Renovating old Hollies and Thorns.—

Notwithstanding the many fine ornamental trees and shrubs which have been introduced into this country, the common Holly and Hawthorn still occupy the front rank. Both may be used in the formation of hedges, and both are capable of growing and thriving when planted in the immediate proximity of large trees. Both trees will grow in a great variety of soils, from the sea-shore up to 2000 feet or more above sea level. Although the merits of the plants are of a very high order, it is strange that many fine old trees of both species are to be seen here and there throughout the country in a poor condition, and gradually dying off for want of a little timely attention. Both trees prefer a deep rich soil thoroughly drained and well broken up. Old trees that are showing signs of distress may be improved by applying a good dressing of rich manure on the surface around the stem of the tree, and I have likewise found it to be very beneficial to occasionally give a good soaking of liquid manure from the farmyard. Both trees, however, are apt to contract disease and die off if water remains at

the roots. When such is the case the preliminary step to be taken is to have the ground efficiently drained. Holly and Thorn hedges that are in a backward state of growth through poverty of soil may be restored to health and vigour by forking or digging in a good dressing of manure along both sides of the hedge, care being taken to disturb the roots as little as possible during the operation. Liquid manure may likewise be applied here with good results. Cultivators should lose no time in attending to the above before the press of spring work commences.—J. B. W.

Euonymuses against walls.—As mentioned in THE GARDEN, Feb. 1 (p. 108), the different forms of Japanese Euonymus are all good plants for training to a wall, but the only one that will attach itself thereto is the variegated form of *E. radicans*, which is used for a variety of purposes, and differs considerably according to the situation in which it is placed. When planted out in good soil and trained to a wall it will as it mounts upward develop stouter shoots and very much larger leaves than is the case when it assumes the character of a low creeping shrub. Here we have a stretch of wall about 10 feet high completely clothed with this Euonymus, and very bright and cheerful it is at all seasons. As an edging plant it can be lifted and split up like Box, but it is wanting in the neatness of our native shrub. For winter and permanent bedding, too, it can be employed, and for this purpose the fact that it is harder than the variegated forms of *E. japonicus* increases its value. I once saw a peculiar effect produced by grafting a number of shoots of this Euonymus at regular distances along a very strong plant (kept to a single shoot) of the common Spindle Tree (*E. europæus*). As the shoots of the variegated *E. radicans* grew they assumed a drooping character, and thus formed a columnar-shaped specimen, very distinct, but more curious than ornamental.—T.

ORCHARD AND FRUIT GARDEN.

LIFTING INSIDE ROOTS IN LATE VINERIES.

THE modern market grower cannot slacken speed to lift and relay the roots of exhausted or failing Vines, but, like the wandering Arab, strikes his tent and moves on. In other words, having cultivated at high pressure he moves his houses to fresh ground, or builds new ones for Grapes, and destroys the prematurely old Vines preliminary to a fresh start it may be with Peaches or Tomatoes. He makes his borders very rich, using large quantities of animal manure, treat his Vines as biennials, and thinks no more of rooting them out than a private gardener does of destroying a set of exhausted Cucumbers. The professional cannot do this, for having possibly but one late house, he top-dresses, renovates, and lifts first the inside, then the outside roots, or, like the late Mr. Wildsmith, gives the Vines a turn on their feet, and, having rooted the leaders on the opposite side of a span-roofed house, amputates them and continues the culture of excellent Grapes upon the old Vines standing on their heads, apparently none the worse for this reversal of the circulation.

On the numerous large domains throughout the kingdom the thoughtful owners place no impediment in the way of turf and other materials for making new and renovating old borders; gardeners put in the energy and skill, and, as a rule, obtain good Grapes from Vines whose age may range from twenty to eighty summers. The inside and outside roots of Vines in early and midseason houses are lifted alternately as soon as the Grapes are cut, and the outside roots of Lady Downe's and other bottling varieties are dealt with in the same

way when the Grapes are ripe and can be supported from within until the leaves fall in November. This outside renovation alone keeps them going for a number of years, but in due course the inside borders become sour, inert, impervious to warmth, air, and water, or the roots, having got down to the face of the cold, moist concrete, pump up crude matter which does more harm than good, as it counteracts all that has been done externally. If the houses are lofty and the Grapes quite clear of the head, it is possible to change the inside soil in September, but in the majority of private gardens the structures are too low for the performance of this work with any degree of safety to the crop; consequently inside renewal is put off or performed at the wrong season, when the Vines suffer. As ninety per cent. of the late houses are now empty, inside renovation is simple enough, but this is the wrong time, for the Vines are dormant; consequently all the best of the roots might perish or sulk for a season. This at least is my experience, and when I state that Vines, young or old, always start away best when the buds are on the move, the owner of bad inside borders will gather that for the present he must exercise that rare virtue, patience. He may if he feel disposed, and perhaps with advantage, coax his late Vines on a little; also he may prepare under cover a good body of fresh, dry compost, stack it up in a narrow ride, and cover with hot manure or leaves to start fermentation.

The Vines, as a matter of course, will be well supplied with warm water, and when the buds are ready to burst he may fork out every bit of soil, wash the roots if he likes, and relay them in the new warm compost. If the outside border is in good condition and capable of carrying the Vines through the early stages of growth, a space varying from 3 feet to 6 feet in width will be ample for the new one, as all strong fibreless roots must be well shortened or relaid in a serpentine position as near as possible to the surface.

Border-making having been so frequently described, I need not go into this matter, but, mindful of the fact that the inside roots will take from 2 feet to 3 feet of water in the course of the season, I may say the drainage must be ample. When the work is finished the roots will at once take to the new soil, which, by the way, must not be made sour by heavy watering, one supply in a tepid state to settle the compost being ample until the Vines are in full leaf. Then, by way of keeping in moisture, the surface may be well mulched with short stable manure, and, a portion of the old border area being unoccupied, root-action may be quickened by the introduction of a lining of Oak leaves in a state of fermentation. By following as nearly as circumstances will admit upon these lines, the new compost will be kept moist and warm, the fermenting material throwing of ammonia will economise dry fire-heat and incessant syringing, the Vines will hardly feel the check, and if the bunches are a trifle smaller, the berries will be larger than in the previous year and perfect in colour.

FRUIT GROWER.

Late Pears.—I thoroughly appreciate the honest criticism from so able a correspondent as Mr. Sheppard (GARDEN, Feb. 1, p. 93) on my remarks concerning late Pears; at the same time I must deny what he refers to as my inconsistency. The fact of my inability to produce specimens worthy of the name of good late Pears was no proof that other growers throughout the country should not have been more fortunate with all their cordons, walls, Quince stocks, &c., and so have been in a position to demonstrate their experience, thereby

carrying forward this vexed question a stage further. The fruit reports published in THE GARDEN last August led me to infer that good fruit might be forthcoming, and with such before us, now would be the best time for discussion. Growers' opinions as to the best Pears up to the season of Josephine de Malines and Bergamotte d'Esperen seem fairly unanimous, but sorts to follow these is what is wanted. In nearly all fruit lists the names of at least a dozen kinds—later so-called and good—are given, but personally I have never tasted them worthy the name, good anywhere, nor in any season. If this is the practical experience of others, it seems to me to be little short of sheer extravagance and waste of power to grow these so-called late kinds, excepting on south walls, or with the aid of glass. —W. CRUMP, *Madresfield Court*.

NOTES ON APPLES.

DISCUSSION still goes on as to the relative merits or demerits of the several varieties of Apples, and in time we shall probably get a solution of the best varieties to grow. Some authorities advise the planting of the Ribston and Blenheim for profit, whilst others are against them. Both are probably right in a measure, but for quick returns the planting of the Blenheim would only end in failure. Again, I should think it would be a very grave error to discontinue planting the Blenheim. To the cottager or grower for profit and who looks for quick returns it would be a serious mistake to recommend the planting of this variety. The question arises, Who is to plant the Blenheim? I should say the owners of the land, and those who have an interest in, or are charitably disposed to those who will come after them. Many owners of estates plant forest trees for the benefit of their successors, and why not plant Apple trees? Take it all in all, there is probably not a more profitable Apple in cultivation than the Blenheim when in bearing. For this reason it should be planted, but not for immediate profit. The editor of THE GARDEN says we must look out for a more precocious stock than the Crab. If one were forthcoming, it would be a boon. It would certainly be better than the English Paradise or Nonsuch stock, for even on this it fruits but sparingly, is also dry in texture and light in comparison with specimens from trees on the Crab. It ripens early, and has a tendency to drop. I remember some fine old trees on the old red sandstone formation in Herefordshire. These used to produce some splendid samples.

I see the Ribston is also a bone of contention. Now canker is the evil with this variety, and the question is, What will cure it? The canker which affects the Ribston appears to be peculiar to itself. I do not believe that it is either the stock or the soil which causes canker in this variety, but injury to the bark, and the variety does not appear to possess vigour enough to outgrow the evil, or rather injury. A severe hailstorm such as we had in this district on the 25th of last May, the shot from a gun, the least pressure from a stake or ligature, or even severe frost on unripened wood will often cause it. The hailstorm mentioned damaged thousands of trees in this district. In this garden there are scores of young trees with protuberances from this cause. Many people take it for canker. The healthy varieties are forming fresh bark, but with others it is the reverse, and if the wounds are not pared over with a sharp knife and dressed with clay and cow manure canker will follow. Canker is caused through various agencies, as well as bad or undrained soils, and each man when describing its cure in his own particular case is, no doubt, acting in good faith.

The Gravenstein, again, has lately come in for comment, and as far as English grown fruits are concerned, I do not think there could be a more delicately flavoured Apple or one with such a powerful aroma. But it is not a profitable Apple to grow, although it is splendid for the table. The Gravenstein, American Mother, and Cox's Orange Pippin were the only Apples the late Earl of Chesterfield would eat. I remember exhibiting a dish at one of the Woolhope exhibitions, and it caused quite a sensation amongst growers present. I also

remember calling the attention of Mr. George Bunyard and the late Mr. Woodbridge to it, and they pronounced it the "finest flavoured Apple in cultivation." The wood of the Gravenstein is rather tender. The fruit referred to was grown at Holme Lacy on an espalier. The Newtown Pippin was also tried there, but would not succeed at all. We used also to grow there what was supposed to be the true Wormsley Pippin. It was a most profuse bearer, very handsome, and of excellent quality. I sent Mr. Bunyard some grafts, but how he succeeded with them in Kent I never heard. We had two trees, one a very old one. I have never seen this Apple mentioned by other Hereford growers, so conclude it is comparatively little known. It was raised at Wormsley Grange by the late Mr. Thomas Andrew Knight, and named after his residence. A. YOUNG.

Abberley Hall Gardens, Stourport.

THE GRAPE VINE IN THE OPEN AIR.

CHEAP glass and timber having been converted into vineries covering hundreds of acres of British soil, young Vines for some years past have been but little planted in the open air, and old ones, judging from their neglected appearance, are not considered worth the attention so essential to the ripening of their fruit. The introduction of Jersey Grapes at ridiculously low prices, too, has dealt a severe blow to the hardy Vine, especially in the environs of large towns, where the imported produce crowds the fruiterers' shops in the autumn, with the result that the thrifty owner of house property now plants his best south and west aspects with the more profitable Apricot and Pear. This outcome is quite natural, and yet we cannot but regret the rapid decline of one of the most graceful, ornamental, and rapid growing climbers ever introduced into this country. In rural districts where the Jersey basket is unknown, the Vine, I think, may still be planted, and although it never produces a cluster of ripe Grapes, its graceful leaves and tendrils will hide many an unsightly wall and gable and convert whole cottages into masses of crimson and gold in the autumn. Upon large estates, especially where the soil is warm, sandy, rocky and sloping to the sun, the varieties whose foliage puts on the rich marbled tints might be planted not only by the score, but by the hundred, and I venture to think, indeed to assert, that many of them would soon rival the Japanese Maples, as yet too scarce, and for all time too slow for wild woodland planting. It may not be generally known that our finest late hothouse varieties grow admirably in the open air, and although their swelling a bunch of Grapes is out of the question, they lay on leaf colouring quite equal to anything met with under glass in September and October. Some, as a matter of course, are better than others, and all of them colour best towards the end of a hot, dry summer, but once they are thoroughly established and the roots have to forage for food, the foliage increases in colour as it decreases in size, and being quite hardy, it stands wind, wet, and autumn frost better than the fleeting Virginian Creeper.

In making a selection of high-coloured varieties worthy of being grown for their foliage alone, I should choose the old West's St. Peter's, Miller's Burgundy, Barbarossa, Alicante, Gros Colman, Gros Maroc, Lady Downe's, and the Claret—the last a dull purple throughout the summer and a brilliant crimson in the autumn. Some of the American species and varieties, too, I believe, are very good, and being tremendous growers might be planted where space is, practically speaking, unlimited.

Passing from the park to the cottage garden, or even to the squire's garden, there are not a few spots now bare and ugly upon which culture for Grapes might be attempted, and, provided the most approved methods of training, pruning, stopping and thinning were followed up, good ripe fruit might be cut in favourable seasons. A very important aid to success is a thin, warm, moderately rich soil resting upon good drainage, or, better still, broken shelving rock into which the roots can

penetrate to a depth which will ensure moisture in hot dry seasons. Where Nature has provided a bottom of this kind, as on the sloping hills near Bath, on the spurs of the Cotswolds and along the south coast, open air Vines should ripen excellent Grapes; and the climate being good, fat root runs on deep rich retentive soils might be made poor and warm by the use of concrete, ample drainage, and borders well raised above the surrounding level, precisely upon the principle adopted by the late Mr. Gibson in the sub-tropical garden on the swampy flats of Battersea. Having seen and lately described a most fruitful Vine growing out of a limestone buttress some 10 feet from the ground line, I look upon the preparation of a dry, warm border which can be mulched and flooded with impunity as a very important factor; but there is yet another, and that is an improved method of pruning, stopping, and thin training. The Vines now met with in good gardens are allowed to carry too much wood and foliage, first by being laid in much too close at the winter pruning and training, and second, by being allowed to run wild through the early part of the summer. If growers of hot-house Vines adopted this plan, under glass even, they would fail, and yet failure in the open air is ascribed to many causes, but seldom to the right one. There are two distinct modes of training, the vertical and the horizontal; the first answers best on lofty buildings, as canes can be worked upon the long-rod principle, but the second is preferable where the walls are low and the lateral sweep considerable. The start in either case is the same, as the young Vine must be shortened to a foot at the outset; a young shoot in due course is trained to the right, another to the left the first season. If vertical training is decided upon, those a foot from the ground will form the base line and vertical shoots 3 feet apart the following year will be taken from them, all intermediate buds being taken out or stopped when the others are growing freely. Where each of these shoots has made 3 feet to 5 feet it should be stopped to plump up all the buds, as certain of these will carry fruit the following year, and in this way mounting by a yard or so per year a Vine may be taken any height on the wire extension principle.

Horizontal training consists in shortening the leader to 3 feet of young cane each winter and training one shoot to the right, another to the left, until they have made 6 feet or more according to space, when they should be stopped to plump the buds as in vertical training. From these horizontal branches vertical shoots 18 inches apart must be led upwards, but never downwards, and as these will show fruit they must be stopped at the second leaf beyond the bunch, when all superfluous breaks may be pinched close or rubbed out to prevent the foliage from becoming crowded. One bunch to each shoot will be ample, and reflected heat being important, the wood and fruit must be kept close to the wall and all laterals closely pinched, as waste of force in this part of the Vine not only robs the clusters, but prevents the canes of the current year from extending. When the Grapes are set they should be thinned, care being taken that the premier leaves are not broken, as these draw the sap and increase the size of the berries. Mulch, feed, and flush with sewage if the season be hot and dry, moisture being the best preventive of red spider; remove all laterals when the Grapes are cut, and spur back to a single bud when the Vines have shed their leaves in November. A gross habit being adverse to fertility, all mulching of a stimulating nature should be removed when the Grapes are ripe, a light covering of litter being ample protection through the winter. W. C.

Apple Claygate Pearmain.—I have been surprised to see this Apple highly spoken of and recommended by some correspondents of THE GARDEN. My experience of it is that it is a bad doer and does not bear freely. When it does bear the Apples do not ripen properly and always shrivel unless the summer and autumn are unusually favourable. If it is as good as some state, the cultivators who praise it must be exceptionally well

situated as regards soil and climate, as here in East Anglia it is not nearly so reliable as the Ribston, which used to do well in these gardens till the trees became very old and worn out. We have young trees now that promise very well, but the Claygate is not worth keeping, and I intend to graft it with Blenheim as soon as the time arrives for that work. The Blenheim is remarkably free here, and excels all others during the season it is fit for use.—S. D.

FRUIT GROWING IN BRITAIN.

MR. SWANN (GARDEN, Feb. 1, p. 105) is evidently one of a numerous class who have made up their minds that fruit growing in this country is a hopeless task, and the sooner those that are engaged in it turn their attention to something more profitable the better. Being myself one of those unfortunate individuals who rely more on fruit culture than on anything else, I should be extremely glad if Mr. Swann or any of his friends would give some practical advice as to what kind of crop we can substitute that will repay our labour better than fruit. No one who has had any lengthened experience of fruit culture would like to assert that by fruit growing a fortune can be realised, but that it is in such a hopeless state as Mr. Swann describes I can positively deny. If the climate is so very unsuitable for fruit culture, how is it that we find our customers willing to pay more for home-grown fruit, no matter whether Apricots, Cherries, Green Gages and other Plums, Grapes, Apples, &c., than they are for foreign if only they can get them. Simply because the flavour is better. Only in Pears do I think the foreigners beat us, and that is our fault, and not that of the climate, for if the French find it necessary to grow theirs on walls, how can we hope to compete with them if we grow ours without any aids of that kind? Where the culture of Pears is well carried out, as it is in many good private gardens on the cordon system, fruit equal to that of foreign growth is the result. There is not the slightest doubt but that Pears would pay even for the protection of glass better than many crops that are now grown under it.

It is with regard to Apples that Mr. Swann is so wide of the mark, as home-grown samples, if good, always realise more than the foreign. It would be folly to compare the price of the best selected grades of foreign growth with that obtained for the haphazard lots that are still sent to market by English growers with good, bad, and indifferent all put into one basket. That Apples equal to any in the world are now grown even in such seasons as the past ought to be patent to anyone who visits the autumn fruit shows, where home-grown fruit can hold its own against all comers. That the keeping qualities of our home-grown Apples are in any way deficient is entirely erroneous, as there is no difficulty whatever in keeping the late sorts until Apples come again, and those who grow for profit know that you can keep them even too long, for after Rhubarb gets cheap and green Gooseberries are obtainable, it is useless keeping Apples any longer. That fruit growing as a profitable industry will be, and is in a very fair way of being revived I have every reason to believe, for not only are the old-fashioned orchards springing up in all directions, but dwarf trees are being planted extensively. The produce from these when they are well attended to will certainly take the first place in either London or local markets.

Gosport.

JAMES GROOM.

Winter moth in orchards.—In remarking on these and the grease bands Mr. Crump advises all who have neglected to apply them as a remedy against the moth to use quicklime by hand, using it in the dust state above and below, but both he and others who have tried to deal with it will find it much easier and far more effectual to have the lime slaked in water and syringe it on the stems and branches, or force it there by means of the garden engine, as it can be done more quickly and every part be thoroughly coated with the wash, which adheres and remains on till quite late in the spring. To prepare the lime liquid and have it so

that it will pass easily through the jets of either of the implements mentioned, it should as soon as slaked be passed through a fine wire sieve, which will rid it of lumps, and anyone then who is at all expert in the use of the syringe or engine can soon put the wash on. The best time for carrying out the work is when the trees are just a little damp and the air is still, as the liquid has to be driven from different points to cover the whole of the branches. When this is done with good fresh lime Apples and Pears are at once freed from all parasites, and remain clear and clean in the bark for years after.—S. D.

FRUIT PROSPECTS FOR 1890.

ALTHOUGH no one can say positively that our fruit crops will be good, bad or indifferent, certainly in this locality until often the 20th of May there may be no harm in asserting that our prospects never were more promising. A mild winter following upon a fine wood-ripening autumn has pushed the fruit buds into prominence, especially upon south walls, but they are not nearly so forward as I have seen them on the last day of January in other years when good crops of fruit in due course have been gathered in. The buds at and a little before Christmas looked as though they must burst prematurely, but since that time their progress has been less rapid, a circumstance which may be accounted for in two ways, first, by their being thoroughly ripe and perfectly formed, and second, by the sunless weather which prevailed throughout the closing month. To the masses who do not trouble about the fruit crops, bright genial days in January and February are accepted as a godsend, and so they are, but to the gardener who knows how twelve hours' sun pushes his treasured buds on to destruction, dry cold weather is most acceptable certainly up to the first week in March. Last year we were told that semi-tropical weather when the fruit trees were in flower was disastrous to the crops, but this I still think was a mistake, as I have always found extra heat, especially if solar and balanced by light, not only harmless, but highly beneficial to the simultaneous opening of the flowers, the ripening and dispersion of the pollen, and the setting of the fruit. All forcing gardeners work upon these lines when their Peaches, Vines, and Strawberries under glass are in flower, and solar influences failing them they reluctantly fall back upon fire heat. Such being the case, the grower of hardy or open air trees now really requires retarding weather, but once the flowers begin to expand he may welcome the sun, protect from frost, and I see no reason why the trees in our orchards and gardens should not be laden with fruit.

Next to Peaches and Apricots, Plums and Cherries with us are most forward; but, contrary to their appearance about this time last year, their buds are as round and plump as swan shot, the best of all proofs that the male and female organs are slowly swelling to perfection, that it will be good fruit or nothing, as they are too good to burst into shoots. The only fear I have for wall fruit trees is want of moisture about the lowest roots. The surface of the borders is wet enough most likely to ensure a good set, especially upon heavy soils, but unless we have more steady rain, that which fell so hastily a week or two ago should be husbanded by timely mulching, as fruit never sets well when the drainage roots are dry.

Black Currants are the only bush fruits at all too forward, the light crops of inferior fruit borne by them last season having left them too full of vigour. Strawberries, although well ripened, are carrying an unusual number of fresh green leaves. This is not quite satisfactory, as these plants never fruit so well as when thoroughly checked by decided wintry weather. It is as yet early to express fear, as we still have time for a few weeks' frost. Our crops last year were exceptionally good, and having with one exception nothing over three years old, I do not think them too leafy for the coming spring.

Apples and Pears as yet have made no sign, the only trees on the move being a few cordons on the Quince. Apples of all kinds are thickly set with hoary buds, and, barring the grub, they should

make amends for the abortions or complete failures of the past year. The weather so far has been favourable to the winter moth, which may be checked, but never annihilated, by the use of greased bands. W. C.

ESPALIER TREES.

AT one time I was under the impression that this system of training Apple and Pear trees was principally confined to the home counties, notably Kent and Sussex, and though I may be mistaken in this, I am yet of opinion that it is in that part of the country where the greatest number of healthy and most productive trees, both old and young, are to be found. For a time the fashion changed in favour of pyramidal and bush-trained trees, but I am glad that the horizontally trained trees are coming more into favour again, the owners of small gardens rightly preferring them to pyramids. Very few gardeners have either the time to devote to or the ability to train a pyramid properly, the let-alone policy being the only safe one in this case. The horizontal, or espaliers, as they are commonly termed, on the other hand, require no very skilful treatment in fact; the trees are frequently three parts formed before they leave the nurseries. Added to this, they take up much less room than the pyramids, and are usually very productive, while the fruit attains a good size, not unfrequently equalling that obtained from wall trees. When planted at about a yard from the pathway, the space between them and the edging can be utilised for growing Strawberries, salading, Parsley, or even a variety of flowering plants, the whole presenting an attractive rather than an unsightly appearance. The ground on the inner side can be cropped nearly up to the trees, and altogether no other system of training can be said to fairly compete with the espaliers where garden space has to be economised in every way.

Although it is not too late to plant trees, the probability is that not much more of this will be done this season, and what I wish particularly to discuss is the various methods in vogue for supporting the horizontally trained trees. Quite recently one very superior plan, and another that I cannot write favourably of, have come under my notice. The former is to be seen in the kitchen garden at Canford Manor, Wimborne, where are also the best lot of espaliers, or horizontally trained Pear trees I have seen for many years. All are trained to a rather expensive, but almost everlasting iron espalier, nearly every walk having its parallel line of trees with opening at every angle. These espaliers are about 4 feet high, have extra strong end or straining pillars, and which are really of an ornamental character, while the intermediate standards, wires and winders are proportionately strong. In the other instance alluded to the materials used throughout are altogether of too light a description, and although they may be fairly durable they present a very unsatisfactory appearance. Mistake number one was made when it was decided to make one end strainer and support do for two sides of a square. This, in addition to blocking the way into the interior of the quarter, one opening instead of four being left, also failed when the strain was put on it, one of the corner standards actually coming clean out of the ground. Very slight wire was also used, and seeing that this cannot be strained up tightly, owing to the weakness of end pillars, the trees will draw them all out of position. If these wire fences must be continuous, they ought to be fairly stout, or the time will come when they will be of little service to the trees. In addition to having strong end pillars, with a good winder for each wire, there ought to be intermediate T-iron standards, at 8 feet apart or thereabouts, with holes drilled for the wires to pass through; while the wire should be of a stout description, or either Nos. 1, 2, or 3 gauge. Galvanised wire is perhaps the least expensive in the end, but I am in favour of the best drawn black wire, this being painted in common with the standards and pillars. Instances have been known where galvanised wire has caused the trees to canker badly, and in any case I prefer the appear-

ance of wire painted or well coated with black varnish.

Personally I am no great lover of wire or iron fencing of any kind for horizontally trained fruit trees, much preferring, for various reasons, the older plan of supporting the branches with wooden stakes. In the first place, it rarely happens that many of the trees cover the space allotted to them, though those at Canford Manor are a noteworthy exception to the rule. Then, again, a few openings between the trees are very convenient. Lastly, though this is perhaps the most important reason, the stakes seem to best suit the trees in every way. I do not go so far as to assume limbs are actually killed by coming into contact with iron, but there is no mistake about the latter being liable to conduct both heat and cold to an injurious extent. At the outset a considerable number of stakes may be necessary for the purpose of keeping the young leading branches in their proper position, but later on only a very few are needed, the branches being fastened to these either with tar, twine, or pliable Willow shoots. Quite recently I observed a number of trees in an amateur's garden supported by stout, planed, and painted deal stakes, and these will last for several years. So also will stout Hazel stakes, especially if the bottoms are either charred or dipped in hot creosote. W. IGGULDEN.

THINNING FLOWER-BUDS ON FRUIT TREES.

To obtain the largest amount of fruit of the best quality at the least cost and with least injury to the trees is the object of the gardener, and in order to attain this end "Fruit Grower" (GARDEN, Feb. 8, p. 131) gives practical and seasonable advice regarding the thinning of flower-buds. But I fear he has overlooked the vital force and habits of many of the fruit-bearing trees found in our gardens, or he would have drawn a line of demarcation showing where this practice was to begin and end; for I do not suppose he would recommend the thinning of the flower-buds on a young and vigorous tree, especially a Peach, knowing, as he must do, that the effect would be to divert the energies of the plant into the wrong channel and encourage rampant growth. These young and vigorous trees, it will be allowed, rarely have such perfect flowers as those met with on older subjects; therefore, were the advice recommended by "Fruit Grower" carried out to the letter in this case, it is as likely as not that the major portion of those flowers which would set and develop into fine examples of fruit would be lost. Besides, I have no doubt "Fruit Grower" has noted that exceptionally robust plants have a tendency to concentrate their forces more in the wood than in the fruit, to the detriment of the latter, which is thrown off before it attains the stoning period. Root-pruning is usually resorted to to check an exuberance of unfruitful wood, but if a crop of fruit equal to the exceptional vigour of the tree can be secured, it will prove a more profitable way of curbing rank growth. By thinning the flower-buds this object is frustrated to a certain extent, for a thin set on such trees usually results in a failure. An example of this came under my notice last year in the case of some Peach and Nectarine trees. These had been planted in a newly-made border five years before, and in 1888 bore excellent crops of the finest fruits I have seen, and the wood was well ripened for the following year. A change of gardeners had been made, and the one in charge last year adopted the plan of thinning the flower-buds, which he had practised with undoubted success on old and more exhausted plants, and which he imagined would also prove as beneficial to younger and more healthy ones. Unfortunately, instead of responding to his bright expectations, the whole of the fruit in three houses turned yellow and dropped when about the size of thrushes' eggs, and, as a consequence, the wood produced was much stronger than that generally desired in Peaches. Excepting trees on walls and in similar situations, my experience has always been that the more closely we copy Nature in the cultivation of either fruits or flowers, the better will be the result. In proof of this we have only to look at two plants of the same kind, but which have been grown on entirely different principles, to be

convinced of its truth. Take, for instance, two Plum trees, and subject one to the rigid form of pruning in vogue by some, and allow the other to develop itself in an unrestricted manner, and see which will show the earliest signs of fruiting and produce the largest quantity within the first five years after being planted. If both are given equally favourable conditions it will be found that the one in Nature's hand will by far outstrip the other. On such trees the crops are usually too heavy (if suitable varieties for soil and climate) to ripen unaided; and instead of thinning the fruit I would feed the plant, and thus obtain the best results by assisting rather than defeating Nature's efforts.

ANOTHER FRUIT GROWER.

Keeping varieties together.—Of all the gardens I have seen, only one can claim a homogeneous arrangement of fruit trees and bushes, and when I have asked why this order was not always carried out, the usual answer has been, that if certain kinds did not succeed in one part of the garden, perhaps they would do so in another. Now I have always failed to see how this could be in keeping with a practical knowledge of hardy fruit culture, as the natural soil in so small a space as that occupied by most gardens cannot, as a rule, be so varied in character that better results might not be expected from similar plants placed in different parts, and given positions most propitious to their well-being. Sometimes, however, it must be admitted that for effect, so far as general appearance is concerned, it may be necessary to plant trees or bushes where the conditions are not the most favourable to their fruitfulness. In doing this, the sorts ought to be kept together in order to save the time and trouble of running over all the garden in search of another of the same variety when fruit gathering. I think most people will agree with me that, for general purposes, the more fruit trees and bushes are kept together, according to kinds and varieties, the better will be the facilities for giving them the treatment best adapted to their requirements, and affording the most economical means of protecting the ripe fruit from birds. It is also well, too, to plant varieties in rotation that most closely correspond with each other in their times of ripening. Not only would I recommend a strictly homogeneous arrangement of fruits, but also a position for them in close proximity to the glass structures, where these are in the kitchen garden, as the effect will be more pleasing to the eye at all seasons of the year than when the same space presents the growth and decay of vegetables; and besides the frequent appearance of the men in charge of the houses will tend to the scaring of the birds. Of course, where a late supply of fruits is required, no better place than a north wall and border could be chosen for their growth. In one large garden with which I am familiar an example is given of the very common hotch-potch style. The bush fruits in particular are very much scattered, and the earliest and latest varieties mixed in such a manner, that it would be necessary to net in something like twelve acres, from the middle of June to the beginning of November, to be able to protect them from the ravages of birds. To do this, or even to attempt to net individual bushes, is out of the question; consequently a large quantity of Gooseberries, Currants, and Raspberries is annually consumed by these unwelcome visitors.—R. C. H.

SHORT NOTE.—FRUIT.

Melon Golden Perfection.—Last season I grew two lots of this kind on a hotbed in movable garden frames. More fruits set than the plants could carry, and all the Melons ripened well, the leaves remaining fresh to the last. Mr. Birkenshaw, of Bridehead House, Dorset, says this is the best Melon he has ever grown for frames, although he has tried most of the so-called new kinds. This is a very old variety, and far better than many new kinds for frames when given a fair trial.—J. C. F.

Shading Gros Colman Vine.—I am a believer in a little shade for this Grape, and especially so where the glazing is done with any other but 21-oz. glass, as mine is here only 15-oz. to 18-oz., which

makes it a very difficult task to keep the Vines from being scorched. I find the best plan with these thin-leaved Vines is to let them make and carry nearly all their foliage. It does not prevent them from making good, solid, and well-ripened wood and buds.—J. F. H., Highlands.

Apple Blenheim Pippin.—I quite agree with all that has been said in favour of this Apple, as, taking it all round, it is by far the best and most useful of any during its season. It is of a good size, is fine for dessert, first rate for cooking and of excellent flavour. As to its being long before it comes into bearing, that depends on the soil and stock, the seedling Apple being, I think, the most suitable and a moderately light loam the best for the tree to grow in. In heavy land the Blenheim forms too much wood, but when once it begins to bear it is one of the most reliable and lasting, and the trees rarely canker through age. If the growth becomes unruly it may be checked by the judicious severing of a few of the largest roots, cutting them through about 4 feet away from the stems.—S. D.

GRAFTING.

SOME time ago the London correspondent of *Garden and Forest* spoke of the controversy about grafting carried on in THE GARDEN and expressed the hope that some American comment would be made on the subject, especially because grafting must have been tested here on a gigantic scale. I had already procured some figures from Mr. C. A. Green, secretary of the American Nurserymen's Association, which I quote: "We have record of five thousand nurseries in the United States, and I estimate that there are five thousand not recorded. Ten thousand nurseries, many of them very small, I estimate, average ten thousand trees yearly, giving one hundred millions of trees propagated annually. For the past fifty years, perhaps twenty millions annually would be within limits, giving a total of a thousand millions in fifty years." [*How many millions of these have proved failures?*] These trees have been scattered all over the United States, an area three thousand miles in diameter. Sixty millions of people in America, and perhaps some thousands in Europe, eat annually of their fruit. They were all grafted trees, many of them double-grafted, and so satisfactory has been the process, that American nurserymen will continue to graft and American fruit growers persist in planting them, and yet these trees are what some able writers in the English press stigmatise as "rubbish;" one eminent writer going so far as to assert that "grafting is always a makeshift and often a fraud."

Now I do not care to show how impracticable are the notions of some of these writers who advise a "return to the old plan of hillock layering" instead of this "fraudulent" practice of grafting. I merely wish to state that universal experience has proved that this wholesale condemnation of grafting is baseless. [*No, no! Too well founded, as we could show Mr. Parsons in our garden here.*] The nurseryman who tries to unite a graft with an unsuitable stock will not succeed, simply because he does not know his business, but when an appropriate stock is chosen for a graft, and both are properly prepared, there is no evidence to show that the tree will not be as long lived and as healthy as a seedling on its own roots. [*This is merely another way of saying that art is superior to Nature.*]

Mr. Temple, of Cambridge, who was in England while the controversy was at its highest, stated that the sole reason for the use of grafting has been its cheapness. Now if trees can be propagated equally well and more cheaply by grafting than in any other way, that would be an ample justification for the practice. But the fact is that grafting serves many other useful purposes. No doubt the writer of the above is aware that American Vines are now largely grown and sold in Europe (see *Garden and Forest*, vol. ii., p. 555) as stock upon which the more delicate Old World varieties of Grapes are grafted, and that in many regions Vine culture has been saved by this process because the Phylloxera does not injure the strong roots of the American Vines. [*We should be glad*

to hear the wine growers view as to this question of American Vine stocks.] It is well known, too, that many ornamental trees do better when grafted than they do on their own stock. [*But the reverse of this is the general rule.*] *Magnolia glauca* is greatly improved by grafting it on *M. acuminata*, and no one would be so foolish as to layer *M. parviflora* or any other of the new sorts. Mr. Burbidge asserts that he would as soon think of grafting a Cabbage as a coniferous tree, and yet he can find thousands of grafted conifers in England which have grown with great vigour and beauty for forty years. In this country seedling Norway Spruces are old and brown and dishevelled in thirty years, while the Oriental Spruce, grafted on this same Norway stock, is in full vigour and beauty.

Mr. Temple states that he has seen acres of grafted Chinese Magnolias with all their buds killed in a hard winter. I have never seen acres of living or dead Magnolias here, but I have seen enough to know that Magnolias properly grafted, planted and cared for are as sure to grow for twenty years as are Apple trees and Pear trees.

The whole gist of the matter seems to lie in the question whether a perfect union can be formed between a graft and the stock. [*Surely Nature's own union of root, stem and foliage is best.*] This is a question in physiological botany which I am not capable of answering scientifically; that is, I have never made, nor am I able to make, the proper microscopic and other investigation which is needed to demonstrate that the union is absolutely perfect; but as a matter of practice I think that no one who has had years of experience will hesitate to say, that when trees are properly grafted they show no less vigour than seedling trees and are quite as likely to be long-lived. [*No.*] Of course, if one selects for stock and scion plants which are not closely related, or pays no proper attention to the condition of both when the grafting is done, or performs it in a clumsy way, failure will follow. This only proves, however, the lack of skill and intelligence in the operator. If we grant that a union which is practically perfect can be made, then it seems to me plain that there may be many cases in which grafting would add to the vigour and longevity of a plant, and certainly we may be able to extend the range of certain varieties of fruit and ornamental trees if we can use the roots of one tree which are adapted to a certain kind of soil and graft upon it the top of another whose roots would not thrive in that soil. The grafting of European Grape Vines on American stock is a case in point. My experience is that *Rhododendron ponticum* is never killed by heat or by cold here, and, therefore, it makes an admirable stock both for *R. catawbiense* and the Ghent Azaleas in places where neither of these plants will thrive on their own roots. The best gardeners in England graft the Peach on the Plum stock where fruit is to be grown under glass.

But there is no need of multiplying instances to defend the practice of grafting as an indispensable one in many cases. [*Grafting is undoubtedly a convenience to the nurseryman, but it is never indispensable.*] I have said this much in the hope that other cultivators may give their experience, so that some new ideas may be brought forth and suggestions made as to the directions in which the practice may be hopefully extended or in which it may be properly curtailed.—S. B. PARSONS, *Flushing, L.I., in Garden and Forest.*

*** We are still convinced of the fact that grafting is always a makeshift, and very often it is also a fraud, ending in failure and disappointment, where own-rooted plants have proved perfectly successful. The main advantages of grafting are fictitious. It often affords a fatal facility of propagation and induces early fruiting in proportion to its restricting vegetative luxuriance, but these seeming advantages could be far better and more certainly secured in the case of plants on their own roots. But little attention has been paid to the best stocks for our best fruits, but purchasers are now paying more attention to this point. It is quite as essential to know the stock on which an Apple or a Peach is grafted as to know the name

of the variety of fruit grown. If a grocer sells coffee adulterated with Chicory he must state the fact, or he is liable to a fine, but a nurseryman may graft our fruit trees on all sorts of stocks, good, bad, and indifferent, and no one can obtain redress if they fail. The real point in this question is not what is cheapest or most convenient to the nursery trade, but what is best for the purchaser and cultivator, and I repeat that grafting is not the only nor the best way.—F. W. B.

ORCHIDS.

ODONTOGLOSSUM ELEGANS.

THIS, figured in THE GARDEN, September 27, 1884 (p. 276), is a very rare and beautiful plant, found in but few gardens in the country. I believe it exists still in Mr. Pollett's choice collection, in that of Baron Schroeder, The Dell, Eggham, and also in that of Mr. Measures, of The Woodlands, Streatham, from whence comes the spike of bloom now before me. This is a supposed natural hybrid, but why these plants, which appear to be rare, should be assigned a place in the list of mules, I cannot understand. Its supposed parents are said to be *O. Halli* and something else, but I cannot see in the flowers now before me anything approaching *O. Halli*. Another suggestion is that its supposed parents are *O. cirrhosum* and *O. cristatum*. To the latter named plant some claim to its origin might be given. In my opinion it resembles *O. cirrhosum*, but still it is sufficiently distinct from that beautiful species. Each of the flowers now before me measures some 3 inches across the sepals and petals, spreading, and in shape much like those of *O. cirrhosum*, the ground colour being of a rich creamy white, blotched somewhat transversely with bright chocolate; the petals are broader than the sepals; in the upper part is one large blotch of chocolate, and in the basal part, which has a whiter ground, are numerous streaks and dots of chocolate. I do not put much value on the density or the arrangement of these spots, streaks, and blotches on the *Odontoglossums*, being quite aware that they are subject to considerable variation from year to year. The lip is narrow, having two reddish brown spots in front, the front portion being recurved, ending in a sharp point, and pure white; the basal part is broader, with numerous bristle-like appendages which are streaked with crimson, the ground colour being rich yellow. The flowers before me appear to have a lighter ground colour than any that I have seen, and the markings are more in distinct spots, thus rendering it more beautiful and distinct even than in the plate named above. I should be very glad if Mr. Sander, who appears to be the only one now looking for new plants in the Andes of Ecuador and surrounding country, could find a batch of this plant and successfully import it, so that our collections might be enriched. By importing it in quantity the plant would become established as a distinct species. I know quite well that those possessing the plant do not share my feelings, but I like to see these choice things disseminated for the delight of the many. W. H. GOWER.

Cymbidium eburneum.—This species, recently imported by Mr. Sander from Northern India, is now beginning to flower in The Woodlands collection at Streatham. The flowers are ivory-white, saving the tinge of yellow at the base of the lip. They are delicately scented and last long in perfection. This is the form I first imported from Northern India in 1872, before I got the large lot of the spotted form. The collector said that the plants were all broken down during the cold season and had hoar-frost upon them; afterwards they started into growth

and flowered freely. There can be little doubt but that this beautiful plant was nearly lost from being subjected to too high a temperature, the very hottest corner in the East India house, where it rarely bloomed, having been allotted to it. I have grown imported plants under a north wall in the open air, and plants which I thought were dead started into growth, became established, and produced a crop of flowers the second year. This has induced me to recommend cool treatment, and the way this species is flowering under this treatment is quite astonishing to those who have only grown it very warm.—W.

Odontoglossum Andersonianum.—From Mr. May, gardener to Mr. Jacob, Cheam Park, comes a beautiful form of this kind, which is by some considered a variety of *crispum*, and by others quite distinct. The flowers now before me are certainly distinct in shape from those of any *O. crispum* I have ever seen, the sepals and petals, whilst being full and forming a round flower, are yet more pointed. The ground colour of the sepals is white passing into creamy yellow, blotched and spotted with chestnut. The petals are much broader than the sepals, fringed on the edges and pure white, with a few dots and streaks of chestnut-brown. The lip, long and pointed, and differing entirely in shape from that of *crispum*, is white, the base being yellow, streaked with crimson. The flower has a faint odour resembling the White Thorn (Mayflower).—G.

Cattleya Trianae.—From Mr. J. Brown, gardener to Mr. White, of Arddarroch, come some flowers of this species, not the form with coloured lip, but almost white. The sepals and petals are of the purest white, the lip having a faint tinge of pale mauve in the front, behind which is a stain of yellow. The slight tinge of colour in the lip, I think, adds to the beauty of the flower, although I am quite aware it does not enhance the value of the plant, but quite the reverse. The flowers appear to be the same as those figured in Warner's "Select Orchidaceous Plants," i., t. 4, as *Warscewiczii* *delicata*. It was introduced by Mr. Rollisson, and again figured by Mr. Moore in the *Floral Magazine*, i., t. 8, as *C. Rollissoni*. Some of these flowers are upwards of 7 inches across, and the petals $2\frac{1}{2}$ inches broad. Accompanying these flowers is a photo. of one of the plants bearing about twenty flowers. Mr. Brown says, "All through the winter here flowers develop wonderfully well. We are perfectly safe from anything like fog so disastrous to Orchid blooms near London."—G.

Epidendrum Wallisi.—There are not many Epidendrums of which so much can be said in its favour as this. It is only a few years ago that the first importation arrived from New Grenada, and as yet the plant has not become common. It belongs to that section of the genus with tall slender stems, which, in this instance, are 2 feet to 3 feet high, and covered with small black-purple, warty dots. The flowers are produced from the apex and at a few of the upper nodes; they are $1\frac{1}{2}$ inches in depth, scarcely so wide, and sweetly scented. The sepals and petals are of a rich yellow, marked with a few dark crimson spots; the lip is broad and fan-shaped, yellow at the base, white, beautifully pencilled with rose-purple in the centre, and pure white at the margin. The column is of the same rich yellow as the petals. Altogether the colouring is as beautiful as it is unusual in Epidendrums. A plant at Kew has been in bloom for a considerable time, and still continues to push forth flowers. It should be grown in the intermediate house, potted in fibrous peat and Sphagnum, and kept moist throughout the year. Thrips are very fond of settling in the points of the growing shoots, and it is advisable therefore to occasionally inspect them and use tobacco powder if necessary.—W. B.

Phajus grandifolius.—This is a beautiful old Orchid, and I would advise those who have a stove, even if they are not Orchid growers, to purchase a plant or two. It will thrive admirably in an ordinary stove, and its spikes of bloom appearing now or a month earlier are very welcome, as they last long in full beauty. It will live

and flower well in a very cool stove, but these extremes are not good for it, as under the coolest treatment the foliage becomes spotted. The latter is large, strongly ribbed, deep green, and persistent for several years; whilst the spikes are stout, erect, and many-flowered, the colours being white, chocolate, yellow, and crimson. It is in full bloom in Messrs. Laing and Sons' nursery at Forest Hill.—H.

Odontoglossum maculatum.—From Mr. Osborn, gardener to Mr. Howard, The Grove, Teddington, come some fine flowers of a beautiful form of this plant. They are not exceptionally large, but beautifully spotted and rich in colour, the sepals being of a bright brown throughout without the yellow tips sometimes seen, the petals broad and shorter than the sepals, the ground colour rich yellow, the upper part being clear and unspotted, while the lower half is richly marked with bright brown. The ground colour of the lip is white, flushed with yellow and profusely spotted all over with chestnut. It is a Mexican species which has now been in cultivation for many years, and I have often wondered why it was not seen more frequently. The usual time for this species to bloom is in March and April.—H.

Lælia Lindleyana.—This comes from Mr. Brown, Arddarroch, who says it is well worth having to brighten the collection in the dark days, so that here is another flower appearing at what I should call out of season. I first bloomed this in the autumn of 1863, but the flower was inferior to that from Mr. Brown now before me, and very little was seen or heard of it until the autumn of 1888, when a very fine plant of a fair variety was blooming in the Botanic Gardens at Rouen. Mr. White should tell us where his form was collected, for although the former plants came to Europe from the port of Bahia, we knew nothing of its native habitat. The flower is upwards of 4 inches across, sepals and petals narrow, nearly equal, white faintly spotted with pale purple, the exterior of the sepals profusely spotted, lip rolled over the column at the base, where it is white, throat pale sulphur-yellow, broadly tipped in front with pale magenta. It is a very pretty and desirable plant, especially if it blooms at this season.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cypripedium Morganianæ.—This plant is again in bloom in Mr. Measures' garden at Streatham, and some other plants are showing flower; indeed this would appear to be an almost perpetual bloomer. It certainly is the most magnificent hybrid which has yet been obtained.

Angraecum Sanderianum.—This is now flowering freely in Mr. Larkin's garden at Highbury New Park, its pendulous spikes rendering it very attractive, whilst the purity of its flowers is something wonderful. Few species excel this in charming beauty. It comes, I believe, from the island of Madagascar.—H.

Oncidium splendidum.—One of the finest forms of this we have seen is now blooming with Messrs. Laing and Sons, of Forest Hill. Now that the species is well established, it is to be hoped that it will be kept in collections; it, however, lacks the fragrance of *O. tigrinum*.

Lycaste Skinneri alba.—In the collection of D. Henderson, Gracecourt House, Liberton, near Edinburgh, there is in flower a plant of *Lycaste Skinneri alba* with twelve spikes showing thirteen flowers. Is this *Lycaste* in the habit of throwing two flowers from the one stem?—JAMES HALLETT.

. It does so sometimes, but this is not usual.—Ed.

Odontoglossums at Cheam Park.—Many forms of these beautiful flowers have been sent to me by Mr. May. Amongst the forms of *O. Alexandræ* are some of the finest which I have seen, some with sepals and petals spotted, and others with the lip only spotted. Amongst them is one flower not of quite so good a form as the others, but without spot or blemish of any kind.—W. H. G.

Cœlogyne cristata.—This fine old Orchid is now blooming very freely in the establishment of Messrs. Laing and Sons, Forest Hill. I was told a short time since that the flowers were not cared for much in Covent Garden, but this is of little consequence, as they are always highly appreciated at home, and no

gardener will be wrong in having a good display of them.—W. H. G.

Lælia anceps Hilli.—This is another of the white-flowering forms of *L. anceps* now blooming with Mr. Brown at Arddarroch, and although this has been frequently seen, it yet shows the correctness of my former argument that it only requires sufficient time for the plants to become established, when we shall have abundance of the chaste flowers in an early spring or late winter. *L. a. Hilli* is one of the earlier of the white forms, and I have repeatedly seen it this winter. It cannot be classed amongst the best, but it is very beautiful.—G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

THE report of the past year, although satisfactory as regards work accomplished, shows that the society will want substantial support if it is to again carry out a programme as extensive and varied. According to the financial statement, the expenditure, unfortunately, is more than the receipts, and a few interesting particulars are brought out. The meetings and conferences realised the paltry sum of £29, and entailed a cost of £135 while the Temple show brought in £408, but cost £431—a loss of £23. The ridiculous sum of £29 as the total receipts of sixteen fruit and floral meetings, besides conferences, says little for the public interest in the fortnightly gatherings at the Drill Hall, or the conferences at Chiswick. It is easy to account for an absence of visitors to the Drill Hall; the building and its location are sufficient drawbacks to attendance, and "conferences" have a significance that embodies rather a dry meeting than a show of flowers. It is a pleasure to record that the committee meetings have greatly increased in interest, and in all eighty-eight first-class certificates have been given and ninety-four awards of merit—no small number when we consider the comparative rarity of new flowers and plants of genuine worth and value. Much increase in this liberal bestowal of certificates will scarcely raise their value. An important work has been done at Chiswick, of which the report speaks:—

Trial has been made of 104 varieties of Potatoes; 50 varieties of Broccoli; 108 varieties of Vegetable Marrows, Pumpkins, and Gourds; 30 varieties of Onions; 30 varieties of Brussels Sprouts; and 41 varieties of Peas. Amongst flowers, trial has been made of 270 varieties of garden annuals, 66 varieties of China Asters, 20 varieties of Stocks, 190 varieties of Dahlias, besides zonal and other Pelargoniums; Lemoine's new hybrid Gladioli, Pentstemons, Heliotropes, Irises, &c. Ivies, of which the society possesses a very fine collection, have been specially examined and classified. Of Chrysanthemums, 800 varieties were grown, and these not only added very materially to the display at the Chrysanthemum Centenary Conference, but, from not being so severely disbudded, as is usually the case in producing the show blooms, the plants themselves, as well as the blossoms, were greatly admired. A large sum of money has this year been spent on the gardens. Extensive repairs have been done to the glasshouses, and the general keeping-up of the gardens greatly improved.

The Journal has been revived, and four volumes, containing about 750 pages, already issued. The work on "British Apples" is re-issued in a cheap and popular edition at the price of 1s. 6d. It is mentioned that unless this issue should command a very large circulation, it will entail a great loss to the society; but the council have felt that in face of the widespread interest taken in British fruit culture, and of the fact that this book is a standard work upon Apples, that it was their duty to encounter this risk, hoping that individual Fellows would endeavour to promote its sale amongst their neighbours and friends.

The revival of lectures at the afternoon meetings is another feature of this year's proceedings.

A point of importance is that the council recog-

nise as fully as anyone can the great desirability of securing more suitable premises than the present Drill Hall affords, and they are now anxiously engaged in considering a scheme for erecting a suitable building on the Thames Embankment, which, if ever accomplished, would, they hope, not only afford ample facilities for our own society, but also, in time, form a centre for all kindred horticultural associations. But they must remind Fellows that the adoption of this scheme is purely a matter of funds, and would entail a very large outlay, and until they can see their way to provide this, they fear that no better place than the Drill Hall can, under the circumstances, be readily found.

It concludes with an earnest appeal to all interested in horticulture to place the society on a firmer financial footing, so that it may increase its sphere of usefulness and regain its former influence and position.

The second of the series of meetings for 1890 is evidence that the undaunted efforts to make such gatherings as bright and interesting as possible have not proved fruitless. Although there was a sharp early frost and a keen wind sufficient to damage tender flowers, Orchids were plentiful, more so than we have seen before in February. There were also various miscellaneous plants and several groups of hardy flowers in season, besides Evergreens and a collection of well-preserved Apples.

A FIRST-CLASS CERTIFICATE was awarded to each of the following:—

CYPRIPEDIUM LATHAMIANUM.—This was exhibited by Mr. Bond, gardener to Mr. C. L. Ingram, Elstead House, Godalming; Messrs. J. Veitch and Sons, Chelsea; Mr. F. G. Tautz, Studley House, Shepherd's Bush; and Baron Schröder, The Dell, Egham, all of whom had good forms, though showing some diversity of character. The parents of this bright and beautiful Lady's Slipper are *Spicerianum* and *villosum*, and in the case of the varieties from the Chelsea firm the cross is reversed, viz., *villosum* and *Spicerianum*, the seedlings from this set showing broader sepals and a more compact flower, having also a stronger colouring of varnished brown. The flower well represents the two types from which this hybrid has been raised. There is the central longitudinal stripe on the dorsal sepal as in *Spicerianum*, while the petals and lip are rich shining brown, striped down the centre with a deep purple-rose colour. It is one of the best of the more recent hybrid *Cypripediums*, and was exhibited last year, but given no award. Since then it has become comparatively common in collections, as the notes upon it that have appeared in THE GARDEN amply prove.

CYPRIPEDIUM PORPHYROCHLAMYS.—We know not who is responsible for the name of this new and charming *Cypripedium*, but a most certain way to create a dislike to a flower is to give it a designation like the above. It is more unfortunate still when the hankering to give a new and beautiful flower a big and not always intelligible name spreads to the Roses, Chrysanthemums, and things that are more common than Orchids. It is a mistake that those who give them are slow to rectify. One simple word is quite sufficient. This *Cypripedium* was exhibited by Mr. F. G. Tautz, and is a hybrid between *barbatum* Warneri and *hirsutissimum*. The hybrid has derived its rich colours from *barbatum* Warneri, and its general expression from *hirsutissimum*. The dorsal sepal is rich purple-rose, margined with clear white, the petals hairy at the margin, deep purple-rose, the upper half spotted with rich chocolate; the lip is shining as if varnished, and of a rather softer shade than the other portion of the flower.

CYPRIPEDIUM ELLIOTTIANUM.—A good form of this was exhibited by Mr. H. M. Pollett, Bickley, the flowers larger than usual, and showing a magnificent broad dorsal sepal, boldly marked with the zebra-like stripes of rich chocolate. This comparatively new introduction has been described more than once in THE GARDEN, so a detailed description is unnecessary. The plant bore a spike of three flowers.

An award of merit was given to each of the following:—

LYCASTE SKINNERI REGINA.—There are many beautiful varieties of *L. Skinneri*, and nothing is more delightful than a rich series of forms which reveal a remarkable diversity of shades, especially in the lip. Sometimes it is scarcely touched with colour, and occasionally, as in the variety *Regina*, of the deepest velvety purple, which is intensified by a reddish colouring in the centre. The petals are lighter, more of a ruby crimson, shading off to almost white at the base, and bringing out the delicacy of the bold massive sepals, which are richly suffused with rose in the centre, but fading off to the palest shade of the same colour. Caution will be required in certifying such varieties, though *Regina* is well worthy of the distinction, as each year increases their number. From Mr. Simon, gardener to Mr. E. A. Roberts, Woodland House, Greenhithe, Kent.

CYPRIPEDIUM CARDINALE (Vanner's variety).—If certificates given for Orchids are to have any value or meaning, we may advise the committee to have some regard for the distinctness of the forms they single out for special praise. The form of *cardinale* here named and certificated is simply a fairly good type of an Orchid everyone is familiar with. It does not possess sufficient distinctness to justify any award of merit. From Mr. W. Vanner, Camden Wood, Chislehurst.

HELLEBORUS COLCHICUS COCCINEUS.—It is in no spirit of fault-finding that we condemn the award of certificates to forms of such variable *Hellebores* as *colchicus*. In a batch of seedlings it would be difficult to pick out two of the same colours, and as each year sees a gradual rise in favour of this class, new and improved varieties constantly occur. The kind here named has a deep purple-rose colour, covered with a plum-like bloom characteristic of the race, and creamy white anthers that intensify the depth of hue in the segments; but to commence giving certificates to such types will make the whole business a farce. There are many forms we know that quite as much deserve the honour. From Messrs. Paul and Son, Cheshunt.

ORCHIDS were shown by several exhibitors. *Cœlogyne cristata* in one or other of its forms was well represented. Mr. Thomas sent from the Chatsworth Gardens racemes of the Chatsworth variety, now comparatively common in collections, and well-flowered plants also came from Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher. Mr. J. Simon, gardener to Mr. G. A. Roberts, exhibited *Cymbidium eburneum* and a form of *Lycaste Skinneri*, in which the broad massive sepals were just tinged with pink, the petals showing a bright suffusion of rose, tipped with white, the lip creamy-white, spotted bright rose. A small group of hybrid Orchids from Messrs. J. Veitch and Sons contained a few choice things, *Phalænopsis* L. L. Ames amongst the number. This was certificated last year, and is one of Mr. Seden's hybrids between *P. amabilis* and *P. intermedia* Portei. The flower is smaller than that of *amabilis*, and when expanded tinged with a lemon colour which disappears with age, leaving the bloom pure white; the inner face of the side lobes is striped with rich crimson and reddish-brown at the base, but in the middle lobe there are distinct lines of crimson, the two horn-like appendages at the front wholly of a deeper shade of this colour. *Cypripedium Calypso*, a hybrid between *Spicerianum* and *villosum* Boxall, has a richly-coloured dorsal sepal; it was described recently in THE GARDEN. A charming gem is *Dendrobium Wardiano-japonicum*, a hybrid between two delightful parents as suggested by the name. It has retained more of the *japonicum* character, the flowers freely produced, delicate white, and with a small central blotch of crimson.

Cypripedium Germinyanum is the result of a cross between *C. hirsutissimum* and *C. villosum*, and is a fine hybrid, having much the character of *hirsutissimum*. The dorsal sepal is broad, deep green, and veined with brown, the petals, like the sepals, hairy at the margin, and polished as if varnished, the colour rich rose-purple; the lip is reddish-brown. Mr. F. G. Tautz showed, besides the two

Cypripediums certificated, the hybrid Mrs. Canham, remarkable for the size of its lip. This hybrid has been described in THE GARDEN, and was raised in the Chelsea nursery of Messrs. J. Veitch and Sons.

Mr. H. M. Pollett exhibited several varieties of *Cattleya Trianae*, one having a boldness of form and colour that entitled it to a varietal name; the lip was rich violet and bright yellow in the throat. A good specimen of *Odontoglossum crispum* Bickleyense was exhibited, and bore two well-developed spikes; the ground colour of the sepals, petals, and lip is sulphur-yellow, blotched with pale brown, the largest blotches appearing on the sepals. The same exhibitor had *Cypripedium Germinyanum*. Several Orchids also came from the collection of Mr. Malcolm S. Cooke, Kingston Hill, amongst them a good variety of the spotted *Cattleya amethystoglossa* bearing twenty-four of its flowers in a strong spike; also good plants of *Dendrobium Wardianum*, *Odontoglossum cirrhosum*, and *O. Humeanum*, a supposed cross between *O. cordatum* and *O. Rossi*. The whole expression of the flower suggests that of *O. Rossi*, the sepals yellow, barred with rich cinnamon-brown, and the petals white, spotted with sepia at the base; lip white. From the same exhibitor was also shown *Angræcum eburneum superbum*, an excellent form brought by the Rev. W. Ellis, of Hoddesdon, from Madagascar, and rather uncommon in collections. The plant is of stronger growth, the flowers larger and similarly coloured. Mr. Druce, The Beeches, Circus Road, N.W., showed *Dendrobium crassinode Wardianum*, which was certificated on March 23, 1886. It shows well the two parents; the lip bold, rich orange-yellow in the centre, broadly margined with white, the sepals and petals magenta-rose. Mr. A. H. Smee, The Grange, Wallington, sent a beautiful variety of *Odontoglossum ramosissimum*, a delightful Orchid found in New Grenada. The plant carried a strong branching raceme, smothered with comparatively large flowers with white crinkled sepals and petals, spotted with the deepest violet colour, the base wholly of this rich shade. Those who have not yet added this gem to their collections should do so; it has a beauty peculiarly its own.

A botanical certificate was given to *Masdevallia leontoglossa*, a curious, forbidding flower, broad, and blotched with deep chocolate on a dull green ground. Mr. W. Vanner had several good specimens, especially of *Lycaste Skinneri alba*, which bore a number of its pure white flowers; *Dendrobium nobile Cooksoni*, and *Cattleya Trianae*, one variety named Marie showing bright and telling colours; the lip is velvety-purple of an intense shade, changing to yellow in the throat; the petals are broad and tinged with lilac, but characterised by a central band of deep magenta in the upper half—a distinct piece of colouring. The same exhibitor had a plant of *Odontoglossum Jenningsianum superbum*, the flower pale yellow, boldly blotched with rich brown, the crest bright yellow. *Cœlogyne cristata* came from Mr. Waltham, Streatham Hill. Mr. Mitchell, gardener to Mr. F. G. Arbuthnot, Bridgend Place, Bexley, exhibited *Odontoglossum crispum Andersonianum*, *O. Wilckeanum*, and two varieties of *Cattleya Trianae*, one named *virginalis* having very pure flowers; the other was *Helleniana*, a very compact and bright flower. Sir Trevor Lawrence, Bt., had another hybrid *Dendrobium*, named *Aurora*, the flowers white tinted with purple.

In spite of the increase of hybrids and introduction of new species, *Cypripedium insigne* still keeps its place, and one of the finest masses we have seen was shown by Mr. Quartermain, gardener to Mr. Smith, Silvermere, Cobham, Surrey. It carried about 100 flowers all in fullest beauty.

Hardy flowers gave a seasonable character to the meeting. Messrs. Paul & Son, Cheshunt, had a delightful group of *Hepaticas* in several varieties, the pretty *Bulbocodium ruthenicum*, described on p. 96 of THE GARDEN, *Cyclamen coum zonale*, *Androsace carnea*, *Anemone blanda*, *Iris Rosenbachiana* and *I. reticulata*. There were several pots of the *Netted Iris*, and this is a good way to grow the charming flowers, as they can then be protected, and may be used for

the house. Messrs. Barr & Son, Covent Garden, showed *Narcissus minimus*, *Corbularia monophylla*, and the pretty yellow, early-flowering *Narcissus cyclamineus*, and other early Daffodils which claim to be the first to usher in the great family. Amongst other gems were *Chionodoxa sardensis*, which is blooming very early this season, and *Anemone fulgens*, of which there are several beds in full bloom at Long Ditton. Both the firms mentioned and Mr. J. Douglas, The Gardens, Great Gearies, exhibited a series of Hellebore seedlings raised from *orientalis*, *colchicus* and *guttatus*, Mr. Douglas showing a rich variety raised from a dark form of *guttatus*. To mention the raised kinds individually is obviously impossible, but the excellent collection shown on Tuesday should bring to notice a class of plants that is rapidly rising in favour. Some of the colours are forbidding, dull, and uninteresting, but the hybridist is working in the right direction, and we are getting a number of light forms, beautifully spotted, and fit to grace the choicest decorations. The vigour, freedom, hardness, and the season at which they bloom should increase the culture of the so-called Lenten Roses. In several gardens now the graceful clumps of *H. orientalis* are pictures of beauty.

Indoor flowers were, save Orchids, scarce, but a splendid group of *Cyclamens* was shown by the St. George's Nursery Co., Hanwell, and awarded a silver medal. The plants were crowded with flowers that comprised a variety of tints, the bright rose especially beautiful, and, happily, few of the dull, ashy-purple shades, that should be weeded out of all strains; the whites were strong and clear. Mr. W. C. Leach, Albury Park Gardens, Guildford, showed *Azalea obtusa*, and bunches of *Marie Louise*, Swanley White, and *De Parme Violets*.

Messrs. Cannell and Sons, Swanley, exhibited several plants of Chinese *Primula Cannell's Pink*, an exquisite variety, the flowers broad, full, and of a charming rose colour, besides a number of *Cineraria* blooms of fine form and colour. *Primula Woodside Giant White*, from Mr. J. James, Farnham Royal, is an excellent variety, the flowers clear white, with central greenish yellow eye, broad and firm—a noble kind; while Mr. Ross brought from Pendell Court *Astrapea Wallichii*, described in "Notes of the Week," and the climbing *Akebia quinata*, in full flower, but protected. Messrs. J. Veitch and Sons exhibited flowers of several varieties of greenhouse *Rhododendrons* of the multicolor race, two of which were new and noteworthy—Admirable, bright carmine, and *Eclatante*, rich waxy crimson, shining as if polished.

A large collection of evergreen shrubs was shown by Messrs. C. Lee and Son, of Hammersmith and Feltham, comprising *Ivies*—*maderensis variegata* amongst others, *Phillyreas*, *Osmanthus ilicifolius* and its varieties, variegated *Eunomyces*, and small plants of *Aucubas* full of berries—bright ornaments for the outside as well as the plant house. A silver medal was given.

Fruit committee.—Very little of interest came before this committee, but Messrs. Cheal and Sons, of Crawley, exhibited a large, remarkably well-preserved and coloured collection of Apples, containing such varieties as *Annie Elizabeth*, *Mère de Ménage*, *Golden Reinette*, *Court Pendu Plat*, *Brabant Bellefleur*, *Cox's Orange Pippin* (very fine), *Wellington*, and *Sturmer Pippin*. Mr. M. Leach brought fruits of *Ham Green Favourite Tomato* from seed sown in September and good samples of the *Coldstream Leek*.

Annual Meeting.

This was held in the rooms of the society, in Victoria Street, on Tuesday afternoon, and there was a large attendance of Fellows. The chair was taken by Sir Trevor Lawrence, Bart., M.P., who reviewed the work of the past year, and thought that the direction in which the society had been moving would recommend itself to the majority of the Fellows, but still more support was wanted from the horticultural public. In referring to Chiswick and its conferences and meetings he said: "Chiswick is not a convenient place for these meetings as regards its geographical position, and if they were to be held in a more central place, the general

public would attend in larger numbers than at present. The conferences were largely attended by horticulturists, but not by the general public. If we continued to hold the committee meetings at Chiswick there would be a very sparse attendance." The chairman alluded to the importance of the trials, and he referred to the report on the Tomatoes as a practical illustration of the good work there done for horticulture. The Drill Hall he described as an unsuitable place for the committee and fortnightly shows. The society had been very anxious to get something better, and allusion to the scheme for the Horticultural Hall, about which Baron Schroeder would give information to the Fellows of the society, was made. He paid a warm tribute of praise to the officers of the society, who have given valuable assistance during a critical time. Although there is a decrease in the subscriptions, there is an increase in the number of Fellows, but the deficit is to be accounted for by the members taking advantage of the guinea subscription. In alluding to the Journal, he said one of the complaints made by country members of the society was that they were able to get very little for their money. In the Journal this grievance was met, as it contained many valuable papers read at the society's meetings. Letters from all part of the kingdom had been received expressing appreciation of the Journal, and he thought the thanks of all were due to the gentlemen who had edited it. The chairman made a touching reference to the recent death of Mr. Wildsmith. He said, "In Mr. Wildsmith we had lost a very valued Fellow, one who had given much time and labour to the society, and whose place it will be very hard to fill." The same officers as served last year were re-elected, and on the council the places of the three retiring members, Messrs. J. R. Bourne, W. Coleman, and A. H. Smee, were filled by the election of Messrs. E. A. Hambro, N. N. Sherwood, and Martin R. Smith.

Baron Schroeder then brought forward his scheme for the proposed hall of horticulture, and in the course of a lengthy speech said that the council had found a suitable place in the Drill Hall for the moment, but it would be impossible for the society to permanently remain there; it would be a death blow to it. A small committee was appointed, of which he was a member, and several meetings had been held. Naturally two most important questions arose: one, how to raise the money to achieve the object, and secondly, where to find a site for a great society like the Royal Horticultural. He said that the sum of £30,000 or £40,000, which would be invested in the names of three trustees, of which he would be one, would be required. The interest from the investment would be devoted to the payment of the ground rent, and some of the principal to the erection of the hall. This invested sum will be repaid to the contributors without interest. This was the substance of Baron Schroeder's scheme, who said that in the proposed hall the library of the society could be housed, that there might be rooms set apart for the use of other special societies in connection with horticulture that would pay rent. Baron Schroeder thought it would be unwise to name the site in view. It is one of the very best positions in London. They would not be in the dark, as here. The interest in horticulture is increasing in the city considerably, and if the society had a proper place many gentlemen would come to look at the shows. He was willing to contribute a considerable sum himself and to work out the scheme. The capital of the subscribers would be as safe as in the Bank of England.

Dr. Mordaunt Matthews supported the scheme, and said he would gladly offer £100 himself. Altogether a sum of £2600 was offered, including £1000 from Baron Schroeder.

UNITED HORTICULTURAL BENEFIT SOCIETY.

THE twenty-fourth annual meeting of this excellent society was held at the Caledonian Hotel, Adelphi Terrace, Strand, W.C., on Monday evening, February 10, Mr. J. Wright in the chair. The report of the past year was most encouraging both

as regards the increase of members (benefit and honorary) and the substantial addition made to the funds. Respecting the latter, we are pleased to note that there is now an invested capital of no less than £5250 in Corporation Stock and Consols. This of itself is a sufficient guarantee as to the sound condition of the society. Surely no better one could be needed by those gardeners who up to the present have not joined its ranks, yet possibly have had some thoughts of doing so. The "United" is worked in the most economical manner; the stringency of its rules absolutely forbids any trenching upon either the benefit or the benevolent funds for working expenses. This in the past caused many a struggle to the earnest workers who devoted their time and labours in its behalf when the number of members was but few, the chief part of the working expenses being defrayed by the payment of 2s. 6d. per member annually. Now, however, with a membership (benefit) of over 300 gardeners scattered up and down the country, the society is able to make itself better known. At the meeting on Monday evening the chairman, when speaking of the present prosperity and usefulness of the society and the method adopted of appropriating each year's surplus to the benefit of individual members by placing the same to their separate accounts, said: "I suspect it is unparalleled, and especially when the fact is remembered, for a fact it is, that there is not a farthing of expense as a set off against it, this being met by a small special fund provided by the far-seeing founders of this splendid institution" (as stated above). Before a member of ordinary societies can receive payment during sickness he must relinquish work entirely. This is not so in the "United"; he can do some work and thus keep his situation, and at the same time receive a proportion of sick pay on the production of a doctor's certificate.

The benevolent fund is entirely distinct from the benefit fund, and is more especially intended for the relief of old members on reaching their seventieth birthday, when the balance standing to each one's account in the ledger is paid to him, and henceforward he receives assistance from the benevolent fund according to his special needs. This fund also provides for grants to members of any age who may be in distress through illness or any accident, and also to the widows of deceased members and to orphan children of members, the last grant having been made on behalf of the four children of a deceased member whose wife only survived him a few months, the amount being £20. As an instance of the great advantage of this society over many others in the appropriation of its annual surplus in the benefit fund, we would only note the case of one of the original members; his yearly balance-sheet, with which he is annually provided, this year shows him to have a balance of £60, within a few shillings, standing to his credit. Interest is added to this amount annually at the rate of 3 per cent. Thus with a benefit society is combined a savings bank or life assurance, absolutely safe by reason of the sound investment of the funds. Another strong point is that members who cease to contribute in ordinary societies are cut off from any further benefits. Not so in this, for the money that stands to their credit when they cease to contribute is held until they reach the age of sixty, when it is paid to them. Any further information can be obtained from the secretary, Mr. W. Collins, 9, Martindale Road, Balham, S.W.

Death of James Mackintosh.—We regret to hear of the death of James Mackintosh, who was for twenty-nine years head gardener to the late Duke of Buccleuch at Drumlanig Castle. He had retired for the past twenty-two years, and was at the advanced age of ninety-four at his death. He was well known when at Drumlanig Castle.

Women and gardening.—I am desirous of obtaining information as to the share women are taking at present in the cultivation of fruit and the growing of plants and flowers for sale in England.—L. E. MORGAN-BROWN, 59, Rue Boissière, Paris.

Name of plant.—*Rugby*.—*Iris chinensis*, or *Morea fimbriata*, as it is sometimes called.

WOODS AND FORESTS.

FORMING NEW PLANTATIONS.

MANY practical foresters are now of opinion that in forming new plantations the old system of planting a mixture of several kinds of trees on the same ground, in the hope that if one fails another will succeed, ought to be abandoned, and that each variety of soil, aspect, and exposure should be planted with the kind of tree it is most likely to bring to the greatest perfection. Much can be said in support of this opinion, and no doubt it is a safe one to follow, provided we can with any certainty predict which tree will grow best on each kind of soil, but such predictions are sometimes most disappointing and disastrous in their results, and too often prove the necessity of entrusting the formation of plantations only to those who have a thorough practical knowledge of the subject, and who will carefully investigate every circumstance likely to affect their calculations. Even were we satisfied which kind of tree is most likely to flourish on the ground, the system of planting with that tree alone may be carried too far.

For instance, in districts where little or no demand exists for the early thinnings of an Oak plantation, but where a market is likely at all times to be found for good sized Oak, it would certainly be unwise to plant the ground most suitable for growing Oak with Oak alone. Oak is slow in its growth, and some other kinds of wood of faster growth, the early thinnings of which would be more valuable, might be mixed with it. In such a case the Oak trees might be planted 18 feet apart, with an Ash between each two, and the ground filled up with Larch 3 feet apart, which would make two Larches between each Oak and Ash tree. The Larch would be gradually thinned out at such times and in such a way as would best encourage the proper growth and development of the hardwood, and more especially of the Oak. That cut at the first thinning would make stakes for sheep nets which, in arable districts where Turnips are eaten off by sheep, are always in demand at about 15s. per 100, or if in the Hop country it would make Hop poles. That cut at the second and third thinnings would be suitable for fencing, coal pit, and other purposes, and would be much more valuable than hardwood of the same age.

After thinning out all the Larch, the hardwooded trees, viz., the Oak and Ash, would be left in equal numbers at 9 feet apart, and before it was necessary to cut out the Ash it would be of a suitable size for shaft-wood, for which there is generally a good demand in most districts. When all the Ash has been thinned out, the Oak would be of sufficient size to admit of the plantation being pastured by sheep or cattle without much risk of their doing it damage, and as it is gradually cleared off the ground the pasture would every year become of more value. In fact, the fertility of the land would be improved by the crop of timber taken off it, and the pasture would be much better after the removal of the timber than it could have been made before the land was planted. On land suitable for growing good Oak, and situated in England or the Lowlands of Scotland, such a system of making permanent pasture succeed timber would in all probability be more profitable than the French one of natural reproduction.

Where, again, we find ground best adapted for growing Scotch Pine, it would not be advisable to plant that ground with Scotch Pine alone, the early and immature thinnings of

which would in some districts not be worth the labour of drawing them out of the plantation. Nearly all ground that will grow Scotch Pine to maturity will grow Larch for a certain period, and wherever Scotch Pine has to be the permanent crop, Larch, the young trees of which are of more value, should be mixed with it to come out in the early thinnings. Y.

The Black Italian Poplar.—The more general cultivation of this useful and desirable Poplar for timber purposes is well worthy the consideration of every planter. Although this tree, like the other Poplars as a class, will thrive in almost any soil, and attain to considerable size in a very few years, it prefers, and will grow most rapidly, when planted in a deep, moist, loamy soil, and makes most wonderful annual growths in damp, although shady, positions beside river banks or level flats. The height to which a full-grown Poplar of this variety will attain is about 120 feet, and this altitude it will reach in sixty years in a suitable soil and situation. The uses to which its timber is adapted are numerous, and owing to its toughness and lightness it is well suited for any constructive purposes. In localities whence there is easy and convenient means of transit to any of the great centres of industry and manufacture, Poplar wood of fair size will realise good prices. In this respect, grown solely as a crop, this species of Poplar, in the same given number of years, will be found to be a safer and more remunerative tree to plant than almost any other.—X.

Pinus densiflora (Sieb.) or dense-flowered Japan Pine.—In its native habitats in Japan this tree is said to attain a height of upwards of 40 feet, with a uniform thickness of trunk, well furnished with long spreading branches and clothed with slender, needle-shaped leaves, two of which are produced in each sheath and of a light green or ashy colour. In this country it has proved perfectly hardy, and forms a good contrast when planted with other trees of a deep green colour and more robust habit of growth. It prefers a loose, deep, rich soil. Draining should likewise be well attended to where necessary, as the tree is very impatient of damp or stagnant water at the roots. It is of no use planting this tree either on stiff tenacious soil or deep mossy ground, even although it has been thoroughly drained previous to being planted, as I have known several trees die off altogether on this class of soil, while others were so stunted and sickly-looking that they proved rather eyesores than ornaments. When the tree is well established it generally produces small cones abundantly. These cones are sometimes solitary, but occasionally in small clusters without foot-stalks and slightly pendent. Although it is by no means a tree of very large size, yet its timber is said to be of excellent quality and used for a great variety of purposes in its native country. In its native habitats it seems to thrive best on the mountain ranges, but in this country it prefers a little shelter, but not confinement.—J. W.

The Oak.—Oak is extensively used for boat and ship-building purposes, furniture, agricultural implements, &c., and is longer than any of our forest trees in arriving at maturity. It can never be cut down so profitably when small as when well matured and having plenty of heart-wood. When young, and with little heart-wood and a large proportion of sapwood, the timber is of comparatively little value per cubic foot, so that it can seldom be cut down profitably, especially if thriving on soil suitable to its growth, until it reaches 100 years old. Of course, when grown as copse-wood, it ought to be cut young; but even under the most favourable circumstances in Scotland copse-wood is less profitable to the proprietor than a crop of timber, and Larch can be grown more profitably in most situations. The Oak is of slow growth when young, but on suitable ground it increases rapidly after about thirty years. It sometimes happens that Oak, planted in a good soil and in a sheltered position, attains a large size, but with little mature heart-wood at sixty or seventy years old. In such a case it would be better to allow it to remain

till fully matured, when the value of the timber per cubic foot would be materially enhanced.

Pinus Edgariana (Hart.), or Bishop's Pine.—This very distinct and ornamental Pine is a native of Upper California, where it is said to attain a height of about 40 feet. In this country it has proved to be thoroughly hardy and thrives in a great variety of soils, including cold plastic clay and deep Moss or peat-bog, provided they are thoroughly drained. With regard to situation, it is equally at home when planted near the sea-shore as well as in exposed inland positions, the only drawback being that it very often produces strong unwieldy side branches, which are apt to be torn off by the wind during a gale. In order to lessen the risk of wind fracture I have occasionally found it necessary to cut back such branches to keep them within bounds, and as this can be done without destroying the contour of the plant, a little timely attention in this respect is an advantage. When the tree is growing quickly the wood in the stem is remarkably soft, and cannot bear any great strain, but I quite believe that the quality of the wood will be much improved by the time the tree reaches the years of maturity. This Pine belongs to that section which only contains two leaves in a sheath. These are of a lively deep green colour, each from 3 inches to 4 inches long on young trees in a rapid state of growth, but when the tree attains any considerable size the leaves gradually become reduced in size and less sharp at their points. The cones are each from 2 inches to 3 inches long, blunt, and generally produced in clusters or whorls around the branch. As the tree is only of medium size it is very useful for the decoration of villas where the soil is inferior and the grounds of limited extent.—J. B. W.

Earthing up tree stems.—In THE GARDEN of Feb. 1 (p. 118) "T. C." says that this practice is frequently adopted where there is surplus soil to be disposed of, and it cannot be too often nor too strongly condemned, &c. I believe such practice is bad in the main, more especially when the stems of any coniferous trees are covered with soil for any considerable distance up the trunk, as such trees are apt to contract disease and die a premature death. But that all trees are not alike in this respect I have abundant proof, as some of the hard-wooded trees when earthed up in this way produce along the stem new roots which ramify among the fresh soil for food, and in place of killing the tree they rather tend to increase its health and vigour. Upwards of thirty years ago while carrying out large and extensive estate improvements I had occasion to form a series of mounds or small hills among the trees in the vicinity of the principal buildings, and as these mounds had a sloping surface from the level of the ground upwards to the apex, I should say that the stems of the trees at the top of the mounds had a covering of some 10 feet or 12 feet of earth and gravel. It was thought that these trees would die off in a short time, but it was agreed to allow them to remain for one season until some young stuff could be planted and established. To my great surprise, however, the earthed up stems never showed any signs of distress, but continued in health, and have done so for upwards of thirty years. The trees that appear to stand this ordeal best are Birch, Poplar, and Mountain Ash.—J. B. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

SWEET-SCENTED SHRUBBERY BEDS.

So often, even in the deadest of winter time, a delicious whiff of sweetness comes from some plant or shrub, that it is well worth looking up the sweet-smelling things and planting them together, the better to enjoy their perfume. There is one class of sweetness that seems rather to belong to late autumn and winter, of which the typical scent is that of dying Strawberry leaves, those of the alpine class being the best. The foliage of the great St. John's Wort smells very nearly like it, and a little yellow-flowered *Potentilla*, a neat plant for carpeting bare ground, has just the same refreshing smell. It is rather a charming quality of these sweet scents that they seem to come when they will, and cannot be had for intentional sniffing.

Another powerful scent of the same class is that of *Cistus laurifolius*, the strongest and best winter-smelling plant I know. Then all within the same class of perfume we have *Escallonia macrantha*, Bog Myrtle, *Comptonia asplenifolia*, and the dwarf *Rhododendron myrtifolium*; but these need to be brushed up against to give off their scent, and, sweetest of all, *Ledum palustre*.

Here we have already a number of plants and shrubs, all evergreen, suitable for beds or clumps at all seasons, and especially enjoyable for winter sweetness.

It is to be noticed that of the many flowering plants and shrubs that are sweet-scented, there are not a great number that give off their scent, but of these the one that stands first in my recollection is the common yellow *Azalea*—all other *Azaleas*, too—but the yellow best of all. The scent of Sweet Brier is mainly or entirely from the young leaves, when they are just getting to be full-grown, but are still of tender texture. Lilies are lavish of this scent. Lilacs, Syringas, Honey-suckles, and a few Roses give off their scent when the sun brings it out. Of all annuals, *Mignonette* gives out most of its delicious smell. Rockets and Stocks perfume the air in the evening.

The *Daphnes*, especially *D. Cneorum*, are liberal of their sweetness, and the vanilla-like scent of *Azara microphylla* carries a long distance. These are only a few instances out of many that a well-stocked garden furnishes, but they may serve to remind some who are planting of one of the delights of plants and shrubs. It is the same with trees; everyone knows the sweetness of a Lime tree in flower. The young-leaved branches of Larch smell like Lily of the Valley, and anyone who goes shouldering about among Cypresses, Junipers,

and Box trees becomes acquainted with subtle and delicious scents that cannot too often be repeated.

G. J.

NOOKS AND CORNERS.

IN every garden there are nooks and corners which are often ugly and suggestive of rubbish, dirt, and decay. Ivy is one of those kindly things which turn ugliness into beauty, or at any rate make things otherwise distasteful to the eye pleasant to look upon and grateful to the sight of the passer-by. An old Ivied wall is most picturesque, and it is hard to disturb the long-tendrilled limbs, which have clung lovingly to their support for many generations. Yet, unless there is ample space for better things elsewhere, one can hardly afford to let Ivy have altogether its own way when *Jessamine* and climbing *Roses* would fill the space with sweet-scented flowers. But even if the old Ivy tree is let alone for the benefit of the bees and butterflies which swarm upon its honeyed flowers in late autumn, still the nook which it has made its own may frequently be more utilised than it is. There are plants of kindly disposition like the Ivy itself, and they will take to nooks, fill them up and give them a new interest, while the very fact of increasing the variety of different species of plants in the garden makes it more attractive and necessarily more interesting.

My experience is that the *Hellebores*, or Christmas *Roses*, are well adapted for such positions. I have known Christmas *Roses* grown on a full exposure to the sun, a bank sloping to the south, and although they grew and flowered well there, I think it was not a suitable locality for them. In this country I find that the plants in cottage gardens which grow in the shady nooks or under a north wall are healthier and flower more freely than those in the open garden, unless the latter have a great deal of attention bestowed on them during summer and constant watering.

There is a species of *Hellebore* which is specially adapted for filling with its handsome foliage and lovely green flowers any corner which may require adornment. This is *H. viridis*. It grows about 2 feet high, with great strong fleshy stems, which come to their perfection in mid-winter, and are then clothed with beautiful leaves of light green, and almost prickly with their deeply serrated leaflets. It is at this time in full flower, rather earlier than usual, like most other things this year. The flowers are a beautiful pea-green, stamens and all, and bear close inspection, as the closer you look at them, the more beautiful they appear. The plant is, of course, thoroughly hardy, and does not seem to mind rough usage. It is an interesting *Hellebore* and an acquisition in any garden, for it is unlike other things both in the time of being in full perfection and in the singular colour of its flowers.

Another advantage which this *Hellebore* has in common with its better-known sisters, the Christmas *Roses*, is that it lasts for a long time in flower, and its calm indifference to February snow and frost is simply delightful. I strongly recommend this plant to be placed well back in the corner, and its lower-growing brethren of the ordinary Christmas *Rose* type will fill up the front, and if only moderately attended to in the matter of manure later in summer, they

are sure to make the nook under the old Ivy corner productive of many a Christmas nosegay. A bouquet of Christmas *Roses* mixed with the dark glossy green leaves and beautiful berries of the *Arbutus* can scarcely be excelled even by the bright flowers of summer.

A GLOUCESTERSHIRE PARSON.

EARLY SPRING FLOWERS AT HAARLEM.

TO THE EDITOR OF THE GARDEN.

SIR,—In consequence of the extraordinarily warm and dry early summer of last year, which caused the bulbs to ripen off better than they had done for many years before, and assisted by the mild winter we are having on this side of the Channel, a great many bulbs are in full bloom now, or have been for the last few weeks. Some large beds of *Elwes'* new giant *Snowdrop* with thousands of lovely white flowers are charming, the more so as the greater part of the garden is still covered with the layer of *Reeds* with which we usually cover our bulb beds in winter. Notwithstanding the many varieties of *Snowdrops* lately introduced into cultivation, this one still holds its place as one of the very finest, the flowers being so large and the plant so easily grown and forced. The deep crimson flowers of the hardy *Cyclamen coum* never look better than when set off by the spotless purity of *Snowdrop* flowers. All through the winter months this Caucasian species has been flowering here in the open. This is also a very lovely plant if grown under glass in pots, for which purpose its numerous richly-tinted flowers and handsome deep green foliage render it well adapted. *Hyacinthus azureus* is just now at its best; it does not increase so rapidly as other *Grape Hyacinths* of the *botryoides* type, yet none rivals it in its very early flowering and perfect hardiness. It is assuredly one of the very best early spring flowers and will always meet with a ready demand. Of other blue flowers none beats the best dark blue variety of *Anemone blanda*, a rather large, finely-shaped flower of an intense deep blue. An importation of these generally contains many varieties, ranging from rosy white to pale blue, but not by any means so beautiful as the aforesaid large-flowered variety, which still continues to be comparatively rare. A good yellow spring flower is the recently introduced *Leontice Alberti*, a Turkestan tuberous-rooted plant, from the round *Gloxinia*-like bulbs of which spring many succulent stems with a good sized conical raceme of pretty yellow flowers, striped with brown at back. Part of my bulbs were planted in a cool frame and a few for trial in the open; the former are now in full bloom, while the others are just showing above ground, and have not suffered from the few degrees of frost which occasionally occur on bright mornings, so I am led to suppose it will prove to be a quite hardy bulb. Another species of this small genus, *L. altaica*, will be blooming in about a fortnight. Irises are keeping up a fair supply of flowers; since the blooming of *I. Vartani* in November we have had no lack of flowers of these. *Iris Histrio* was the second to bloom outside, followed by the different varieties of *I. reticulata sophenensis* and *I. Bakeriana*, while now the pretty golden *Iris Bornmülleri*, *I. reticulata cyanea*, *I. reticulata Krelagei*, a few early *I. Rosenbachiana*, and varieties of *I. stylota* (the last in a cool frame) are at their best. *Lachenalias* (in unheated pits) are showing flower. One of the best and rarest among them is the true *L. quadricolor*, now-a-days rarely met with, though it must have been more plentiful formerly. The combination of the four colours,

green, yellow, red, and clear purple, at the mouth of the flowers is really an exceptionally pretty one, and one rarely seen.

C. G. VAN TUBERGEN, JUNR.

Haarlem.

ROSE GARDEN.

NEW ROSES FOR 1890.

THE list of new Roses that were sent out by Continental raisers last November, and which will consequently be in the hands of English amateurs this spring, presents few striking features. The Tea-scented Rose whose appearance was looked for with the most interest, in consequence of the description given of it in various quarters to the effect that it completely eclipsed Catherine Mermet, is deferred till next season, and if Jeanne Koch's drawing of the variety is characteristic—and the artist does not generally exaggerate a Rose's beauties—rosarians will await with some impatience the arrival of Maman Cochet next November. Under these circumstances, the Rose that will probably attract most attention will be the reputed white sport from La France; for though Guillot is sending out two new Tea Roses and one Hybrid Perpetual, the two Teas are both red ones, which does not look promising, and no one on the Continent has yet arisen to take Lacharme's place as a raiser of Hybrid Perpetuals. The new Roses to be sent out by English raisers in May are not numerous, nor perhaps so important as usual, with the exception of Messrs. Alex. Dickson's seedlings, which were seen and admired at the Rose shows.

In the following list, which is believed to be practically complete, it has not been thought worth while to maintain, as the French growers do, a separate section for the so-called Hybrid Tea Roses, all of which are consequently included amongst the Hybrid Perpetuals. Moreover, except where otherwise specified, the plants are all described as vigorous, and the flowers as large, full, and well formed.

TEAS.

ADELIN OUTREY (Nabonnand).—Flowers of fair size, rosy yellow, centre chamois.

DUCHESS MARIE SALVIATI (Soupert et Notting).—Chrome-yellow, shaded orange, tinted flesh-rose, centre peach-red.

GENEVIEVE GODARD (Godard).—Carmine-red.

GEORGES FARBER (Bernaix).—Flowers erect, colour velvety purple, veined with deep red, passing to carmine as the flower expands.

GLOIRE DES CUIVRES (Tessier).—Flowers globular, colour coppery yellow.

GUSTAVE NADAUD (Soupert et Notting).—Flowers cupped, bright red, shaded carmine.

J.-B. VARRONE (Guillot).—Colour varying from deep China rose to very bright carmine, with coppery yellow centre.

JEANNE GUILLAUMEZ (Bonnaire).—Brick-red, shaded salmon colour.

MME. ADOLPHE DE TARLE (Tessier).—Flowers cupped, with large petals, pure white, with canary-yellow centre.

MME. LONGERON (Schmidt).—Dijon Tea, in the way of Mme. Berard, but flowers very bright yellow.

MME. MOREAU (Moreau-Robert).—Coppery yellow, deeper centre, reverse of petals rose and apricot colour.

MME. OLGA (Lévêque).—White, delicately tinted yellow.

MME. PHILIPPE KUNTZ (Bernaix).—Cherry-red, passing to salmon-flesh.

MME. SADI CARNOT (Renaud-Guépet).—Climbing Tea; white, shaded salmon.

MME. SOLIGNAC (Schmidt).—Creamy white, tinted flesh in hot weather.

MADELINE D'Aoust (Bernaix).—Nankeen centre, outer half of petals pale flesh-tinted rose.

MARGUERITE DE SORAS (Nabonnand).—Dijon Tea; colour bright chrome-yellow, deeper centre.

MARGUERITE DE THEZILLAT (Nabonnand).—Very vigorous; colour bright red with yellow centre.

MARGUERITE FABISCH (Godard).—Flowers of medium size, colour China rose.

MARIE USSHER (Nabonnand).—Dijon Tea; flowers cupped, carmine-red.

MARQUISE DE FORTON (Charreton).—Very vigorous; flowers of medium size, cupped; colour saffron-yellow, with rosy centre.

MARTHÉ DU BOURG (Bernaix).—White, tinted lilac-carmine, passing to pale chrome-yellow, tinted flesh colour.

MISS MAIBSTON (Pries).—Yellowish rosy white, margined with deep rose, centre rosy yellow.

SOUVENIR D'AUGUSTE LEGROS (Bonnaire).—Very vigorous; colour red, mingled with dark crimson.

SOUVENIR DE FRANÇOIS GAULAIN (Guillot).—Colour varying from magenta to deep violet shaded crimson.

SOUVENIR DU DR. PASSOT (Godard).—Velvety crimson, passing to a lighter shade.

CHINA.

MARIA SAGE (Dubreuil).—Very free; flowers of medium size; colour China rose with flesh-coloured reflex. Seedling from Hermosa.

NOISETTE.

MME. CARNOT (Moreau-Robert).—Very vigorous; flowers of medium size, globular, and produced in corymbs; colour golden yellow, deeper in the centre, with coppery margin to petals.

HYBRID NOISETTE.

GEORGES SCHWARTZ (Schwartz).—Very vigorous seedling from Aimée Vibert; very perpetual; flowers of medium size, cupped; colour varying from carmine-rose to almost white.

POLYANTHA (DWARF PERPETUAL).

BELLINA GUILLOT (Schwartz).—White flowers in corymbs.

CLOTHILDE SOUPERT (Soupert et Notting).—Extremely free; the small flowers produced in corymbs, the outer petals pearly white, centre deep rose.

ETOILE D'OR (Dubreuil).—Centre citron-yellow, passing to sulphur.

MME. CAMILLE DE ROCHETAILLÉE (Bernaix).—Flowers pure white on opening, becoming subsequently shaded and flaked with carmine.

BOURBON.

A. MAILLÉ (Moreau-Robert).—Very vigorous; colour brilliant carmine, passing to deep red.

MME. BARON-VEILLARD (Vigneron).—Very vigorous; flowers cupped, colour silvery lilac-rose.

SOUVENIR DE BRUEL (A. Levet père).—Bright red.

MOSS.

CRIMSON GLOBE (Wm. Paul).—Very vigorous, with globular crimson flowers.

HYBRID RUOGA.

MME. CHARLES FREDERIC WORTH (Schwartz).—Very vigorous and perpetual; flowers large, full, well formed; colour carmine-red.

HYBRID PERPETUALS.

ABEL CHATENAY (Eug. Verdier).—Bright currant-red, shaded carmine.

ADRIEN SCHMIDT (Schmidt).—Flowers very large, bright carmine-red.

ALICE ALLATINI (Nabonnand).—Flowers very large, nearly full; colour satiny ruby-red.

ANNETTE GAMON (Godard).—Flesh white, passing to tender rose.

ANTOINE RIVOIRE (Liabaud).—Dark wine-red colour.

ANTONIE SCHURZ (Geschwind).—Moderate grower; flowers very large, cup-shaped; colour flesh-white.

AUGUSTINE GUINOISSEAU (Guinoisseau).—A sport from La France, with which it is absolutely identical in all respects, except that it has white flowers.

BONA WEILLSHOTT (Soupert et Notting).—Brightest rose, centre orange-red.

BUFFALO-BILL (Eug. Verdier).—Growth robust, erect; flowers large, flattened, imbricated; colour very clear rose.

COMTE DE GRASSIN (Corbœuf).—Flowers in clusters; colour deep rose, shaded with bright carmine; very fragrant and free.

COMTESSE DE SAINT-ANDEOL (Renaud-Guépet).—Habit moderate; colour rose, tinted bright carmine.

CRIMSON QUEEN (Wm. Paul).—Growth very vigorous; flowers velvety crimson shaded with fiery red in the centre, and with maroon on the outer petals.

DOWAGER-DUCHESS OF MARLBOROUGH (Paul & Son).—A large globular flower, pure rose in colour; an improved Auguste Mie.

DR. DROUET (Tessier).—Brilliant fiery red, centre brighter.

DUCHESS DE DINO (Lévêque).—Blackish-crimson with velvety shades.

EMILE BARDIAUX (Lévêque).—Bright carmine shaded poppy-red.

FAIR ROSEMOND (Wm. Paul).—Flowers flesh colour, shaded rosy pink; plant of strong climbing habit.

FRANCE OF '89 (Moreau-Robert).—Dazzling red, occasionally lined with white. This Rose is sent out under the foolishly confusing name of "La France de '89," and it has been thought better that this should be Englished at once to "France of '89" in the hope of avoiding confusion with that greater La France, which is not only "of '89," but for all time.

GLOIRE DE L'EXPOSITION DE BRUXELLES (Soupert et Notting).—Very dark velvety crimson-purple.

GUSTAVE PIGANEAU (Pernet fils-Ducher).—Flowers cupped; colour crimson-lake, shaded bright carmine.

HORTENSE MONTEFIORE (Soupert et Notting).—Flowers imbricated; colour marbled white on a flesh-coloured base, centre chrome-yellow.

JEANNE HELY D'OISSEL (Lédéchaux).—Purplish red, with brighter centre.

JEANNIE DICKSON (Alex. Dickson).—A handsome flower, with very large deep petals of remarkably satiny texture; in colour full rose, with silvery margins. Well shown last season.

LAFORECADE (Lévêque).—Very vigorous; colour very bright carmine.

LAURENT CABLE (Eug. Verdier).—Rose colour, shaded bright carmine.

LEOPOLD VAUVEL (Eug. Verdier).—Bright red self; very fragrant.

MME. BERTRAND (Pernet père).—Flowers very large, nearly full; colour bright rose, reverse of petals crimson.

MME. CHABAL (Schwartz).—Flowers of moderate size, cup-shaped; petals bright China rose, with silvery margins.

MME. DE LA COLLONGE (A. Levet père).—Bright rose.

MME. MOSER (Vigneron).—Silvery white, centre lilac-rose.

MME. RENAHY (Guillot).—Carmine-rose, brighter centre, reverse of petals pale rose.

MME. THIBAUT (Lévêque).—Flowers imbricated; colour pale satin-rose, shaded with very bright carmine-rose.

MARIE MAGAT (Liabaud).—Bright clear red.

MARTIN-CAHUZAC (Lévêque).—Brilliant rosy carmine.

MAURICE LEVEQUE DE VILMORIN (Lévêque).—Bright clear red, shaded Poppy-red and brown.

MRS. WILLIAM WATSON (Alex. Dickson).

OSCAR II. ROI DE SUEDE (Soupert et Notting).—Carmine, tinted brilliant red, and shaded brown.

PINK ROVER (Wm. Paul).—Flowers very pale pink, deeper in the centre, very fragrant; habit thoroughly perpetual, semi-climbing; likely to make a valuable pillar Rose.

SKOBELEFF (Eug. Verdier).—Rose, shaded lilac; very large.

SOUVENIR DE GREGOIRE BORDILLON (Moreau-Robert).—Vivid red, shaded vermillion.

SOUVENIR DE GOMOT (Schwartz).—Centre fiery red, passing to velvety crimson.

SOUVENIR DU GENERAL RICHARD (Liabaud).—Flowers large, nearly full; colour dark scarlet.

SOUVENIR DU ROSIERISTE GONOD (J. Ducher fils).—Cherry-red, veined with bright rose.

T. W. GIRDLESTONE (Alex. Dickson).—Bright cerise-red, with large petals; very fragrant. Very favourably commented on at the principal northern shows last year.

VICOMTE DE LAUZIERE (Liabaud).—Purple-red self, unshaded.

WILHELM LIFFA (Geschwind).—A moderate grower; colour bright carmine, centre crimson.

Such is the list of new Roses for the current season; not quite so long as it has been sometimes in recent years, but seven dozen novelties are quite enough to have to make trial of in one season. It will also be observed that the English raised Roses are less numerous, though the varieties offered by Messrs. Alexander Dickson, of Newtownards, attracted considerable attention at the northern exhibitions last July; still, amongst the English raisers who are not represented, Mr. Bennett is a conspicuous absentee. There are not so many French names of inordinate length, though there is certainly one which is sufficiently ill-judged; such a name as "*Oscar II. Roi de Suède*" can be very simply shortened to "*Oscar II.*," but it is not worth while to go far with suggested abbreviations until it is seen what varieties will come into general cultivation.

T. W. GIRDLESTONE.

TRUE AND FALSE DRAWING.

THERE can be little doubt which school those who love the truly beautiful in Nature or art should and will follow. If the gardener is not something of an artist, there are some branches of his work that it is simply impossible for him to perform properly. But in too many cases it is not so; and how can much beyond mere rule-of-thumb drudgery be expected from a man who gets a pound a week, or very little more, for working ten or twelve hours every day with both hand and brain? This is why we see so much bad gardening. Generally speaking, those who have the management of gardens are not horticulturists at all, but mere rule-of-thumb growers, whose only ambition is to get their flowers as big and as glaring in colour as possible. Were it otherwise, they could not have put up for so long with the ridiculous and conventional woodcuts, and still more atrociously coloured daubs that have for the most part disgraced the pages of the majority of our horticultural papers for so many years. The matter resolves itself into the following question: Which is right, to imitate and follow Nature as far as possible, or to attempt to improve upon her work? This last, it seems to me, is what the so-called "florists," and those who represent what they consider florists' flowers should be, try to do.

Who ever saw a plant of which one of the cuts, upon the production of which so many of our horticultural publishers and catalogue compilers waste their money, was a true representation? Whoever the artists are, they usually draw them with all the flowers of exactly the same shape, all, or nearly all, facing the spectator, and with every leaf and flower disposed as if their place had been set out with rule and compass. I have seen (not to mention what I have grown myself) many thousands of as perfect specimens of plants as could well be produced, but I have never yet seen anything like the works of art referred to, and do not wish to. How many really perfect flowers, *i.e.*, quite circular in outline with every petal exactly in its place to a hair's breadth, and no irregularity whatever could be found on the finest exhibition specimen plant (undressed and untrimmed) that ever was staged? The fact is, it is only another form of the trained specimen craze. People imagine they are improving a plant by tying every shoot, flower, and leaf into its proper (!) place; whereas in reality they are simply spoiling it. One of Nature's greatest charms is a certain beautiful irregularity, that it is the easiest thing in the world to destroy and the most difficult to restore.

Can we touch Nature in many ways? Let anyone try to imitate the lights and shades upon the leaves

of, say, a *Cineraria*, the reflections upon the polished ones of a *Camellia*, or the colour and bloom on the petals of a common scarlet *Pelargonium*, and if he can succeed, I will give in. The Rose is of all flowers the most difficult to paint, I conceive; the variation of colour in the petals themselves as well as their form, the lights and shadows, and the transparency render the whole inimitable; you cannot get them all.

I am sure the gratitude and thanks of the entire horticultural community are due to you for having given us a paper in which the illustrations, the coloured ones in particular, are so truly natural and beautiful.

B. C. R.

** As regards the difficulties of reproduction with which, perhaps, many of our readers are not familiar, we may say that the drawings must be done with limitations as to what is possible in colour-printing, that is to say, the artist, however capable, is not free to get all the strength of colour and gradation he wants in a drawing to be produced in such a quick and economical way. Drawings done for purely artistic purposes would be quite different. But even when drawn for colour-printing, we cannot do full justice to the artist's work, because the colour-printer will not give the delicate gradations that the artist's work shows.—Ed.

TREES AND SHRUBS.

SCARCE TREES WITH CRIMSON FOLIAGE.

THE SWEET GUM, OR LIQUIDAMBAR. Where the planting of sombre-foliaged Conifers or the ordinary green-leaved deciduous trees has been overdone, the introduction of *L. styraciflua*, the Sweet Gum of the United States, should be encouraged by lovers of deep crimson foliage. The Japanese Maples, as a matter of course, bear the palm where low, round-headed trees best fit in, but this *Liquidambar* grows into a large, handsome specimen, especially when planted in deep moist loam in a fairly good climate. The summer being hot and dry, the graceful long-stalked, five to seven-lobed leaves, which are slightly fragrant when bruised, die off a deep crimson in the autumn, when they rival *Acer polymorphum atrosanguineum*, still the brightest and best of the Japanese Maples. In dull, sunless seasons the brilliant tone may be wanting, but even then the various shades of bronze and purple thrown up by the grey bark of the stems and branches impart to the tree a most handsome and remarkable appearance; so remarkable, indeed, that the ordinary passer-by would pause to admire its beauty. Some half dozen species are known, but coming from climates warmer than our own, *viz.*, the Levant and China, the species I have named is best adapted for planting in our parks and pleasure grounds. It is by no means fastidious as to soil, but being a moisture-loving tree it should be planted near water in the south and west, whilst in colder localities a somewhat drier and deeper loam with full exposure to the sun will favour the colouring of the foliage. Fine trees are met with, but no one seems to have planted it in quantity, and this is to be regretted, as it succeeds the Japanese Maples and the equally sparsely planted, but not less beautiful *Water Tupelo*. There is a remarkably fine specimen at Powderham Castle, in Devonshire, and a very good one in the grounds at Ledbury Park, the seat of Mr. M. Bidulph, M.P. Here we have several trees planted on a mound, composed of a mixture of loam and poor limestone brash, and although they make slow growth they colour beautifully.

THE WATER TUPELO (*Nyssa multiflora*, or

Sour Gum) is another handsome fine-foliaged deciduous tree, still less frequently met with. It is a native of the Eastern States, where it forms a fair-sized tree with horizontal branches, and a flat spray resembling that of the Beech with foliage dying off, a most telling crimson. In cold localities it should be planted on moderately dry loams or gravelly soils to ensure colour, but in the south and west it will succeed best on the moist margins of lakes or rivers. One of the best trees I have met with, and probably some 30 feet in height, is growing on a flat piece of turf in the beautiful arboretum at Strathfieldsaye, the seat of the Duke of Wellington. Six species of *Nyssa* are known, but only two or three, and those from the United States, are considered hardy enough to be worth growing in England. These, in addition to the preceding, are *Nyssa capitata*, the Ogechee Lime, a small tree bearing an oblong red Plum-like fruit, which can be used as a substitute for the Lemon, and *N. aquatica*, the ordinary *Water Tupelo*, another swamp tree from the Southern States, which, being easily raised from imported seeds, should be generally tried in England. *N. capitata* and *N. villosa*, or multiflora, can be bought for 1s. 6d. each in any good hardy tree nursery, and although in all places they may not rival or approach the *Hants tree*, they are well worth planting for the chance of their colouring occasionally.

W. C.

Garrya elliptica.—This is deserving of more extended cultivation than it at present seems to receive, as at this season it is very attractive. For cutting to place in tall vases the sprigs or branches are very useful for the decoration of rooms, either alone or in conjunction with other blooms, as they afford the necessary greenery and the catkins hanging so gracefully produce a striking effect. *Garrya elliptica* does well as a shrub, but it does best against a wall, as there it gets shelter and the flowers do not get so much injured if bad weather sets in. The foliage and general growth of the plant resemble those of the Evergreen Oak, except that the leaves are shorter and broader. The way to treat it when on walls is to prune annually, so as to keep the branches in and secure young breastwood, as on this the flowers are formed. The time to prune is immediately the flowers are over, as then the plants quickly break and make their growth, which if well ripened will produce a profusion of catkins.—S. D.

Lily of the Valley Tree (*Andromeda japonica*).—In making a selection of shrubs suitable for flowering under glass early in the year, this pretty Japanese *Andromeda* should be noted. It is far more graceful than its American relative (*A. floribunda*), though both are so beautiful and distinct from each other, that neither can well be spared. In the Japanese *Andromeda* the long racemes studded with their wax-like bell-shaped blossoms are pendulous, and form an extremely pleasing picture against the dark bronzy green foliage, while in *A. floribunda* they are erect. Like the *Rhododendrons*, and in fact most of the *Ericaceæ*, the roots of these *Andromedas* consist of a dense mass of delicate wig-like fibres, so that if carefully lifted they do not suffer the least check when taken up for forcing, which must be very gentle, indeed. Little more than mere protection is necessary, as both of them flower naturally very early in the open ground. My experience of the two when treated as hardy shrubs is, that the North American species can be more thoroughly depended upon to flower year after year than the other, for late spring frosts will often greatly injure the blooms of *A. japonica*, and at the same time leave those of *A. floribunda* untouched. Both are valuable as cut flowers, which will retain their beauty for weeks, while the glossy foliage is always bright and cheerful. When in the open ground, *A. japonica* where exposed to the sun has the whole of the new shoots and bark, as well as leaves, of a rich bright

crimson tint, so that a specimen is during the summer very showy. *A. japonica* is one of those plants first made well known by a coloured plate in THE GARDEN, for until then it was rare. This was on Nov. 3, 1877. There is a variegated form, and a specimen of it is very bright and pretty with us, as the leaves are clearly edged with creamy white, and in the young state flushed with crimson; it is in this stage one of the prettiest of variegated-leaved shrubs, and one that forms a good companion to the variegated variety of *Eurya latifolia*. Besides the generic name of *Andromeda* these two species are by some included under the head of *Pieris*.—H. P.

THE NETTLE TREE.

(*CELTIS OCCIDENTALIS*.)

THE Nettle Tree (*Celtis occidentalis*), known also as the Sugarberry, Hackberry, and False Elm, is one of the widely distributed trees of the American forest; indeed, with the exception of the Red Cedar and of the Box Elder, there is no other American tree which grows over such a wide territory or flourishes under such varied climatic conditions. It is very common in some parts of the country, and in others so rare, that to most people its name conveys no idea whatever. In New England, where it is found only in localities remote one from another and never anywhere in large numbers, very few persons know of or can recognise this tree. It is more common on the banks of the Hudson, where it is quite common along the roadsides and by fences, and is sometimes a feature in the landscape; farther west it grows to a larger size and is much more common, and in the forests of the lower Ohio valley it is one of the largest and most common trees, and as familiar to the people of that part of the country as it is strange to the inhabitants of New England.

The Nettle Tree, as might be expected of a plant subject to such varied conditions of soil and climate, varies greatly in different parts of the country, and botanists have at different times believed that it represented several different and distinct species. The only differences however, are in the habit and the leaves, which vary greatly in size, shape, and texture. These different forms, however, seen together in large numbers all pass from one into another, so that it is impossible to find any fixed character of leaf by which it is possible always to distinguish the different forms which have been considered different species. The bark of the trunk in all the forms presents the same general appearance; it is ashy grey, and covered in the case of old specimens with thick discontinuous corky ridges, sometimes an inch deep and half an inch thick.

The Nettle Tree, as it grows in New England, is a low, round-headed tree. On the banks of the Hudson the Nettle Tree is an entirely different looking object with a short, slender trunk and long, graceful, pendulous branches; west of the Alleghany Mountains, which is the true home of the species, it reaches occasionally, according to Mr. Robert Ridgway, whose paper on the native trees of Southern Indiana and Illinois (published in the "Proceedings of the National Museum" for 1882) is one of the most interesting and instructive contributions to American dendrology ever written, a height of 120 feet to 130 feet, with a tall, slender trunk, 80 feet sometimes to the first branches, and often comprising three-quarters of the total height of the tree. A little farther west, on the dry Ozark hills of Missouri, it is reduced to a low shrub 3 feet or 4 feet high only, but always with the same flowers and fruit; in the valley of the lower Rio Grande in Texas, and in the mountain valleys of the Sierra Madre in the adjacent parts of Mexico, the

Nettle Tree has a short, stout trunk, with a wide head composed of long and exceedingly pendulous branches, the whole forming a tree which no one looking at it from a distance could believe was the species of the Massachusetts coast or of the Indiana forests. Farther west again in the arid region of Western Texas, in Arizona, and in Sonora, it generally has short, stout, upright branches and a totally different habit.

The leaves of the Nettle Tree vary more than its habit of growth under the influence of its climatic environment, although certain characters, especially the arrangement of the veins and the nature of the pubescence which clothes them always in their young state, are common to them all. The trees produced on the fertile soil of the Mississippi valley have large, membranaceous leaves with deep sharp serratures, quite smooth on the upper surface and only slightly rugose on the lower. This is the form which has been called both *Celtis mississippiensis* and *C. crassifolia*. On the New England trees the leaves are smaller, and generally narrower, thinner, less coarsely serrate, glabrous or only slightly rugose on the upper surface. The form with narrowly acuminate, smooth, rather coriaceous leaves with entire margins, very common in the Southern States, has been described as *C. integrifolia*. This form passes, however, into forms with leaves more or less serrate. The leaves of the dwarf form (the *C. pumila* of botanists) are generally not more than 2 inches long when fully grown, and are often much smaller; they are generally entire, although sometimes deeply and sharply serrate. The leaves of the Rio Grande form (*C. Berlandieri*) are acute, with a long, slender point often somewhat falcate and quite glabrous on the two surfaces. The most distinct of all the varieties is that of the arid south-west, the *C. reticulata* of Torrey. The leaves of this variety are thick, rough on the upper surface, and rugose on the lower. This plant taken by itself might well be mistaken for a distinct and well-marked species, but it is connected with the entire leaved form of the Mississippi valley by innumerable intermediate forms, which vary in the thickness of their leaves in proportion as the region in which they grow is unequally and insufficiently supplied with moisture.

The range of the American Nettle Tree is from the valley of the St. Lawrence to Eastern Oregon, and to Florida, Northern Mexico, and South-eastern California.

The wood of the Nettle Tree possesses a good deal of value, and it is destined, as better known woods become scarce or are exterminated, to be used more in the future than it has been in the past. It is strong, not very hard, and easily worked. The colour is a pleasing light yellow, but its appearance is injured by the large number of open ducts which mark the layers of annual growth. It has always been used for fuel, as the tree is easily cut and the wood splits well; and of late year it is coming into use in some parts of the west for the manufacture of cheap furniture.

The ornamental value of the Nettle Tree is great; the habit is good and often exceedingly graceful; the foliage has a bright, cheerful green colour, and the leaves remain fresh and green on the branches long after those of nearly all our other native trees have fallen. They drop finally without any marked change of colour. This tree grows very rapidly; it is free from serious attacks of insects, and is admirably suited to plant as a street or roadside tree. It will thrive in all sorts of soil and in all exposures; still there are few American trees which

have been so seldom planted, or whose beauty and value are so little known or appreciated.—*Garden and Forest*.

Pittosporum Tobira.—The majority of the Pittosporums are natives of Australia or New Zealand, but this species is a Japanese shrub, hardy in the more favoured parts of England, but in others it requires the protection of a greenhouse. It cannot be called showy, but has deep green leaves of a somewhat leathery texture, while the whitish-coloured blossoms, which are about an inch in diameter, are arranged in clusters at the points of the shoots. The blossoms are of sweet fragrance. *P. Tobira* is often grown as a wall plant, but as a rule it flowers more freely in a greenhouse. The flowering season is spread over a considerable period, for it will often bloom from now till midsummer. There is a variety in which the leaves are variegated, but with that exception it is a counterpart of the type. *P. Tobira* in the milder districts is a first-rate seaside plant. It, in common with all the other Pittosporums, can be easily struck from cuttings at almost any season of the year.—H. P.

Teneriffe Broom (*Cytisus filipes*).—This is the most graceful of all the Brooms, yet it is rarely met with. The shoots are long and slender and droop gracefully on all sides, while they are studded for a considerable part of their length with pure white blossoms, each about the size of those of the common Broom. From its elegant and partially pendulous habit of growth it is seen to advantage when trained as a standard, as then the long, drooping shoots have plenty of space for their development. The method usually followed to obtain a standard is to graft a shoot or shoots on to a clear stem of the Laburnum at the required height, or, if preferred, the Teneriffe Broom can be struck from a cutting and trained to a single stem till tall enough, when it will branch out, and thus form a head. Very handsome specimens are also formed by securing the leading shoot to a stick, and then allowing the side branches to grow at will, when it assumes more or less of a pyramid shape, and when laden with flowers is very attractive. The earliest blossoms are just commencing to expand, and under favourable conditions a succession will be kept up throughout March, and frequently well on into April. Seeds are often produced, and when thoroughly ripened they germinate readily, and thus afford an easy means of obtaining a stock. This Broom is essentially a greenhouse plant, and while the allied *Cytisus canariensis* is grown by thousands, no one seems to work up a stock of this, though a good demand would no doubt be created if it were better known.—T.

Illustrations in American papers.—The *American Florist* has reproduced THE GARDEN engraved cut of *Anemone* in Lady Jane Spedding's garden. This process spoils the beauty of our cuts, and we protest against their being used in this way, though the mode used by the *American Florist* is far better than the wretched processes and reductions made of our cuts by journals less particular than the *American Florist*; but in every case there is gross deterioration of our engraving, and we shall in future point out all such.

Packing plants for America.—Our winter has been a strange one—almost like our ordinary November weather. No frost in the ground to speak of, when usually we have 2 feet to 3 feet of it. We have just received 1800 fine clumps (originally) of double Pyrethrums, all of which but 400 were dead through packing too damp. If you will say this to English growers and exporters of this noble plant, it will save much loss on both sides. The plants should have all earth washed from the roots and then be dried under cover till all water is out of top and roots—not, of course, enough to shrivel the roots. After all the leaves have been cut off, the plants should be packed in Lemon boxes with plenty of air spaces open, in perfectly dry shavings. These thin boxes bring them to us in perfect shape, while all of those packed in the ordinary way are sure to rot. You cannot emphasise this fact of dry packing too much.—F. L. TEMPLE, Cambridge, Mass

FERNS.

TODEAS.

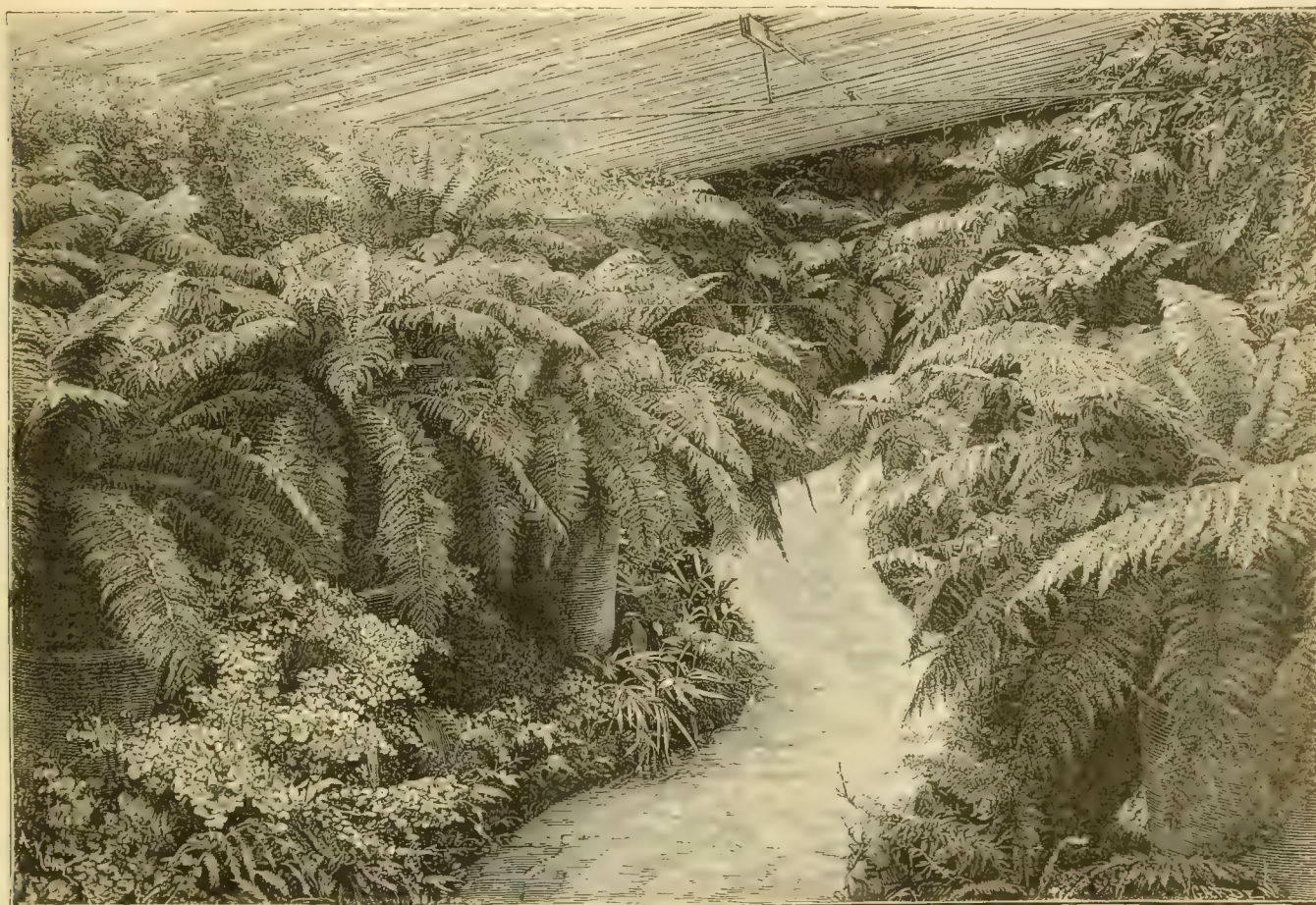
THE accompanying illustration is from a photograph sent by Captain Belfield, Malmain, Frenchay, near Bristol. The Ferns appear to be of one kind, *T. superba*. Having no details as to the plants, I am unable to say if other species are grown in the opposite side of the house, nor am I told if this is simply a cold house devoted to their culture, but from their luxuriance I should suppose it to be so. I know that in the garden of Mr. Stephenson Clark, at Croydon, I have seen a magnificent plant of *T. superba* grown in a cold frame, and Mr. Carr, the gardener, told me that it has frequently had 10° of frost upon it. I must, however, add a

Rouen, in France, standing fully exposed, and they did not appear to have much sprinkling. In the garden of Mr. Measures, of Camberwell, is a house entirely devoted to this species. I cannot say how many examples are to be found here, but they are very numerous, and very similar to the specimens represented in the illustration. The best form of house for these and the majority of the Filmy Ferns is that adopted by Messrs. Backhouse, of York, and if no convenient place exists naturally, one should be made. A ravine should be glazed over, and the sides may consist of large boulders of rock or earth, this serving to retain the heat, and a less variable temperature is the result. This appears to be the style of structure in which the plants here represented are grown. In such a house nearly all the Filmy Ferns

figure the surface of the bright green fronds. *Cyrtomiums* should be potted in good loamy soil. Yellow loam with a little manure, and if the loam is heavy some sand added, will suit them well. There are two distinct varieties of this useful Fern, the variety usually grown having rather long fronds, the pinnules being slightly curled, especially in the fertile fronds. The other variety has shorter fronds, the pinnules being larger and quite flat. I consider this the most desirable variety, a good form of which was exhibited, and obtained a first-class certificate, at a meeting of the Royal Horticultural Society last summer. *C. caryotideum* and *C. Fortunei* are also useful species.—F. H.

TREE FERNS.

THIS is a very suitable time for repotting or overhauling any of these fine decorative plants. No active growth unless in exceptional instances will



New Zealand Filmy Ferns. Engraved for THE GARDEN from a photograph sent by Captain Belfield, Malmain, Frenchay, near Bristol.

word of caution to all who practise this cold treatment of *Todeas*, and that is, not to allow them to become frozen when the fronds are dry, for in this state they are very apt to become brown. *T. hymenophylloides* has also been successfully grown in a cold frame in Mr. Smee's beautiful garden at Hackbridge. Dr. Hooker, in his "New Zealand Flora," tells us that both *T. superba* and *T. hymenophylloides* are plentiful in the Northern and Middle Islands of New Zealand, but he does not give any particulars of the places in which they exist. I suspect, from their transparent and pellucid fronds, that they must be found in the neighbourhood of water. I remember having seen some plants of *T. superba* in a north cold house in the garden of the Comte de Germiny, near

may be grown. The majority even of the tropical kinds come from considerable elevations, and are found in damp ravines in the mountains.

W. H. GOWER.

Cyrtomium falcatum.—This is a most useful Fern, and one which is grown extensively for market, a proof that it should be grown in all private establishments where plants are required for decoration. It is of easy cultivation, and useful sized plants may be established in one season. Seedlings raised early in the spring will make nice specimens for use the following winter. The plants should be grown from the commencement in a cool and rather shady position. It is also essential that they should stand on a moist cool bottom, as if subject to a dry atmosphere or too much warmth, thrips will make their appearance and soon dis-

have commenced. Anything, therefore, that has to be done at the roots should be seen to at once. In some cases a shift into a larger pot or tub would be practicable, and this would be of great benefit to plants that have stood for some time without such treatment. Before repotting, see that the whole ball is thoroughly soaked with water, as it should be one mass of roots. Remove all the old drainage, even though permeated with roots, and this will allow of a greater addition of fresh soil upon the new drainage, and a slight one also on the surface. Pot as firmly as possible with a wooden rammer, and the soil for strong-growing kinds should consist of about equal parts of good loam and peat, the latter not too spongy; those of more moderate growth would be better with a greater amount of peat. Sand should, of course, be added, and there is no objection to Sphagnum Moss chipped up moderately fine.

If any of the fronds are shabby and not worth retaining they should be removed; it is better to take a few off at the time rather than a number all at once. Of insects perhaps the black thrips are the most troublesome; sharp syringing repeatedly given will, however, dislodge them, and a few fumigations in very bad cases will kill those not reached by the syringe. Mealy bug is troublesome at times, and should be brushed off with a soft brush and some insecticide, which should not be too strong, repeating the operation once every ten days or so for a while. Brown scale is often troublesome, especially to the Dicksonias.

Some plants may possibly have used up root accommodation, and in such cases there are two ways at least by which further assistance may be given. If the plant is in good health, it will not be advisable to reduce the ball for fear of too great a check, and in such a case great help may be given by coating the stem with a dressing of Sphagnum Moss bound on with rather fine wire. The roots will eventually lay hold of this and entirely permeate it if the Moss is kept moist by frequent syringings. Another plan would be to stand the pot in a large pan that is watertight, so that the roots could absorb the necessary amount of moisture. A hole in the side of the pan could be made so as to regulate any liability to excess of water over a certain height. In some cases top-dressing could be provided for by laying some firm sods of peat (cut out to a circular shape) around the edges, securing them with pegs and filling up with finer soil in the interior. If the soil is sour and it is considered necessary to reduce the ball, this should be done with a sharp instrument, such as a piece of an old scythe blade, which would remove all in a cleanly manner, this being far better than tearing off the old roots with the hands or sticks. Repotting should in most cases be into the same sized pot again in the way previously advised. In such instances a slightly closer atmosphere with extra syringings would be of great assistance in re-establishing the plant.

The after treatment of Tree Ferns as growth commences must not be lost sight of. Some plants will continue throwing up fronds in succession almost throughout the season, one or two fronds at the time. These require more regular attention as to watering and syringing. There are others which throw up a crop of fronds all at once. These plants at such a time need to have extra attention in watering and more frequent syringings, both of which should be copiously given. When these Ferns are in good health, two or three waterings a day in hot weather will be none too much. My practice in watering is to pour the water on the stem as high up as possible and let it run down into the pot. Weak solutions of liquid manure are of great assistance to pot-bound plants. I recommend for this purpose Peruvian guano, diluted so as to be about the colour of sherry wine. This, if applied when the plants are in free growth, would help them much in developing their fronds.

Plants that are required to be turned out of pots into rustic ferneries should have a good depth of soil provided for them, and arrangement must be made for a plentiful supply of water reaching their roots; to guard, however, against stagnation in this respect a good amount of drainage should be placed under them. The growth of young plants of Tree Ferns that are just developing their true character can be greatly accelerated by the following means: Possibly they are already in sufficiently large pots, rendering a further shift for the time being inexpedient. These should have a good coating of Sphagnum Moss applied to their stems to the thickness of an inch all over from the base upwards into and between the fronds. It is surprising what an impetus this will give them. I have found the roots to luxuriate in this dressing of Moss with a corresponding addition to the vigour of growth, the height of the stem being also increased much more rapidly by its use close up to the crown. I once treated a plant of Dicksonia antarctica in this manner, gaining fresh Moss every spring at the top, thus gaining about 6 inches in height every year. In such cases as

these water may be poured into the crown of the plant without any fear of injury, always giving sufficient to penetrate the entire ball as well, the only exception being made in the winter months, when less at the crown would be required.

Old stems of Tree Ferns that show signs of decay or weakness may be renovated by removal to a closer atmosphere for a few months, at the same time paying attention to their root action and encouraging their healthy development. Any old stems that have lost their crowns, if of fairly good circumference, may still be turned to a good account by planting younger ones on the tops after having hollowed out a sufficient space for their roots. When this process has been gone through the plants should afterwards be grown in a more humid atmosphere to encourage a quicker root action.

Of the best kinds to grow but little need be said. Dicksonia antarctica is one of the best and hardiest. Cyathea dealbata (the Silver Tree Fern) is one of the most beautiful, especially when on a tall stem, so that the beauty of its fronds can be seen to advantage. Cyathea medullaris is quite a contrast to the foregoing, of stately growth, and well suited for large houses. Dicksonia squarrosa is well adapted for smaller houses, making a good stem with less spread of the fronds. Cibotium princeps is of very strong growth, and in all ways a noble plant, C. regale being less vigorous, but an elegant plant with fronds of a paler green than some kinds. Alsophila australis is a quick growing kind, but does not retain its fronds so well in good condition as most of the foregoing.

J. H.

ORCHIDS.

CYRTOCHILUM MACULATUM.

THIS is an old plant introduced into England upwards of fifty years ago, and figured in the *Botanical Magazine*, t. 3880. It cannot be called a gay Orchid, yet it is more beautiful than *Odontoglossum biconiense*, which was once included in this genus. I was very pleased to see it in such good condition recently in Mr. Tautz's fine collection, where many of these neglected Orchids now find a good home. The plant is bearing two much-branched spikes, which support several dozens of flowers, the fragrance of which is delightful, resembling Vanilla, and, without being sufficiently strong to be offensive, filled the house with a rich and welcome aromatic odour. This plant has ovate pseudo-bulbs, which are slightly compressed and deep green, the leaves being similar in colour. The scape is much branched and, as before remarked, bears many flowers. Those in the sample before me measure $2\frac{1}{2}$ inches across, the sepals and petals being nearly equal, the ground colour yellow, profusely and irregularly blotched with chocolate; lip oblong or somewhat hastate, terminating in a small sharp point, and slightly waved at the edges, colour creamy white; the crest is toothed, and bears four brownish purple streaks.

This plant I consider a most desirable acquisition to any collection. It is easily grown, with a stout and robust habit of growth, and is a native of Vera Cruz, a province of Mexico, which is not credited with any *Odontoglossums*. Its forests, however, should yield some beautiful Orchids other than we have yet obtained, but I expect they will be mostly intermediate house species. The plant now under consideration succeeds best under this treatment, and should be potted in a well-drained receptacle. The soil should be rough fibrous peat with nearly all the fine particles shaken out, and some Sphagnum Moss. When potting, it will be well to sprinkle a little rough sharp sand in and about it, as this assists in keeping the whole sweet

and fresh, the rough sand from the midlands being best. During the season of its growth it enjoys a liberal amount of water and a moist atmosphere, coupled with a good amount of heat, say a temperature of 85° in the brightest portion of the day, and 65° to 70° at night. In the autumn and winter, however, 65° to 70° by day, falling to 60° at night, will be quiet sufficient for it, and during this season the plant should never be kept sufficiently dry to cause any shrivelling of leaves or bulbs, whilst when the flower-spikes appear a little more water and heat will be necessary.

W. H. G.

Pleione humilis tricolor.—This is the variety received from John Jones, who says he has several plants, which were sent to his employers by an officer in the Indian Army. This, although by no means rare, is not, I think, common. It is very free-blooming, but I did not expect to have seen it so late. The sepals and petals are somewhat narrow, white with a tinge of soft rose, lip large, same colour as the petals on the outside, pale yellow in front, blotched and streaked with tawny orange, and having a very long fringe of black hairs. It will soon begin to grow, and should be potted in fresh soil. Pleiones thrive best on a shelf near the glass, shaded from the sun or the bulbs will be affected. A fine lot of bulbs were once ruined through neglect of this, the leaves being completely shrivelled. If this occurs the plants cannot produce flowering growths.—W.

Cattleya luteola (M. W.).—This is the name of the plant sent by you. It is frequently to be found in gardens under the name of Holfordi—not Halifordi, as you have it; but Lindley's name is the correct one, and under which you will find it figured in the *Botanical Magazine*, t. 5032. I have also seen the plant in German gardens, under the names of C. Meyer and C. flvida. It is a pretty little species, indeed perhaps the smallest species in the genus, having pale yellow sepals and petals, the lip varying considerably in its depth of colour, this flower being deep orange with a narrow white border, but in many instances the colour is much paler. It usually flowers through the months of November and December, but at home it would appear to be almost a perpetual bloomer. It loves shade and moisture.—W. H. G.

Cypripedium euryandrum (J. M.)—This is the flower sent for a name. It is one of the Veitchian hybrids, and is certainly one of the very best forms obtained by them. It is the result of a cross between C. barbatum and C. Stonei, and has deep green leaves, which, however, retain a faint trace of those of C. barbatum in the tessellations. The scape bears two and three flowers, which are large and richly coloured, the dorsal sepal being light green in the centre, white towards the tip, veined with deep green, rich purple, and crimson, the petals somewhat narrow, nearly 4 inches long, greenish-yellow veined with dark purple, and profusely spotted with black warty spots, while they are ciliate on the edges; the pouch is large, brown tinged with crimson. This plant requires the warm house, as a reference to its parents would suggest. It thrives most vigorously when in such a position that the midday sun does not reach it, but it enjoys strong light.

Cattleya citrina.—John Jones sends me a flower of this plant, the first I have seen this year. It is very early. The flower is not large, but very good in colour, being deep citron-yellow with a narrow white margin in front, and the perfume is delicious. He may rest satisfied if he gets one flower next season, and it very rarely produces more than one. I have heard of two being sometimes produced upon a single scape. C. citrina should be grown upon bare blocks and head downwards. It appears to be a common plant in Mexico, at 6000 feet to 7000 feet or more. Whilst growing it requires an abundance of water, but during the winter very little will suffice until its flowers appear, when a little extra is necessary.—W.

Cypripedium Boxalli atratum.—A very fine and richly marked form of this plant is now

flowering in Mr. Measures' collection at Streatham. It is a superb variety bearing many flowers, the spots on the dorsal sepal being very dark, almost black, and these run into each other; the petals are more beautifully coloured than those of the typical plant, and the lip also is darker. This is the finest form of this plant, except the Studley House variety, which I have ever seen. It is found on the Burmese Hills at some 4000 feet elevation, and it may be grown in a fairly cool temperature, although it cannot be called quite a cool house plant.—G.

Odontoglossum Wilckeanum.—A superb form of this plant is now flowering in Messrs. Laing and Sons' nursery, the spotting being remarkably bright. This *Odontoglossum* is a supposed natural hybrid between *crispum* and *luteo-purpureum*, but it yet remains for the hybridisers at home to prove this. The plant has been found in large quantities, and although it varies considerably its identity is tolerably clear. It was first flowered in Belgium, and bears the name of the gardener to whom the honour is due; but it is to the Messrs. Low and Co. that we owe our first knowledge of this plant. The particular variety in question is exceptionally beautiful.

SHORT NOTES.—ORCHIDS.

Lycaste Skinneri xanthoglossa.—This is a variety in which the sepals and petals are pure white, as also is the lip, saving a streak of lemon-yellow, which is borne right down the centre lobe quite to the tip. It was recently flowering in Mr. Tautz's collection at Shepherd's Bush, and is very novel and striking.

Dendrobium æmulum.—This is an uncommon, but pretty species from Australia, introduced in 1823, so that it has been long in cultivation. A plant of it on a block in the Orchid house at Kew is full of flowers, which are of characteristic beauty. The sepals and petals are very narrow and pure white; the lip small, with the side lobes marked with lake colour.

Dendrobium Dominianum.—This is an old friend which seems to improve much by cultivation. It is a cross between *D. nobile* and *D. Linawianum*, formerly known as *moniliforme*. The flowers are very bright rosy-purple, and white towards the base of the sepals and petals. It is now flowering profusely in Mr. Tautz's fine collection, and is a plant that can be grown tolerably cool.

Dendrobium Wardianum candidum.—A very pretty and rare plant, now flowering in Mr. Tautz's collection, and also in that of Sir Trevor Lawrence at Burford Lodge. The whole flower is of the purest white, saving the orange-yellow on the disc of the lip, which at the base has two reddish-brown spots. This form was originally imported from Barmah by Messrs. Low and Co., of Clapton, and is extremely beautiful.

Dendrobium luteolum chlorocentrum.—This is a variety of a very pretty plant that was introduced from Moulmein by Mr. B. S. Williams a few years ago, and both it and the typical plant are flowering in various collections. It has larger flowers than the typical plant, and these are soft primrose-yellow, the side lobes of the lip orange-yellow inside, bearing on the disc a few tufts of green hairs. It has slender terete stems, and although not a showy plant, it is very desirable, as it flowers early in the season, and lasts a long time in beauty.

Dendrobium Wallichianum.—A very fine form of this plant is now flowering in the collection of Mr. Marks at Beckenham. It is a very richly coloured form, which some wish to call *nobile nobilius*, but although deep in colour, it is much inferior to that variety, being far too white at the base of the sepals and petals; moreover, these segments are far too narrow.

Lycaste plana Measuresiana.—A good variety of this is now flowering in Mr. Marks' collection at Beckenham. It is bearing fourteen or fifteen flowers, which are reddish-brown with green tips, the petals projecting forward, pure white, richly spotted and dotted with bright rose, the lip also being white, spotted in the same manner as the petals, with a white tip. It is not quite a cool house plant, as it appears to like a little more warmth through the winter months than the ordinary type.

Lælia anceps Williamsi.—"F. W., Devon," sends a flower of this for name, and it is another of the white forms. It is a beautiful variety and the blooms

will no doubt get larger. The typical ancep sent was good as regards size, but it lacked colour, the sepals and petals being very pale. The *Cattleya* flower was *C. Trianae*, and it is a very good variety, superior by far to the ordinary form. The *Saccolabium* sent was *S. giganteum*.

Masdevallia triangularis.—This pretty plant was first introduced by Mr. Sander, of St. Albans, although found nearly fifty years ago by M. Linden, of Brussels, in Venezuela. The leaves are somewhat oblong, tapering below into quite a slender petiole, and the scape bears a single, somewhat large, triangular flower, which is long-tailed and tawny-yellow in colour, profusely dotted with reddish-brown. It is now flowering in Messrs. Laing & Sons' establishment at Forest Hill, where it appears to thrive well in the cool house.

Lælia harpophylla.—This is a beautiful Orchid, and forms a bright contrast to other flowers, especially white ones. I observe many people recommend its being grown in the intermediate house, but from experience and observation I should always grow this plant in the coolest house; indeed I have seen the pots in which it was growing frozen quite hard. The plants flowered afterwards and did not seem to be a bit the worse. It is a great pity Mr. Sander does not tell us the exact conditions under which it is found.—W. H. G.

Lycaste Skinneri alba.—A flower of this plant comes from Mr. Cypher, Bath. The sepals are broad and short, thus making a very compact flower, differing from some forms in which the sepals are very long. The whole bloom is of the purest white, the base of the lip being only stained with pale lemon-yellow. With it come some forms of the species with deep coloured lips, charming in their way, but not equal to those of the white form in purity.

Oncidium cucullatum majus.—This is a very fine form of the alpine species, with a large, very dark lip. The spike is also well developed. When the smaller-flowered forms are grown I prefer hanging baskets or pans for them. I do not despise these smaller forms, yet one would doubtless prefer a flower which is three times as large as another with all its colours and all its beauties more fully developed. This variety is now flowering beautifully in Mr. Howard's garden at Teddington.—W. H. G.

Cattleya Trianae.—I have received flowers of this species from various localities, the best from Mr. Measures, of Camberwell, Mr. Cypher at Bath, T. Atkins, of Exeter, Mr. Measures, of Streatham, and others. The finest varieties came from the two first named gentlemen. Mr. Cypher sends a charming round and compact form, the sepals and petals deep rose; lip elegantly fringed, the whole front part deep rich crimson-lake, behind which is a patch of rich orange-yellow. "T. J." also sends a similar flower in build, but very much inferior in colour. These are all beautiful, but, of course, some inferior forms are sure to occur.—G.

Dendrobium splendidissimum grandiflorum and *D. Leechianum*.—Flowers of both these plants come to me from Mr. Cypher, gardener to Mrs. Studd, Royal Crescent, Bath. They are, of course, both known to be hybrids from the same cross, but in the flowers before me I quite fail to see any difference between the two. The flowers sent measure each nearly 4 inches across, the sepals and petals being white, tipped with rosy pink; lip deep maroon-purple, in front of which is a zone of white with a very faint tinge of cream colour, the tip being coloured the same as the petals.—W. H. G.

Cypripediums at Beckenham.—These plants are just now in great beauty in Mr. Marks' garden at Cheriton, and amongst the many kinds flowering were *C. Argus*, *Ashburtoniae*, *villosum*, *callosum*, *Harrisianum*, and *insigne*; but the plant that is most noteworthy is a specimen of *C. Lceanum* superbum with about eighteen flowers. It is the best specimen we have seen of this beautiful variety.

Dendrobium thyrsiflorum.—This is one of the most beautiful plants of this section of *Dendrobium*. It has but one fault, and that is it is over too soon. A small plant in the collection of Mr. Coulthurst at Streatham Lodge was bearing five

beautiful spikes of its pure white flowers, which have a rich orange-coloured lip. This specimen would have had eight spikes had not the fog destroyed three in their early stage.

PHAIUS.

FOR growing in a general collection of plants, or for establishments where no houses are set apart for the cultivation of Orchids, no more suitable subjects could be recommended than a selection of *Phaius*. Easily grown, of handsome appearance at all seasons, and free-flowering, they combine advantages which are by no means characteristic of the Orchid family as a whole. *P. grandifolius* is one of the best known and appreciated of all Orchids, and seeing that there are other species of equal beauty and general merit which are rarely cultivated, it is worth while to draw attention to them, especially as by growing the selection given below some of the varieties of *Phaius* (of the *grandifolius* type) may be had in flower nine or ten months of the year.

The genus enjoys a wide distribution; it is scattered over an extensive area in India and the East Indies, two species reaching as far as Australia. It is also represented in Madagascar, but the three species as yet discovered there form a distinct group of themselves. The two that have flowered in this country—*P. tuberculosus* and *P. Humbloti*—we know to be beautiful, as the third (*P. Henryi*) is also said to be. Judging, however, by what we at present know of them, they are of too delicate a constitution to be of much use to any other than specialists. They may, therefore, be passed over. *Thunias*, too, which have been included under *Phaius*, are so very distinct both in habit and style of inflorescence, that for garden purposes they are better considered separately.

Dealing, therefore, with the section to which *P. grandifolius* belongs, *Phaiuses* may be described as terrestrial evergreen plants, with small, roundish pseudo-bulbs clustered on an underground rhizome. The leaves and flower-spikes are erect, the latter 2 feet to 4 feet high, bearing the flowers on the upper half. The flowers are always large and showy, with the sepals and petals arranged above the plane of the lip like a fan; the lip is of a different colour to the rest of the flower, and, by the sides curling upwards above the column, assumes a tubular form, the apical portion alone expanding. In several species the flowers are completely changed in colour after having been open a few days.

Being strictly terrestrial, the following species should be grown in well-drained pots or fairly deep pans; the latter are better for large specimens, as there is more surface room without the clumsiness of the ordinarily shaped pot. The compost I have found most suitable consists of equal parts of fibrous peat and loam, to which should be added a small proportion of sand and chopped Sphagnum. With regard to the loam, it is not often that it can be used without preparation. With that obtainable in the neighbourhood of London I always find it necessary to shake out a considerable quantity of the earthy particles. Unless this is done, owing to the small proportion of fibre, the compost soon becomes close and heavy, and altogether unfit for the roots of Orchids. The plants are best repotted when growth commences, although, if the soil is in bad condition, it may safely be done at any time when they are out of flower. During the growing season *Phaiuses* enjoy abundance of heat and moisture. At this time they may be situated either in a stove or in the warmest division of the intermediate house. When at rest, the coolest part of the latter structure is most suitable, and for a considerable period scarcely any water is required—such treatment conducing to greater abundance of bloom. Weekly applications of manure water are very beneficial during the period of most active growth, and add materially to the vigour both of the foliage and the flower-spikes.

P. BICOLOR is a desirable species, and remains in flower for a longer period than any other *Phaius*. Last year it bloomed from July up to Christmas,

and although it is one of the least known of this section, it is inferior to none in beauty. It has erect spikes 4 feet to 5 feet high, bearing altogether about a score flowers; these are each 4 inches across, with the pointed sepals and petals of a bright reddish brown, and the lip rose-coloured at the sides, white, flushed with magenta on the front lobe. Afterwards the whole lip assumes a yellowish colour. Out of bloom this species may be distinguished from *P. grandifolius* by its narrower and more coriaceous leaves. It is a native of Ceylon, and flowered for the first time in this country about fifty years ago.

P. CALLOSUS is another species little known in gardens. Although discovered and introduced about 1848, it was nearly, or altogether lost to cultivation until three or four years ago when it was imported from Java to Kew, where it flowered in 1888. Its dark green plaited leaves are 1 foot to 2 feet in length, the strong erect spikes being about twice as high. The upper segments of the flower are reddish brown, paler towards the points, and the lip, the apex of which does not expand, as in the other species, is white, tinged with pink, changing to canary-yellow after being open a few days. It flowers from October to January.

P. GRANDIFOLIUS is too well known to need describing here. It was one of the first of exotic Orchids to flower under cultivation, and its value has been recognised for many years. It has now become naturalised in several tropical countries, its native one being China. I have seen plants keep in good health and flower fairly well that remained in stove temperature throughout the year. Under such treatment, however, they do not flower with either the freedom or the regularity of plants rested as advised above. Owing to the numerous young growths this species (and some of the others) produce in spring, plants grown in pots are apt to become overcrowded, and smaller leaves and less bloom are the result. As soon, therefore, as the relative strength of the growths can be ascertained it is advisable to remove some of the weaker, thereby adding to the vigour of those that remain.

P. WALLICHI is a fine species, similar to *P. grandifolius* in habit, but handsomer, perhaps, when in flower. With us it is now commencing to open its flowers, and may be expected to continue in bloom until May or June. The sepals and petals are white outside, pale yellow, flushed with reddish purple within. The lip is yellow in front, changing to a brownish purple in the throat.

P. MANNI is said to be a variety of this, and is figured as such in the *Botanical Magazine*, t. 7023. It is, however, a much superior form, the flowers being larger and the colours brighter and more decided; indeed, by many it is considered the finest of this group. Both of these are natives of Northern India. *P. Wallichii* was introduced in 1837, and *P. Manni* about 1887.

P. MACULATUS—This differs somewhat in habit and relationship from any of the above. It is prominent amongst all Orchids because of the beauty of its foliage. The leaves are lance-shaped, 1 foot to 2 feet long, springing from the top of stout, ovate, furrowed pseudo-bulbs; they are dark green, boldly marked with roundish yellow spots. The flower-spikes, which are now beginning to push, attain a length equal to the leaves, and ought to be fully open in April. The flowers are each over 2 inches in diameter, and of a clear soft yellow except on the lip, where streaks of brown-crimson make a beautiful contrast. In many ways, therefore, this is a useful species. Two or three well-grown plants will do a good deal to mitigate the uninviting aspect which a group of Orchids not in flower usually presents. According to my experience, *P. maculatus* should never be subjected to any other than an intermediate temperature. It is a native of India and Japan, and in some gardens is still known under the older name of *Bletia Woodfordii*.

W. BEAN.

Læliopsis domingensis.—From J. James comes a flower of this rare species, and I am pleased to see it again. I used to grow and flower it in

the collection of the Messrs. Jackson at Kingston years ago. It is a plant really deserving the attention of growers, and it will require their skill to grow and flower it well. It thrives at the warm end of the Cattleya house exposed to the light, but it must be shaded from the sun. I have grown it upon a block, but I prefer a small teak basket, and but a very little potting material about it, and this should be made firm. The soil should consist of peat fibre and Sphagnum Moss, and during the potting or basketing, a few moderately-sized nodules of charcoal should be worked into it, which will keep the whole more open and free. Drainage must, of course, be well looked after, as the plant requires a liberal supply of water to its roots during the summer months. In winter a little only will suffice, yet the plant must by no means be allowed to become quite dry, and during the winter months it should not be shaded. It is a little gem; indeed, I know nothing like it; its pseudo-bulbs are short, stout, and compressed, bearing a pair of linear-oblong, obtuse leaves. From the apex of the bulb and from between them the slender spike appears, and becomes more or less branched, bearing many flowers, each flower measuring some 2 inches or more across. The flower now before me is $2\frac{1}{2}$ inches wide; the sepals and petals are somewhat thin, very pale rose colour, the lip being rolled round the column in the way of a Cattleya or a *Lælia*, and with a spreading front. The tube or throat is yellow, traversed with numerous hairy lines, the front portion being deep rose, profusely veined with purple. It used to bloom with me in the months of March and April, and even later, so that it may be considered out of season.—W. H. G.

FLOWER GARDEN.

PLANTS UNDER TREES.

THE incessant struggle after neatness which goes on in most gardens throughout the year prevents the development of the above-mentioned phase of gardening to any appreciable extent, for either it is tried in the most out-of-the-way corners of the garden or not tried at all. Positions close to the lawn, the edge of a walk, or under isolated trees, where the flowers could be easily seen and admired, are studiously avoided on account of the so-called untidiness from the fading leaves, and instead of flowers we get, where Grass will grow at all, a close shaven turf, and where Grass fails little else but bare soil. Beautiful as the bright green Grass is, other beauties may be added (even where the Grass grows well), enhancing its charms, and adding these wherever and whenever a chance occurs would be doing good work. If half the labour now spent in keeping large gardens as trim and well swept as town squares was put to intelligent planting of hardy plants, they would be made much more interesting than they are. Even for positions where neatness is necessary flowering plants can be found that will succeed well if a fair amount of pains be taken in planting them, though, of course, the more neatness is insisted on the fewer will be the plants suitable for the purpose. One of the loveliest effects I saw during the past year was a complete carpet of *Saxifraga granulata* under a Copper Beech tree, the contrast between the dark young Beech leaves and the pure white flowers underneath being very fine. The growth on the *Saxifraga* is so low and compact, that directly flowering is over it may be cut over closely with impunity.

The Dog Violet is an excellent thing for planting under trees, and will do well in what would be thought unsuitable positions. The best colony of this that I know is growing under a very large Cedar, the lower branches of which lie prostrate on the ground. Through and

among these the Violet thrusts its flowers, forming in the spring months a vast sheet of blue on the south side of the tree. The rapid increase in the size of the colony, which now covers a space of about sixty square yards, is astonishing. The common single blue and white scented Violets also do well, but do not grow so fast or cover so densely as the Dog Violet does.

The hardy Cyclamens, too, such as *europæum*, *repandum* (*hederaefolium*), and *neapolitanum*, especially the last, are excellent plants for carpeting or grouping under trees, and make very little litter. Individual plants of *C. neapolitanum* had with us last autumn considerably over 200 flowers open at once, and the effect of such plants, both in flower and in leaf, is very fine. At present they form great rosettes of leaves over 2 feet across, and, thanks to the shelter of the Beech trees under which they are growing and the brown leaves which surround them, not a leaf has been damaged. By the way, I may say here that, in spite of the prevalent idea that but few things will grow under Beeches, I have found no other tree to equal it for this purpose. The London Pride (*Saxifraga umbrosa*) is always good; in fact it is a difficult matter to find a place where it will not grow if there is a bit of soil for it to grow in. For edging woodland walks or walks under trees where Grass will not grow it has no rival.

Where neatness is not imperative, we can find a host of plants, which, if well planted, will give excellent results, breaking the monotony of the Grass, the Ivy, or the bare soil. The winter Aconite (*Eranthis hyemalis*) is one of the best suited of all plants for planting under Beech trees. It succeeds admirably planted nearly close to the surface once it becomes established, no difficult matter, and it will increase rapidly, completely covering the ground with bright yellow flowers, each in a quaint and pretty setting of green, in what without them would be, perhaps, the duller season of the year.

Of Anemones, in addition to *A. nemorosa* and its varieties, *A. apennina* and *A. ranunculoides* rank high; the former is quite indispensable, and seems as much at home under deciduous trees as it does in the open, and certainly its flowers last much longer in the shade, though the plants may be a trifle less robust.

Daffodils, such as the Lent Lily (*N. Pseudo-Narcissus*) and *N. Telamonius plenus*, Lily of the Valley, Snowdrops, the larger Squills, *Alliums*, Arums, especially *A. italicum marmoratum*, wild Hyacinths, *Helleborus fetidus*, Primroses, and Celandine are all useful when boldly planted in large groups. *Primula japonica* may easily be naturalised, and will give a welcome addition of colour as well as great variety. I know of one place in Cornwall where there are thousands of this fine hardy *Primula* (seedlings coming up here, there, and everywhere) flowering freely and giving all the shades of colour from very pale to very deep rose.

It is well to try any spare plants of subjects that may even seem unlikely to succeed, for happy hits may be made. One or two of such I know. Some bulbs of *Tulipa Gesneriana* were planted close up to the stem of an old flowering Cherry on the lawn, and here they do very well, having, perhaps, smaller blooms than they would if planted in a rich bed or border, but still flowering well, and they are all the more pleasing because informally planted. The head of the tree against which these Tulips are growing has been partly taken possession of by a strong old plant of the Traveller's Joy (*Clematis Vitalba*), which adds another distinctly beautiful effect throughout the autumn. Under the

branches of a Chinese Juniper, which stands high up on bank, would not be considered a very good place for a group of the common Flag, but we have quite a fine plant growing in such a position, and on it are now several open capsules showing their bright rows of seeds. The leaves are still perfectly green and looking much better than those on groups by the water-side.

Climbers, especially some of our native kinds, may be very happily used in connection with trees. Old plants of Honeysuckle are very fine. I know one that is climbing almost all over a small Oak tree; it is over 20 feet high and several feet through in some parts; it flowers profusely every year, and scents the place for a great distance round. The Bryony, too, is a fine thing for the purpose, and has the advantage of dying down every year. Of Clematises, besides Vitalba, we have *C. montana*, *C. viticella*, and *C. Jackmanni*, the two last doing best on such thin-foliaged trees as *Acer Negundo variegata*, with which their flowers contrast well.

The things mentioned above are but a small number of those which may be planted under trees with a fair amount of success, and intending planters will be guided by local peculiarities of soil, position and climate.

When we get away from the trammels of geometrical gardening and have not to occupy so much of our time and thought in getting up a set number of this and that tender plant to fill up a certain number of beds, the size, shape and number of which is irrevocably fixed, a great increase in the use of hardy plants informally planted will be the result. J. C. TALLACK.

Livermere Park.

HELLEBORES.

OR Lenten Roses, as they are often called from no very apparent reason, however, are a group of spring flowers that certainly ought to find favour in gardens as much from the varied beauty and abundance of their bloom as for their hardiness and suitability to almost all soils and situations. They are not equal to the lovely Christmas Roses now so popular in our flower markets; still even in small gardens they can ill be dispensed with, their flowering season beginning in real earnest just as those of the niger section are going out. Every year is adding new forms to the long list of beautiful hybrids, many of them being exquisite in form and colour, spotted or blotched, and of the most lovely tints of plum-purple. *H. colchicus*, *guttatus*, *orientalis*, and *abchasicus* have had most to do in forming this new race of lovely spring flowers, the last species being, in our opinion, the only mistake made, as it is certainly tender, being invariably blackened by the blustering east winds in early spring. The richly spotted forms are the most predominant so far, the wine-purple blotches on a white or pale ground being very charming. What is perhaps most against their becoming as popular as the niger group is their not keeping fresh in a cut state if taken into a moderately warm room, and even when placed in water they droop in a few hours. We have heard of them keeping a considerable time in saucers of sand or Moss, cutting the stems short and dibbling them in, but this entails some labour, and hardly appeals to those even who love to see flowers in the room. On the plants, however, they keep their freshness and beauty longer even than the niger varieties, and as they are rarely hurt even by severe frosts, the garden is the place to enjoy their rich and varied tints. Probably the most common species in gardens is *H. orientalis* with its rosy purple of various shades, pure white and greenish white flowers; it is the hardiest and amongst the earliest in flower. If left undisturbed for a few years it soon forms large tufts, and these in early spring give us a wealth of bloom unequalled by any plant known to us. *H.*

guttatus is also a charming species with almost pure white flowers, richly marked with deep red spots or blotches; it flowers at the same time as the above and stands the cold well. It has a tendency with us to run out, all the markings disappearing, and has to be occasionally renewed. *H. colchicus*, with its rich deep purple drooping flowers, is one of the loveliest of the group; it is the last to flower, and even were it not perfectly hardy, the flowers are seldom early enough to be injured. *Punctatus*, *punctatissimus*, *odoratus*, *olympicus*, *purpurascens*, and all the hybrids are well worth notice, and some at least should find a home in every garden. They love shade if not too dense, and here they get the necessary moisture, thrive well, and give the grower no trouble whatever.

K.

ACÆNAS.

THE plants belonging to this charming genus, with the exception of the species represented in the cut, are almost wholly confined to Chili and Peru, and probably inhabit very high elevations, as they prove perfectly hardy and withstand our most severe winters. *A. microphylla* is a special favourite for the rockery, for though the flowers, as in the case of all the *Acænas*, are quite inconspicuous, the numerous balls of long rosy purple spines form a very attractive and intensely interesting feature, retaining their vivid colouring all through the



Acæna microphylla.

summer and autumn months. It is also occasionally used with much effect in forming a carpet for bulbs or other taller subjects, and few plants are more suitable on account of its loose, though close dwarf growth. It may also be used effectively as an edging, and there are few soils where it does not thrive. It has also been recommended as a protecting plant for the North American Orchids, *Trilliums*, and other bog-loving subjects, and in such soils as well as in the driest and sandiest *A. microphylla* always does well. *A. Novæ-Zelandiæ* is a synonym under which this plant is often sold. *A. argentea* is a much stronger growing species than the above, the leaves always larger and intensely glaucous. On this account we have used it largely for covering bare banks and crumbling walls, the winter effect only being surpassed in summer by the addition of its numerous and singular globes of spines. This is nearly related to *A. pulchella*, but more desirable on account of its fruit. *A. pulchella*, with its loose trailing habit and abundance of bronzy leaves, is, perhaps, most useful as a trailing plant. Its graceful branches when hanging over large stones or old walls have a very pretty effect, and as it is perfectly hardy and evergreen, no fear need be felt in planting it in even the most exposed positions. *A. millefolia*, *A. myriophylla*, and *A. sanguisorba* are also useful trailers; the flowers and fruit are both incon-

spicuous, but the bright green foliage and long graceful stems give them a claim where plants of this class are in demand. K.

ANNUALS FOR CUTTING.

THE gradual, but persistent decline of the cultivation of annuals in the majority of gardens may seem somewhat unaccountable, but a little reflection will indicate that it is to be attributed to the equally persistent advance in favour of herbaceous plants. As the various herbaceous borders become nearly filled with perennials there is a growing disinclination to mix with them small patches of annuals, and so the latter are now seldom seen in quantity, except where there are particular facilities for their cultivation, as in large patches of spare ground in the wilder parts of the garden. There are a few of them, however, so useful for the production of cut flowers, that where these latter conditions do not exist and where herbaceous borders have no room for other things, some places in the garden must be found for them, either in one of the outlying slips that are almost invariably associated with the walled garden, or in some spare corner of the hardy fruit garden that is sufficiently under the influence of the sun to ensure plenty of flowers. Like all other inmates of the garden, annuals repay good cultivation, and the ground intended for their reception should have a fair coating of manure and be deeply dug early in the autumn (leaving it in a rough state) to ensure for the spring sowing a well pulverised and workable soil. Sweet Peas are quite indispensable as cut flowers, and a posy composed of the most delicate shades is hard to beat even with choice flowers. The rows or clumps of Sweet Peas, if sown in the open, must be thoroughly protected from birds. I have tried small boughs of Fir or some evergreen shrub, but they are not satisfactory, as if kept over the Peas until the latter are safe from the birds the young growth is drawn and weakly. The better plan for clumps is to sow in pots, harden off, and transplant; for rows, ordinary Pea guards can be used. Sweet Peas require a liberal dose of manure, deep tilth and the constant removal of all seed-pods. This last is the secret of their extended flowering season and must always receive careful attention. Asters are now used extensively for bedding, and their place would seem to be in the flower garden; here, however, they might be in a position where one would be loth to cut them, and a batch should therefore be sown with other annuals. Asters are perhaps more in request than any other flower for harvest-festival decorations, and are very welcome for that purpose. The annual Cornflowers are most useful, and will furnish an unlimited supply of bloom. The blue is decidedly the best, many of the shades obtained from a packet of mixed seed having a very washed-out appearance. The annual Chrysanthemums are grand for cutting, the varieties of tricolor with their long flower-stalks being well adapted for tall vases. The perfect flatness of the flowers makes them a little formal, and any arrangement effected with them must on no account be huddled together; interspersed with some light foliage, they are at once brilliant and effective. The different varieties of *Dianthus* must not be forgotten, as the flowers last well when cut, and the same remark applies to the *Godetias*. The very delicate texture of these would seem to indicate extreme tenderness and a short life after cutting, but facts are directly opposed to this, and there are a few more useful annuals. The African Marigolds are grand for rough cutting, and are among the things that help to fill a flower basket very quickly. No garden is complete through the summer months without plenty of *Mignonette*, and a good batch of this must always be sown. The varieties of *Phlox Drummondii*, unlike the perennial *Phloxes*, last well in a cut state, and as they can now be had in so many shades of colour, they will be found as useful for cutting as they are for the furnishing of flower beds.

The *Salpiglossis* and *Scabious* are later than most of the above-named, but they are useful in late summer and early autumn. Like the Aster, Stocks are now grown largely in the flower garden, but a

few may be sown for cut bloom, the variety known as Princess Alice being specially valuable for that purpose.

Space must be left for a small stock of Everlastings and ornamental Grasses, as these, if cut and dried, are very handy in helping to fill a few vases when fresh flowers are comparatively scarce. The above-named with the addition of Zinnias and the smaller Sunflowers comprise the majority of annuals that are of much service in a cut state, and will, together with the herbaceous flowers of a like season, furnish a plentiful supply of cut bloom all through the summer months. E. BURRELL.

Claremont.

THE NIGELLAS.

AMONG blue-flowered hardy annuals the Nigellas take a foremost place. They are easily grown and charming in the border, and decidedly useful for cutting from. *N. damascena* is also known as Love-in-a-mist or Love-in-a-puzzle, and it is readily understood that these common names are derived from its flower being enveloped in an entanglement of finely divided bracts. It is also known as the Fennel plant, probably on account of its foliage. *N. damascena* has a hardy, compact, Larkspur-like habit of growth, the flowers of a deep lavender-blue. I once saw quite a border of it in the garden of a Kentish farmhouse, where it sowed itself every year abundantly, and formed quite a mass of blue when fully in flower. It is a native of the south of Europe, and has been cultivated in our gardens for many years. *N. hispanica*, which I regard as the finest form of the two, is a native of Spain, bearing larger and deeper coloured flowers, and with more of a Delphinium-like foliage. Both are comparatively dwarf growing plants, averaging a foot in height.

A patch of the two Nigellas should be grown in gardens for cut bloom, and also because of the interest they awaken. I know a seafaring man who cares very little indeed for flowers, but who always asks that a little seed of the Nigella may be sown in his garden. Nigellas may be grown in ordinary garden soil, and always repay a little cultivation; unfortunately, we too often treat annuals with scant attention, much as if they were the weeds of the garden and would flourish anywhere and in any soil. As it is a plant that seeds very freely and produces them in somewhat large capsules, they should be picked off as soon as they form, so as to assist in the succession of bloom. But the Nigellas are so useful that they may be sown two or three times during the spring, so as to have a succession of plants. R. D.

Snowdrop names.—Since writing to you I have sent specimens of the variety under the name of "latifolius" to Kew for comparison with what they have as "umbricus," and the verbatim reply I get is, "They are the same in every respect, with the exception of the bulb being larger in your case, which may be attributed to its having been cultivated a year or more with you. When these bulbs flowered last year, I crossed out the name on the label—latifolius—and wrote 'Nivalis from Italy' below." Recently I saw Mr. Burbidge's clump of umbricus, and thought there was a good deal of family likeness to something I had seen before, and when my own came into flower I was convinced as to the identity, but thought it best to have some independent opinion.—T. SMITH.

Species of Crocuses afford infinite variety of colour when a large collection is grown. In the new nursery of Messrs. Barr and Son, Long Ditton, there is a large series, and even before January was out the many species made a wealth of bloom that shone with brilliant colour under the quickening influence of the winter sun. *Aureus* is rich golden yellow, a contrast to the pale lilac-blue of *Tommasinianus*. *C. chrysanthus* is a charming soft, yellow-coloured flower, that varies considerably in the depth of brownish suffusion on the outer segments. Very beautiful is *Sieberi*, *Balanse*, *corsicus* (a lovely purple flower), the common *Imperati*, and *banati-*

cus, rich purple, deeper at the apex of the segments, a charming species. These are only a few of those in full beauty with Messrs. Barr the other day, as there is a rich collection which gives a good succession of bloom.

NOTES ON HARDY PLANTS.

Hepaticas.—These are flowering but a little later than *Anemone blanda* this year. Of the genus *Anemone* there can be no doubt about the *Hepatica triloba* group being at once the most useful and effective of the winter-flowering species. In this group you may, so to speak, reckon that you have *Anemone blanda*, *apennina*, *stellata*, and *nemorosa* all thrown into one, for not only are the colours of all these as well represented by the *Hepatica*, but strong clumps are in flower with the earliest, and even out-last the latest. Neither are *Hepaticas*, like many of the gems of winter, so small as not to be seen unless closely viewed, but they are capable of making a garden gay in their season. Once carefully planted they soon make fine clumps, and these in their turn may be divided with advantage, so that there is no excuse, only in the case of extreme poor and dry soils, for their not being more largely employed. Let me, however, caution those who have an idea that *Hepaticas* may be used like Daisies for spring bedding, that they will resent the usual treatment which that class of plant gets.

Alyssum pyrenaicum is a rare alpine, and has a very neat and dwarf habit, but its white flowers cannot be termed showy. It produced good seed with me last year, and this, sown at once, came up sparingly, but now I notice a second crop of seedlings. The plant is grown in a sunny and somewhat dry situation in burnt clay and loam. A few cuttings were rooted, but I had the impression that the plant could not be freely propagated in that way.

The Ruscuses.—The three best-known species are *R. hypoglossus*, *aculeatus*, and *racemosus*, and they constitute a neat and interesting group of dwarf plants that might well be made more use of. *Racemosus* affords a charming terminal panicle of blossom; the other two carry their flowers and bright berries at the axils of the tongues or smaller leaves borne on midrib and centre of the leaf proper. The Ruscuses are well fitted for the border or rockery, where they afford a fresh and lively effect during winter. The species also do fairly well in moderate shade of trees.

Ranunculus anemonoides.—This came into flower before Christmas, owing doubtless to the very mild weather. Strong plants are flowering freely, and I am inclined to believe that the present winter has been so far more favourable to this charming species than our winters usually are. The *Ficarias* are noted for their numerous flowers in proportion to their leaves, but this alpine excels them in this feature. It is one of the gems amongst alpinists.

Winter-flowering Saxifrages.—It happened that *S. Bursariana* and *S. B. major*, *Boydii*, and *Maylayi* had all been placed together at a time of re-arrangement, and as all are now in flower they are very beautiful. Might we not get better effects if we studied to so place these little plants that, by being by the side of each other, their united beauty could be seen? Besides, it is very interesting to observe the distinctions, as they can only be observed when grown close together. In many good gardens, where I know there is no lack of care, this group is very difficult to manage. Without pretending to state the cause, I may say I could not keep them if I did not guard against the Saxifrage fungus on the foliage and the weevil grub at the roots. After flowering, it is a good plan to lift these and replant them in fresh soil. J. WOOD.

Woodville, Kirkstall.

Salvia patens.—This is an old plant not nearly so common as it deserves to be, for real blue flowers of a lasting character are scarce. There are two ways of increasing stock. The first is to pot the old roots now, place them in heat, and strike the young shoots as cuttings that spring up from

the collar of the tuberous roots, and grow them on in heat till established in small pots, then harden off and towards the end of May plant out in good soil. The second way of getting up a stock of this plant is to sow seed at once in the hotbed, covering the pot with a piece of glass to confine the moist atmosphere around the seeds, and hasten their germination. If started early, seedlings will be in time for the summer beds.—E. H.

Single Violets.—When looking round the garden at Heckfield, on the 4th inst., I was very much astonished to find that single Violets, especially *The Czar*, had suffered loss of leafage far more severely than is the case here. Heckfield lies so high on gravel, and in air so pure, and is so far removed from the ordinary fog radius, that it did seem a matter for wonder such slaughter amongst Violet foliage should be evident. Here our soil is chiefly clay, we are right in the midst of the fog area, and when the wind is easterly gets it in a most unpleasant fashion. It was with surprise I learned when I returned home to Bedford at night that all day there had been a heavy cold fog hanging over the place, whilst at Heckfield the weather was delightful. It is, therefore, odd indeed that whilst so far our single Violets have suffered less than usual, they should have suffered so in Hampshire.—A. D.

Grafting Dahlia imperialis.—It has been stated several times that by grafting this species on tubers of the common dwarf Dahlias, plants several feet less in height than those grown on their own roots might be obtained. The idea appears to have originated with Messrs. Salter, who years ago were nurserymen at Hammersmith, and who in 1862 exhibited plants which they stated to be grown on the above plan and with the above result. As its great height (12 feet or more) excludes this handsome species from all but large houses and prevents its more extended cultivation, this method, if successful, would be most convenient. After two seasons' trial, however, we have come to the conclusion that it is a fallacy. In 1888 we grafted both *D. imperialis* and *D. excelsa*, an even taller species, on the tubers of one of the dwarf single-flowered varieties, but no difference was apparent between them and those grown on their own roots. Considering, however, that it was possible they might have formed roots above the graft, we repeated the experiment last year, carefully watching throughout the season that this did not happen. The result was exactly the same; the whole of the plants, grafted or not, treated alike in all other respects, were of the same height and robustness. They also flowered and died down at the same time.—B.

Japanese flower festivals.—The "flower festivals" of the Japanese, says *Garden and Forest*, are often referred to without clear explanation of their number and character. Five are annually celebrated. At the New Year's Feast, on the first day of the first month, the chief plants used are Bamboos, Firs, *Prunus Mume*, and *Adonis amurensis*. The first two are set by the house-door, and the others are displayed in the living-room. At the second, or "Girls' Festival," which is held on the third day of the third month, *Prunus persica* is the favourite plant. At the third, or "Boys' Festival," on the fifth day of the fifth month, one sees chiefly the *Shobu* (*Iris lævigata*); while at the fourth, or "Ladies' Festival," on the seventh day of the seventh month, no flowers are favoured, but songs are written on bits of paper fastened to leafy stalks of Bamboo and set on high in the garden. The last feast occurs on the ninth day of the ninth month, and then the *Chrysanthemum* is honoured by old and young alike. These various celebrations have always been held in accordance with the dates of the old national calendar; but now that the Gregorian calendar has been introduced, it is found difficult to procure the proper plants on the proper day. The great imperial feast in honour of the *Chrysanthemum* has no special time set for it, but is held whenever the flowers in the Emperor's garden are in most perfect condition.

The varieties of *Cyclamen Atkinsi* bloom early. This *Cyclamen* is not so much seen as *C. hederæ*.

folium and coum. All the varieties were in full bloom the other day with Messrs. Barr, these comprising album, white, with a crimson centre; roseum, rose; and the rich red rubrum. They will thrive in the same situations as the common hederæfolium.

THE WEEK'S WORK.

PLANT HOUSES.

IMANTOPHYLLUMS.—These plants will bear the temperature of an ordinary stove without the growth becoming at all drawn, and they will do with greenhouse treatment. But when kept cool all the year round, the progress, so far as increase in the size of the plants, is necessarily much slower. Many of the newer forms are decided improvements on the original varieties both in the shape and the colour of their flowers. Imantophyllums are somewhat slow growers, and those who have the newer varieties will naturally feel disposed to increase their size without delay. To do this it is advisable to give them warm treatment with liberal pot room. Young examples that it is desirable to push on should now be started, so as to admit of their having a long season of growth. If the soil has been allowed to get quite dry the balls ought to be well soaked in water. Where the plants are strong enough they will soon push up their flowers, which should not remain long on the plants after they are fully open. As soon as the roots have begun to move, give larger pots to those that require it. If there is sufficient stock to admit of the plants being started at different times, the flowers may be had over a considerable portion of the year, as there is no stated time of blooming. Large specimens that will yield flowers in quantity, and that have been kept in cool quarters whilst at rest, may now be put into heat at intervals of about three weeks. As soon as they begin to move give weak manure water at short intervals; this will not only assist the flowers, but also encourage root action.

HABROTHAMNUS.—Though these plants can never be seen at their best, except when planted out, with enough root as well as head room, they are still very attractive for conservatory decoration when grown in pots. They will do either in the shape of tall pyramids or as standards with bushy heads. In whatever form the plants are grown, it is necessary to cut the preceding summer's shoots well in each season before growth begins. If this is not attended to, the branches get too long and straggling. Large, full-sized specimens should have their shoots shortened to within two or three eyes of the base. If, after being cut back, a moderate amount of heat can be given, it will much assist the growth. When the young shoots have grown 1 inch or 2 inches, the plants may be turned out of the pots and have about one-third of the soil removed; the mass of roots that has got down amongst the old drainage can also be dispensed with. When the pots they have occupied are large enough, the plants may be replaced in them; in other cases give larger pots proportionate to the size the specimens are wanted to grow to. Ordinary loam, with some rotten manure and sand, is the material to give them. When Habrothamnuses are grown as climbers they require to be cut in similarly to the pot specimens.

HELIOTROPES.—Large plants of Heliotrope can be made to do good service in roomy conservatories and greenhouses either as tall columnar-shaped specimens, or as standards on 3 feet or 4 feet stems; the latter will generally be found the best. By re-potting annually when the growth begins to move and replacing one-third of the old soil with new, the plants can be kept for many years in a vigorous state. They should now have their last summer's shoots shortened to the extent advised for the Habrothamnus. If a temperature of about 50° can be given them for the next two months it will hasten the flowering of the plants.

YOUNG STOCK.—Where young plants have to be grown standard shape the cuttings should now be put in, so as to give them a long season wherein to make growth. The plants ought to be pushed on

with sufficient pot room, and have all side shoots pinched away until sufficient length of stem is secured. It is easier to form standards from young stock of the current season than from older examples, as the latter keep on continuously making side shoots which, even when removed as they appear, delay the growth.

STOVE.—STEPHANOTIS.—Specimens that are turned out in beds with their branches trained under the roof of the house they occupy, and that have been kept through the winter somewhat dry at the roots, should now have the soil soaked with tepid water and have the temperature raised. In most cases, the heat will have to be regulated so as to meet the requirements of other plants that are grown in the same structure. It is not necessary to give as much heat to Stephanotis as to the warmer section of stove subjects. Neither does it like so much atmospheric moisture as many things, especially during the summer after flowering when the principal growth is being made. When grown with more air and less moisture in the way described, the plant often forms its flowers in the latter part of the summer on the shoots then made. Plants that are in this condition come into bloom much sooner when started after resting than when the flowers only appear on the shoots that are produced in spring. In the former case, the soil should never be allowed to get too dry during the resting period, or there is danger of the bloom not coming on. To avoid a like mishap, it is well not to hurry plants that have set their buds the season before. To keep up a succession of bloom, pot specimens are useful, as by moving them about, the time of blooming can be regulated. By keeping specimens of this description as cool as they will bear for some time longer they will succeed those that are planted out.

IMPATIENS SULTANI AND I. HAWKERI.—Young plants that were struck from cuttings last summer and are now in small pots should have a shift. Give others proportionate in size to that which the plants are intended to attain, and to the amount of heat which is kept up in the house where they are grown, as, in common with most free-growing things, larger shifts may be given where a brisk growing heat exists than when less warmth is present. At the same time avoid over-potting, particularly early in the year, when the roots are less active than they will be later on. Small plants of these Impatiens, such as can be accommodated in 5-inch or 6-inch pots, are very useful in a small state. To meet the demand for these, cuttings should now be put in; if pushed on with a fair amount of heat and near the glass, so as to get plenty of light, they will make sturdy little flowering examples by midsummer. T. B.

THE KITCHEN GARDEN.

EARLY BROCCOLI.—In order to be certain of a close succession to the autumn Cauliflowers, it is advisable to raise a batch of plants of the Autumn Self-protecting, and, failing this, some other reliable early variety under glass. If only a few dozen plants are needed, these may well be obtained by sowing a pinch of seed in a box or pan, placing this in gentle heat or even in a cold frame to germinate. As we require several hundreds of the variety named, a portion of a frame on a slight hot-bed is devoted to raising them, abundance of sturdy plants being had in this simple manner. These have first to be pricked out about 4 inches apart each way on a sheltered border, and if need be lightly protected for a few nights, being eventually transplanted to where they are to grow before they overcrowd each other. Snow's Winter White forms the best succession to the Autumn Protecting, but it is a great mistake to sow the seed of this somewhat fickle variety in heat, or, indeed, in the open before the first week in May. Raised early and grown on without a check, the plants attain a great size, but the majority develop into monstrosities. By raising the plants much later than is generally done, sowing the seed late in April or early in May, this disappointment may be avoided, and a serviceable lot of early, if somewhat small, hearts be obtained.

BRUSSELS SPROUTS.—In only but few instances is it possible to get these finally established in the open ground too early, though there is certainly less need for raising the plants extra early since the introduction of superior forms, and which naturally button in more surely than was the case with the older strains. From fifty to a hundred plants are sufficient for a small garden, and these may well be raised in a box or pan much as advised in the case of early Broccoli. Market gardeners have to be content with raising their plants in the open ground, a covering of straw protecting the seeds from birds and subsequently the tender plants from cold winds and frosts. In some instances the seeds are sown where the plants are to grow, and properly carried out this plan answers very well, though the owners of private gardens should not adopt it, the better practice being to put out the Brussels Sprouts among early Potatoes, the latter being in rows fully 3 feet apart. Wherever raised at all thickly, the seedlings must be temporarily pricked out on a sheltered border till they are large enough to be placed in the open.

AUTUMN CAULIFLOWERS.—Only the early, second early and autumn crops of Cauliflowers are of much value, few caring to eat them when caterpillars are numerous and other good vegetables plentiful. A few rows of early raised plants of quick-growing varieties are not unfrequently very serviceable, these following closely upon any raised in the autumn. Eclipse and Autumn Giant raised now in gentle heat, and otherwise treated as advised in the case of early Broccoli, will heart in during the latter part of August and early in September, the first named being about ten days earlier than the better known Autumn Giant, and in point of quality fully equalling it. If more seed of the latter be sown late in March or early in April in the open, and the plants duly put out in succession to early Potatoes, they will heart in during October and November, and prove most acceptable.

MAIN CROP CELERY.—Very early Celery is not generally appreciated, but in many places there is a demand for it from September onwards, and in this case no time should be lost in raising the first batch of plants, the seed quickly germinating when sown in a box or pan and set on a brisk hot-bed. There is much less risk of the plants running to seed prematurely when they are raised without any assistance from fire heat, and for this and other reasons it is advisable to raise the principal portion with the aid of gentle bottom heat only. Those in charge of comparatively small gardens may raise all they need in boxes or pans, but those who must put out many hundreds may well raise these in a shallow frame on a hot-bed, the thin layer of soil placed on this being raised well up to the glass. In each and every case it is unwise to sow the seed very thickly or to bury it deeply, the aim being to raise a number of sturdy little plants, which when duly pricked out will not experience a severe check thereby. The white varieties are the best for the earliest crops, but for the main and late supplies the preference ought to be given to the coloured forms, these usually being the most solid and the least given to bolt prematurely. The White Plume and any other "self-blanching" forms are of no value and should be avoided.

JERUSALEM ARTICHOKE.—These form a welcome change in the usual round of winter vegetables, and might be even more generally grown and used than they are at the present time. I repeat "used" because in several instances that have come under my notice these Artichokes, from some cause not known to me, are only grown to be spoilt. In numerous cases the same plot of ground is devoted to this crop many years in succession, the cultivation consisting merely of thinning out the stems when these come up too thickly. If good crops of medium-sized tubers, and which are the best, are desired, then ought all to be forked out of the ground now, or in the course of a fortnight, a portion being reserved and stored in sand or light soil for consumption, and the required number of planting tubers taken care of. Strong, heavy, or much manured ground is suitable for this crop, extra strong top-growth usually resulting

in the formation of coarse, ugly tubers. It is not necessary to annually change the site for these Artichokes, but it ought at least to be done every third or fourth year. The ground should be only lightly manured, being then deeply dug and well worked. The lines should be not less than 3 feet apart, and run from north to south. Draw drills 5 inches deep and plant medium-sized tubers each with a strong, unbroken sprout attached, about 10 inches apart.

SHALLOTS, GARLIC, AND UNDERGROUND ONIONS.—These ought now to be planted, an early start being essential to strong growth and perfect maturation. All should have a freely manured, well-worked soil, nothing answering better than the borders near to garden walls, a few fruit trees also occupying these not much interfering with them. It is useless to plant any but sound, dormant bulbs, and it will be found that the largest of these will eventually divide, the crop consisting of several small ones; while if a small bulb is planted it will form a single and much larger bulb. A good dressing of soot well stirred into the finely broken surface will do good in various ways, this acting as a fertiliser and also as a preventive of maggot. The Onions may be disposed from 6 inches to 9 ins. apart, according to their size, in rows 12 ins. apart, and the Garlic and Shallots 6 inches apart in rows either 9 inches or 12 inches apart. All should be pressed into the surface and only about three-parts buried, taking care to fix them firmly. Our crops of these are invariably put out on a well prepared border that is also intended for the principal breadths of Parsley. The Parsley is either sown or dibbled out among the rows of bulbs, which come off the ground long before it (the Parsley) requires all the space. W. I.

FRUIT HOUSES.

FRUITING POT VINES.—If all has gone well the bunches will have been reduced to six, naturally the best, and the berries carefully thinned will be swelling freely, but unless the roots are in good condition and liberally fed this condition can hardly be maintained, as it is absurd to suppose that the original compost can do more than form a receptacle for food as the Vines require it. To this end, then, sound rich compost must be used for top-dressing, whilst diluted liquid soot and guano water must be used alternately for washing it down to the roots. I stated at the time the Vines were started that heavy drenchings were dangerous, if not fatal, to the roots, but the Vines being now in full foliage and feeling the strain of the crop, each watering may be very liberal, always provided the balls be allowed to become fairly dry, and dribbling, the worst of all watering, avoided. Next to good roots and root-runs, fresh healthy foliage is a most important factor, as roots are of no use without leaves, and leaves are of little avail when the roots fail. These, then, must have full exposure to light and sun, and being so subject to spider the syringe must be freely plied whenever tepid water can be used without spraying the Grapes. Early maturity being the chief aim, the air temperature may range from 65° to 70° by night to 75° and 80° by day, care being taken that condensation of moisture is prevented by timely and gradually increasing ventilation until the maximum is reached. Reduction at this catching and uncertain season will be rapid, and possibly sudden, but once the house is closed there must be no re-opening, as Grapes swell fast in a temperature ranging from 80° to 90° on bright afternoons, and the Vines revel in this treatment, provided they have rest, with fresh air through the night.

YEARLINGS cut back in December must be shaken out and placed in 8-inch pots as soon as they have made about 2 inches of growth. If plunged in mild bottom-heat they will require very little water at first, but they must be well syringed with warm water to give them a start, and when this is secured they must be kept short-jointed by full exposure to the sun and light. When the roots begin to coil round the balls shift into the fruiting pots, using sound rich loam and bones, and replunge

in the renovated bed with the heads of the plants near the glass.

EYES put in last month must now be started in a close, moist pit, where they can have slight shade from sun, and a steady bottom-heat of 80° until they have made roots and two or three leaves out of the stored sap. At this stage they will stand for a time, but the bottom-heat being good and the supply of water very moderate, they will gradually elongate when the critical stage will be overcome.

THE ORCHARD HOUSE.

PEACHES in flower may have a high temperature ranging from 50° to 55° with just sufficient fire heat to favour a free circulation of fresh air; the ventilators, in fact, should never be closed, certainly until after the fruit is set. Keep the house dry through the hours of darkness, but damp the floors and walls once or twice on fine days, and turn on more heat to favour a run to 65° or even as high as 70° with increased ventilation until solar heat declines, when the hot water circulation must be reduced. Do not let the roots feel the want of water, as fruit never sets well when they are kept too dry. Fertilise from day to day when pollen is plentiful, not before, as constant irritation does more harm than good. Resume direct syringing when the petals begin to fall and pinch strong shoots before they have time to rob the lower parts of the trees. Fumigate when the crop is safe, top-dress the plants, and commence feeding with warm liquid in a very weak form.

THE GENERAL HOUSE,

containing a mixed selection, will range 40° by night to 50° by day, and a full crop of fruit being the object it must have plenty of fresh air. Keep the trees regularly watered and damp the floors on bright days, but defer direct syringing until the buds are quite prominent and must be kept progressing. At this stage fumigate twice in the course of a week, choosing calm afternoons when the house and trees are dry. This is a very important operation and should never be neglected, although there may be no sign of aphids in the house.

STRAWBERRIES.—The forcing and setting of fruit on light airy shelves will now be comparatively easy work, always provided the plants are kept free from aphids, and have regular supplies of water and plenty of fresh air. Thin off the weak buds before the flowers open, turn down the leaves with the hand and make sure of a perfect set by fertilising in the warmest part of the day. Introduce to heat as soon as well set, feed and syringe copiously, and remove forward batches to a dry, warm, airy house where the flavour of the fruit will be greatly improved if allowed to hang for a few days after it is apparently ripe.

LATE PLANTS intended for giving heavy crops of fruit in April, and although still plunged in the open air, should now receive attention, particularly where light, shallow pits are ready for them. As each plant is taken up the pot should be washed and the aperture opened to ensure the free passage of water, when it may be immersed in soapsuds preparatory to ramming and top-dressing with strong, rich compost. The requisite number having been prepared, plunge to the rims in leaves or leaf-mould, allowing a space of 4 inches or 5 inches between the pots for the development of the foliage, as nothing is gained by crowding; water regularly, but carefully, and ventilate freely until the buds begin to break; then, if hot-water pipes are available, maintain 40° to 45° on cold nights, 50° when mild, and 55° to 60° on bright days until the fruit is set. When this stage is reached, light and warmth having steadily increased, thin well and tie up the trusses, reduce or discontinue firing, but shut up early with sun-heat and moisture, and tilt the lights along the front through the night. If this treatment does not bring the fruit on fast enough gentle fire-heat may be resumed, or each alternate row may be removed to warmer quarters, when those left will form a good succession. Paxton, Sir Charles Napier, and Filbert Pine give heavy crops of bright fruit when treated in this way, but British Queen and Dr.

Hogg, still unbeaten, do best on shelves in houses, as full light and exposure to sun are essential to colour and flavour. The latest plants may be kept in the open air until the crowns begin to open, and as these will lead up to early fruit from south borders, they must have protection from morning frosts and heavy rains in cold pits or late houses, the former being best, as the lights can be thrown off when the weather is favourable.

Early forced plants intended for fruiting in August and September after being cleansed may now be placed in cold pits, where they can be gradually inured to the air and have plenty of water. When thoroughly hardened they may be well soaked and planted out early in April. In planting, place an inch of soil over the old balls, which should be divested of crocks, and slightly broken by the hands to set the roots at liberty. Ram as firmly as possible, mulch well, and give plenty of water through the summer.

W. C.

GARDEN FLORA.

PLATE 741.

TEA ROSE BOUQUET D'OR.*

It is very strange that although Bouquet d'Or (Ducher, 1871) has been in commerce since 1872, it is yet scarcely known in English gardens, though it deserves to be as popular and as largely grown as Gloire de Dijon. Two other Roses sent out by Ducher in the same year, Amazone and Anna Olivier, have long since stood high on the list of first-rate Teas, whilst the advent of Marie Van Houtte a year previous, and later on the appearance of such kinds as Jean Ducher, W. A. Richardson, Jules Finger, and Innocente Pirola, point to the fact that a Rose from Ducher might be accepted as a novelty that would add to the fame of the raiser.

Bouquet d'Or, however, failed to receive the recognition due to its merits. In some leading English Rose catalogues it is still classed as a Noisette, and perhaps its relegation to this class may have lessened its chances. It is generally admitted that our Rose classification and the designation of the classes is not very simple, but we are now quite accustomed to speak of Dijon Teas. Bouquet d'Or is quite as much a Tea as is Gloire de Dijon, and if a list were compiled of Dijon Teas, undoubtedly the place of honour, next to the Gloire de Dijon, would be accorded to Bouquet d'Or, as it is equally as hardy, vigorous, and free, and both in bud and blossom is of still finer form.

In colour the flowers are a pale yellow or fawn, deepening into a rich copper yellow and buff. They are large and full of great substance, opening gradually and lasting for a considerable time upon the bush. In addition to the abundance of its fine flowers, the beauty and texture of its large glossy foliage are very noticeable features; a bush of it or a large specimen on a wall even when not in flower at once attracts attention. That disfiguring pest of Roses, mildew, is rarely seen upon Bouquet d'Or. The hardiness of the kind is proved even in exposed

* Drawn for THE GARDEN by H. G. Moon, September 9, 1889, at Gravetye, Sussex, from large bushes 7 feet high, fully exposed for four years. Lithographed and printed by Guillaume Severeys.



ROSE "BOUQUET D'OR"

situations, and it can be put to a variety of uses where dwarf Teas would fail or be unsuitable. Like Gloire de Dijon, it will make a good standard, and this should be noted by those who still love standard Roses, because so many kinds are budded for this form of growth that are altogether unsuited to the mode of training, never making a head. But better than any standard is a natural group of freely-grown bushes, such as that from which Mr. Moon made his drawing for our plate. In two or three seasons Bouquet d'Or will make a bush 6 feet high and produce an amazing quantity of fine buds and flowers, so that one can cut them freely and hardly miss them. As a wall Rose where it is required to cover a great space it is still more valuable; it can be allowed to freely extend, and will ultimately bear flowers by the thousand. Again, for pillars, fences, trellises, arbours, or anywhere where a vigorous Rose is needed, Bouquet d'Or can be recommended; and doubtless it, in company with other fine Dijon Teas, will gradually, but surely, take the place of those old cluster Roses which, free and lovely though they be while they last, do not bloom for long. By planting in a variety of situations and in different aspects, the blooms of Bouquet d'Or may be had both early and late for several months of the summer.

A. H.

ORCHARD AND FRUIT GARDEN.

GRAFTING VINES.

ALTHOUGH the introduction of the Vine dates back to the time of the Christian era, and vineyards were plentiful in this country a thousand years ago, the operation of grafting is still an uncertain business, success crowning the few, failure the many. Propagation by means of "eyes" is more simple than the raising of many plants from seeds, and grafting by approach or inarching may be performed by anyone who has once seen the operation performed, but then the variety about to be attached to the established stock must be on the premises and growing in a pot or adjacent border. When stock and scion are in the hands of the operator, inarching is the method generally adopted, but assuming that a scion or scions of the past year's wood have been carried a considerable distance, then ways and means must be found for attaching them with a fair prospect of success. To the grafter of the Apple or Pear, heading back in January and working in March or April is simple and safe, but this individual is careful to have the sap rising pretty freely before he makes a start, and then a dead, cold time sometimes reduces his percentages, a fair proof that the sap must be the guide to those who would succeed. The grafting of the Vine, commenced thus early, would lead to complete failure, as the pores of the wood in stock and scion, especially the latter, would become dry and cicatrised, and previous to the entrance of the sap, although flowing, to the ultimate exhaustion and probable death of the stock. This being so, the most successful grafters of the Vine are those who have patience to wait, not only until the cells are full, but in the case of great vigour until the stocks have made leaves and the bunches are coming into flower. When this stage is reached, the stock, partially reduced in

the autumn, will be in fit condition for working, but this is only half the battle, for the scions must be in proper condition too, neither dead, dormant, nor very active, but just a little on the move. If cut from ripe Vines and laid in under a cold north wall, they should be taken into the house for a few days before they are wanted prior to the beginning of March, but after that time the difficulty will consist in retarding for use in the latest houses. When the stock and scion are in condition, still further reduce the former, leaving one or two growing shoots in front of the part most suitable for receiving the scion. Take a piece out of the side of the stock a little below the second leading shoot, cutting pretty well into the cambium, but not down to the centre. Fit in the graft, which should have two eyes—one near the base, the other at the point. Bind tightly with fine string, as the best of matting gives, and exclude air and moisture by smearing with good grafting wax. When the operation is finished, tie up the young shoots to preserve them from accident, as the loss of these drawers of sap will lead to certain failure. Dew them over daily with the syringe, and when the terminal bud begins to push into growth, pinch the points out of the two shoots to throw more sap into the new channel. If all goes well, the union in the course of three or four weeks will be complete; the leading shoots meantime will have been gradually reduced, and the sap being in full flow, the ligature must be cut, or, better still, removed and replaced with soft matting. The graft from this stage forward will grow very fast, and the stock being good, it will top the longest rafter in the course of the season.

BOTTLE-GRAFTING is another excellent and more certain method of attaching new sorts to old stocks, and may be performed by any good mechanic, that is, by a man who can make a neat joint and bind tightly. The preparations are in every way similar to those recommended for whip-grafting, only instead of putting on a short scion, a piece of ripe wood with plump eyes, a foot or more in length, is sliced and fitted about the middle, 5 inches or 6 inches being left below for insertion in a bottle of water. Mr. Nash, gardener to the Duke of Beaufort, at Badminton, is the most successful bottle-grafter I have met with, and he says: "With a sharp knife take a good slice 4 inches in length off the side of the graft, commencing at the second bud from the point. Then take a corresponding piece off the stock, notch the two together, if so disposed, bind very tight with good string, and apply a little Moss or wax, which some prefer, as being less likely to hold moisture and so retard the union by the formation of stem roots." When the Vines intended for grafting are very strong, they should be allowed to get into full growth before the scions are put on, and the latter should be placed in a warm house for some days to swell the buds before the operation is performed. By this method grafts can be attached to any part of a fruiting Vine, as the bottles, which should be kept full of soft water, can be suspended from the trellis, but the most satisfactory result always follows grafting near the base of a good cane through which the sap flows freely. It is no unusual event for a graft to burst the bottle with its roots and to carry a bunch of good Grapes from the second bud the first season, while the terminal bud is making a cane capable of bearing a full crop the following year.

Those who have failed at whip-grafting may try the bottle, and if this does not answer, they may resort to a very excellent compromise first made known to me by my lamented friend the

late Mr. Barker, of Hindlip. Having an established Vine to convert, he cut it down when quite dormant early in the autumn. Early the following season it would throw up one or more strong shoots, and having secured in a pot a young Vine of the variety he wished to introduce, he started it when the house was closed, and in due course inarched green wood, an operation which left no room for failure. By adopting this safe plan a house of Vines may be converted in a single season, the only expense being the purchase or propagation of good planting canes for the operation. I have used Vines propagated early in the year, but unless the stocks are in late houses and the facilities very good, the season of growth is curtailed and the wood does not get properly ripened. To obviate these difficulties, planting Vines of the preceding year should be obtained, cut down to the lowest eye in December, and started when the house containing the stocks is closed or perhaps a little earlier. W. C.

BUD-DROPPING IN PEACH HOUSES.

ONCE again the vexed question of early forced Peach trees casting their buds is heard on all sides. Notwithstanding the advice given by many of our leading fruit growers that dryness at the roots in most cases must be the primary cause, the same complaint as to bud-dropping is heard year after year, and, judging by the failures that have come under my notice, it seems to be more prevalent this year than usual. That dryness at the roots of the trees is the cause of failure in some cases I am willing to admit where the soil is of a light porous nature. I am also certain that in many instances too much water, especially where the soil is of a heavy retentive nature and the borders made too deep and not sufficiently drained, is equally as dangerous. No doubt in nearly every case of bud-dropping failure is due in some way to bad root action. I contend that if the roots are in a wet, cold, pasty soil, the buds on early forced trees more especially are very much more liable to come off than if the soil is in a moderately dry condition. If satisfactory results are to be expected, the surface must be full of fibrous roots of a healthy brown colour, while, on the other hand, if the roots are found to have gone deep down and to be of a black colour failure is sure to result. If more care was taken in the formation of borders where early crops are expected I have no doubt we should hear much less of bud-dropping. In the first place, the borders should be thoroughly drained and not made so deep as is often the case; in my opinion from 18 inches to 2 feet is quite sufficient. The compost should consist of good sweet fibrous loam with a liberal addition of mortar rubbish, and if the loam is inclined to be heavy it will be much improved by charring it; the water then will pass freely through the border without becoming stagnant. Very seldom do trees in late houses cast their buds if the roots are in a satisfactory condition, and I have yet to learn why early forced Peach trees require so much more water than other early forced fruits. I would strongly advise those whose trees drop their buds year after year to examine the borders in the autumn just as the trees begin to lose their leaves, and if the soil is found to be bad, to carefully remove the whole and replenish with the mixture advised above, cutting the roots well back with a sharp knife and laying them as near the surface as possible. At the same time see that the drainage is clear and perfect; this I consider of vital importance, particularly on a cold clay sub-soil. I grow a large number of Peach and Nectarine trees under glass, and on taking charge of the gardens here I for the first two years was very much troubled with bud-dropping, but having adopted the plan recommended above I have obtained satisfactory results.—EDWIN BECKETT, *The Gardens, Aldenham House, Elstree.*

— I cannot quite agree with "Fruit Grower" as to dryness and premature ripening being the cause of bud-dropping. I have for years past had

this difficulty to contend with and have adopted the plan recommended; still the buds drop, and the finest varieties are the worst in this respect. I have given the roots ample drainage, taken means that they should have copious supplies of water without being waterlogged, used the best of good yellow loam, given the trees all the air possible by removing the lights and syringed the trees daily after the fruit had been gathered. I have come to the conclusion that the best managed trees that are forced will, in many cases, more or less drop some buds. I have grown Camellias on the back wall of the early Peach house under exactly the same conditions. It is well known what the consequences would have been had the Camellias got dry at the roots. I have come to the conclusion that bud-dropping is chiefly caused by a sudden flow of the sap. Some days the thermometer runs high with bright sunshine, and cold sunless days follow for a time. The buds then begin to fall off. I can in such cases only advise plenty of air to check as far as possible the sudden changes in the temperature. The Peach trees have not had any dressing; therefore the use of an insecticide is not the cause.—P. S. M.

THE THINNING OF FRUIT BUDS.

IN THE GARDEN, Jan. 25 (p. 131), "A Fruit Grower" once more advocates this risky practice. Other, and perhaps even greater authorities than he have appeared on the same side.

As an antidote to bud-dropping, wilful and designed bud-thinning is either wholly useless or a mere lottery. If only weakly, deformed, or semi-colourless flower buds are removed, then the chances, so high as to amount to a physical certainty, are that these buds would have dropped of themselves without our interference. Hence our thinning would prove a waste of time. But, on the other hand, if we thin off perfect fruit buds we are just as likely to remove those that Nature had selected to remain as not; and if so, what so likely as that by adding our thinnings to those that vital force had already shunted towards a fall the trees are left with light crops.

True, it is urged that by early thinning we may give greater security to the fruit buds left. But this is simply an assumption, and cannot be sustained by the vital statistics of what may be termed staying and falling fruit blossoms. The structure of fruit trees, the relation of fruit blossom to structure, the semi-independence of each fruit blossom from all others, forbid the assumption so freely taken for granted that the vital force sacrificed through the thinned-off blossom buds can so augment the supplies of force or sap for those left as to increase their chances of adhering to the trees and becoming perfect fruit. No, the diversion of sap and vital force among fruit buds, if possible at all, which is open to doubt, must take place during the formation, and not during the opening of the fruit buds; and at that early period it would puzzle the greatest expert in bud knowledge or manipulation to discriminate between his probable staying and dropping buds, and hence his early thinning aimed at a forest of green leaf and of crude flower-buds would prove more of a lottery than it does in the early spring. But if there can be no diversion of force from the thinned off to the retained buds, or, at least, no such diversion in time to affect the momentous issue, of whether Nature will retain or reject our selection, then where is the benefit of our elaborate thinnings?

"Fruit Grower" and others have a ready answer, thus: "Profuse flowering, again, is weakening" (p. 131). This I totally deny, and millions of well-clothed branchlets on Peach, Plum, Apple and Pear protest this day against this statement. Almost as well assert that wood-buds are weakening as fruit-buds. During their earlier stages they differ but slightly in function and less in structure than many suppose. Where they do differ, the difference is wholly opposed to the weakening effects of multitudinous flower-buds. Up to their expansion and setting flower-buds are finished products; all too nearly independent for the peace and security

of fruit growers, of the trees they fill with promise or adorn with beauty. The vital connection between fruit-buds and the trees that bear them is so slight, especially in the case of stone fruit blossoms, that it is extremely doubtful if any further food or maintenance was afforded them since they were ripened—that is, filled up, matured—last autumn. This being so, it seems impossible to see how the weakening of fruit trees through a superfluity of such blossom buds comes in. The fruit buds having been filled, finished in the autumn, and opened through heat and moisture in the spring, how can their mere presence in crowds render twiglet or bough, stem or root, the weaker or the worse? How, indeed; but unless they do, almost the only tangible argument for the thinning of fruit blossoms falls to the ground.

The thinning of embryo fruit, however, is quite another matter. Through the preliminary process of setting, Nature seals her selection up to a certain point, and even here the prudent fruit grower will not be in haste to follow her lead. Neither is there necessity for over haste in the matter. The bug-bear of exhaustion and the rivalry of the survival of the fittest through an excessive supply of food must not be exaggerated, for as mere fruit-buds were self-contained up to the point of opening, so embryo fruits during their earlier stages probably add as much or more to the general stock of vital force or food of trees as they take from it.

Hence there is little fear of exhaustion from allowing the most promising embryo fruits to have a fair trial before very severely thinning them. Every day's, almost every hour's, experience will add greatly to our knowledge, and enable us to thin with greater safety and a measure of confidence which experience will ultimately convert into something approaching to absolute certainty. Of course, all yellowish, deformed, or very small fruit may be removed so soon as a full crop of other and better are set—not, however, before, for such are infinitely to be preferred to no crop. And so capricious is Nature, so determined to kick over the traces of man's cultural and theoretical devices, that she will not always set and swell the biggest and most promising flower-buds. We must, therefore, wait for her initiative as to setting if we would thin our fruits so wisely and well as to reap our richest harvest of luscious fruit with the least strain on the trees, or rather the leaving of the trees the stronger and more fertile after each crop, through the residuum of vital force and growing strength. So long as the balance of growth and production is thus left with, or in the trees, there will be no fear of weakness or exhaustion, nor of adding to the area of worn-out orchards, those hideous, yet harmless nightmares of modern enthusiasts in fruit growing.

CALEDONICUS.

Apple Claygate Pearmain.—Having grown this Apple for thirty years and on many occasions strongly recommended it as a hardy substitute for the Ribston Pippin, I am not a little surprised to find "S. D." (p. 162) condemning it as "a bad doer, a shy bearer, and apt to shrivel." If in East Anglia it fails where the Ribston Pippin has succeeded, I would first ask "S. D." if he be quite sure he has got the true variety, and if he has, I must venture an opinion that the soil or climate, one or both, are at fault, but certainly not the Apple. Here, in a low damp situation on a cold limestone marl, the tree makes clean healthy wood, quite free from canker, and although I have not kept an annual record, I can safely say this variety has given more good crops of fruit than any other dessert Apple in the garden. So satisfied, indeed, am I with the Claygate Pearmain, that I have worked it upon old stocks in open orchards, and less than two years ago planted fifty maidens for training into pyramids and bushes. This fact, I think, will prove to "S. D." that my recommendation has been written honestly and in good faith, my object being the extended culture of a late-keeping dessert Apple, not half enough known, and which may be used from December until April. This testimony, I am glad to say, need not pass unsupported, as I find eleven dishes of this comparatively unknown Apple

were exhibited at the conference held at Chiswick in 1888. Further, that Mr. M. Dunn, the experienced chief of the gardens at Dalkoth, at p. 77 of the report, names it as one of the best six dessert Apples for the climate of Scotland, stating in his brief remarks: "One of the best late varieties and an excellent bearer." All experienced fruit growers, as a matter of course, know quite well that certain Apples in certain districts fail, whilst others supposed to be more tender succeed, and this, I presume, is one of these by no means uncommon cases. But before "S. D." converts the Claygate into my especial favourite—the Blenheim—I hope he will try it on other stocks and aspects, and in the event of doubts as to his variety being the "Simon Pure," I will willingly send a bundle of scions from Eastnor.—W. COLEMAN.

GRAPE GROS GUILLAUME.

ADMIRERS of this Grape are far from numerous, the quality of it being considered second-rate. According to my experience, this prejudice is somewhat ill-founded, the unfavourable verdict in very many instances having been passed upon it by individuals who have never given the variety a fair trial. I consider Gros Guillaume one of the best late black Grapes in cultivation; I will go even farther than this and confidently assert that it is even superior in point of table quality to either Alicante, Gros Maroc, Alnwick Seedling, or even Lady Downe's, being when at its best more nearly equal to well-grown Black Hamburgh than any of them. Naturally it is affected either for better or worse by the treatment given; but to what Grape does not the same remark apply with equal force? One frequent cause of complaint against Gros Guillaume is its presumably shy-bearing habit; while not a few condemn it on account of the bunches being far too large and clumsy to be serviceable. I may be mistaken in my deductions, but the conclusion I have arrived at is that the former unfortunate habit may easily be corrected by removing the large clusters in favour of the smaller "shows." When two, three, or four extra large bunches are left on a single young rod, the aggregate weight ranging from 20 lbs. to 30 lbs., these inevitably greatly exhaust the energies of the Vine, and the tendency of all overcropped Vines is to produce fewer bunches the following season. Overcrop Gros Guillaume one year, and it may not show a single bunch the next year, the rest being again followed by another attempt to produce an extra heavy crop of large bunches. This at least has been my experience with this noble Grape. The long rod system of training and fruiting best suits it, and a strong, well-ripened rod will usually eventually develop bunches at nearly every lateral. If sensational bunches are needed—and there are plenty of owners who delight in them—then be content to leave one on a short rod, reaching, say, halfway up the roof, and two only on a full length rod, the weight of each of these being about 10 lbs. But if smaller, and certainly more serviceable bunches are preferred, then must those that promise to attain a great size be early pinched off, and about six of those which would eventually weigh on an average about 3 lbs. each be reserved. In either case overcropping will thus be avoided and the fairly free-bearing habit of the variety be preserved. If this is not the case, how otherwise are we to account for the excellent crops of serviceable bunches I observed hanging on the Vines in the conservatory at Chiswick last autumn, and which I was assured are annually produced?

There are a few other facts bearing upon the successful culture of Gros Guillaume Grape that ought to be discussed, and which also may have been instrumental in deciding me to champion the variety. It is naturally of vigorous habit, especially if established on its own roots, and it may be that those who have been unsuccessful with it have not tried what grafting on either a Black Hamburgh or Muscat of Alexandria stock would do. My first attempt with the true Gros Guillaume took place about fourteen years ago. Not being in a position to devote much space to the experiment, a graft was simply inserted in a rod of Lady

Downe's near to where it first reached the wires on the roof. The Lady Downe's, it should be added, was on a Hamburgh stock, so that this was a case of double grafting. The Gros Guillaume was never allowed to form more than four good laterals, two of these each carrying a large bunch, the other two being prepared, so to speak, for fruiting the following year. We experienced no difficulty in ripening these bunches to perfection, the berries being large and as black as those of the Lady Downe's on the rest of the rod. It was not an original idea, the same plan having previously been very successfully adopted elsewhere. In the gardens now under my care we have the variety under notice in two houses, one being principally devoted to Muscats and forced so as to have the crops ripe late in July, and the other in a house of mixed late Grapes. In both instances the grafts were obtained from Mr. Ward, of Longford Castle, who has been most successful in the culture of this Grape, and they were attached to Black Hamburgh stocks by means of the process known as bottle-grafting. We do not lay in young rods every season, neither is hard pruning resorted to, the spurs being left about 3 inches in length, and a failure has never yet occurred. Sometimes we leave nothing but medium-sized to small bunches, at others a few large ones only. I find that if started somewhat early, in common with the rest of the Vines, in a forcing house, the Gros Guillaume will be later than the rest throughout, but need not be studied in any way, the abundance of air admitted being most favourable to its colouring and thorough ripening. If ripened early in August it does not keep well, but during September and October the quality is excellent. Our last bunches in late house were used about February 7, but they would have kept much longer had they not been specially required. No fault could possibly be found with their quality.

If very large and heavy bunches are desired, thinning must not be too freely carried out. Instead of this, the branching shoulders ought to be supported and raised to a horizontal position, even the sub-divisions being suspended to wires or stakes overhead. This gives the berries room to swell, only a very few being taken out when it is seen they threaten to unduly press against each other. It is necessary to adopt this plan also to prevent premature decay in the centre. Supposing smaller and more compact bunches are preferred in addition to selecting the smaller shows, it may also be necessary to reduce the length of shoulders considerably, and if this is done neatly, there will soon be no traces of shortening back. W. IGGULDEN.

PEARS.*

I HALF thought at one time that I would christen my paper, "Pears for the Million," but on second thought, and with visions before my eyes of the cold, wet, and sunless season of last year, and the caterpillar plague of this, and consequent partial failure of the Pear crop, I thought it wise to stick to the one word "Pears," and thus have licence to ramble at will, so long as I occasionally brought in the word "Pears." I will divide my paper into the following heads: Soils and their preparation; stocks; planting and season to plant; pruning; root and branch; manures, how and when to apply them; aspects and forms of training; the best varieties; and to gather the fruit, and how best to store it.

SOILS AND THEIR PREPARATION.

I have sometimes thought that given the most suitable soil for any and every description of fruit trees, treacherous and uncertain as our seasons are, we might almost disregard climatic conditions. What I mean is that our worst weather is never so bad but that we would be sure to get good returns had the roots of fruit trees all the elements required for the maintenance of the vigorous growth of the trees and the swelling of the fruit. Of course, colour of fruit and the highest quality might be—nay, would be—lacking in a sunless sea-

son, but this would, comparatively speaking, be a small matter. Such being my opinion, you will readily understand that I attach the utmost importance to the preparation of soil for Pears, and if the soil with which I have to do does not come up to the ideal of what I consider the best for the trees, the decided notions I have imbibed as to what the roots should have serve as an incentive to have the right elements at any cost of labour. And now, before I can proceed further with soils, comes the difficulty of stocks—Quince or Pear. There is no question but that one kind of soil would do for both, but there is a question as to the better doing of each, provided the soil be of the description in which each does best. Heavy soil, that by some would be called clay land, if well drained, is that in which trees grafted on the Quince stock do best, and trees grafted on the natural stock are invariably most satisfactory in soils of a lighter description. Such being the fact, the soil should be prepared accordingly. I dare say that some of my audience, knowing my predilection for the Quince stock, and also knowing that the soil with which I have to deal is of a light sandy nature, may feel inclined to charge me with inconsistency, but I hope to show that I am not. I said just now "that there was no question but that one kind of soil would do for both," and I am able to verify that statement by results. Some years ago my late revered employer, Lord Eversley, became enamoured of the cordon system of growing fruit trees, so much so that I verily believe, had I seconded his wishes in that direction, there would now be in Heckfield Gardens but few Pear trees except in the form of cordons. This mania I was able to satisfy to some extent, by destroying a quantity of old horizontally trained trees, and after remaking and entirely renewing the soil of the borders, half of the space was planted with cordon Pears grafted on the Quince, and the other with trees on the natural stock. The first year all did alike well, the only difference being that the trees on the natural stock had slightly the advantage in growth. The second year the change was surprising. The growth of trees on the Pear stock grew like wild-ings; the Quince made a spurt at growing, then stopped, and by midsummer the leaves became of a sickly hue. I was puzzled. I thought the soil could not be dry or exhausted because all had been heavily mulched with manure and the rainfall ample. I, however, made a close examination, when to my astonishment—nay, bewilderment—the roots had, as it were, taken the manual mulching by force, for it was nothing but roots, and all were as dry as if there had been no rain for months. I at once set to work and put fresh soil over the old mulching, watered freely, and then had the border well trodden down. Of course there was no new wood growth that year, but such fruit buds as are seldom seen.

During the winter the border throughout was artificially watered—soaked—and farmyard manure about 6 inches in thickness was applied as a mulching. By the time that the trees had opened flower my mind was quite made up as to the merits of the two stocks. The Quince, of course, won in a canter; the trees were full of flower. Their neighbours blossomed a little and finished off their fruit well, but the favourites, theirs much better and more of it. By way of illustration I have selected half-a-dozen average examples of fruit that we have growing under exactly similar conditions, the one on the Quince, the other on the Pear stock, which will show better than any words of mine can describe the merits of each. And now comes the rub: if the Quince stock is best for nearly all varieties of Pears, what are those cultivators to do that have not an adhesive soil in which trees on this stock delight? This was my predicament, for I had the lightest of light loams to deal with. But it did not frighten me. There was no clay to be had, and in lieu thereof in all future plantings the soil, after deep trenching, was extra firmly compressed, the only added ingredient being a few half-inch bones.

For trees on the Pear stock the soil cannot well be too light nor too deep, and, I was going to say,

nor too poor, but I will not put it as strong as that, because they must have some nourishment to feed on. Their natural tendency is to strike deep down, and if too much inducement is afforded them by manuring the soil at great depth, vigour of tree will be had at the expense of shy fruiting, I prefer rather to feed them from the surface; but of this more anon. I end the question of soils and their preparation by saying, if possible procure good heavy loam for the one, if not, compress the light soil firmly, and fed liberally from the surface; well drain, trench deeply, and add a small percentage of well-decayed manure and crushed bones to light hungry soils for trees on the Pear stock.

PLANTING, AND SEASON TO PLANT.

To plant a tree means much more than a large minority of gardeners seem to imagine. I have, and no doubt you have, seen many good trees irretrievably injured by thoughtless, careless planting. I sometimes think the advice that the Scotch nobleman who was fond of trees gave to his son in the words, "Be aye sticking in a tree, Jock!" applies right well to the manner of planting that one is sometimes obliged to witness, for truly it is "sticking in"—there is no planting about it. The old tree is done for, trench out the stump, put a new tree in its place, and—eh, presto! the work is done. This is not an overdrawn picture. I have witnessed it, and at some cost of self-control held my tongue. Happily better days have dawned on us, and we are fast nearing the point of impossibility for planting to be done in any such slipshod fashion. My contention is that it is just as creditable to produce a good bunch of Currants, or a dish of Raspberries, Apples, or Pears as it is to grow a fine bunch of Grapes; yet, on planting a Vine we do not mind spending an hour in laying out just so every particle of root, and are very particular to see that the soil is well shaken and pounded about every root; but a Pear tree—ugh! "stick it in." This, of course, does not apply to the present company. Seriously though, to plant properly requires thought. The soil may not have been long in position, and may subside, or may not have been sufficiently compressed, or it may be too wet and clammy and cannot well be worked about the roots; too dry is hardly possible at any season when planting may be done; but the point of all others is to avoid planting too deeply. I prefer to err, it at all, on the side of shallow planting, because any check resulting from this is easily remedied by the application of a little soil round the base of the stem and a thicker mulching of manure; but if the stem be buried, say deeper than it has been in the nursery bed, ill-health begins before the end of the first growing season, and the only remedy is to lift and replant; thus a season is quite lost. The best time to plant is, of course, in autumn. I think, however, that in our zeal to get such extra-neous work over, we are sometimes in too much of a hurry. The trees, after a prolonged drought such as we have had southwards this year, would assuredly be the better if left undisturbed till the autumnal rains had had their invigorating effect on the roots, and these—the roots—on the plumping up of the wood and buds. This additional vitality—that imparted by the rains—is an important factor to the kindly and quicker root action in the new soil. The first half of November, if the weather be dry, is, I think, sufficiently early to plant.

PRUNING, ROOT AND BRANCH.

I am unable to dissociate the one from the other, for if the trees require root-pruning, it is to regulate the growth, or improve the fruitfulness of the branches; and if little or no pruning of the branches be necessary, then the roots should be let alone, at any rate so far as curtailment of them is concerned. And here again comes in the question of stocks. My experience is that as regards the Quince, root-pruning is never required. The trees in a well-prepared border, that from the first day of planting is always kept heavily mulched with manure, root deeply; and by way of ensuring regular fruitfulness, and more especially of keeping the roots near the surface, that air, sunshine, and

* A paper read by the late Mr. W. Wildsmith before the Royal Horticultural Society, October 22, 1888.

manure may have the fullest effect, all trees on the Quince we lift bodily at the end of two years from time of planting, and, after shortening back all thong-like and fibreless roots, they are carefully replanted, and root-pruning as regards these trees is ended for ever. One could wish that such was the case with trees on the natural stock, but it is not. Old orchard trees that get little or no manure, and that are allowed to carry every fruit that the most genial season admits of setting, as a matter of course need no root-pruning; but it does not follow that the practice, if applied to other trees, is wrong. I think rather that it is a count against those who say that root-pruning is unnatural, for what is the sample of fruit from such trees? Possibly there may be a solitary tidy-looking fruit out of every score, but the remainder only fit for the hucksters' barrows. Garden trees proper that are grafted on the natural stock can only be kept in a fruitful condition by occasional curtailment of root growth. Repression of wood growth by summer pinching does something towards rendering the operation of root-pruning less frequent. There are a few large bush trees, grafted on the Pear stock, in the gardens under my charge, growing on borders that are regularly cropped with salads and shallow-rooting vegetables, and these trees invariably fruit well, without any curtailment of roots, other than such as is unavoidable in preparing the ground for the vegetable crop. I do not, however, commend the practice of planting trees in such positions. I think that each tree is worthy of having its due space of the ground, and only when it has that share have we a right to expect full returns in the shape of fruit. I said that the trees invariably fruit well; that does not mean that the fruit is always fine; it is generally passable, and as fine as we have a right to expect from trees that are annually denuded of their best surface rootlets, the loss of which furnishes the clue to regular fruitfulness. With the wholesale removal of branches in winter, a process that is mis-called pruning, I have not an iota of sympathy, unless it be pity for the ignorance of the performers, that they have not thought as to what the after results are—canker and gumming, to wit; and the nearest approach I would care to advise in that direction is the removal of a few long spurs, with the intent of inducing the pushing of new buds "closer home" as we call it, that trees on walls may, when in flower, have the full benefit that wall copings afford in the direction of protection from spring frosts; and in a less degree the same idea holds good in respect of keeping the spurs on bush and pyramidal-shaped trees close home, and under the protection of the main branches. I thought that I could best explain my meaning as to the removal of these spurs by a portion of the branch of a tree pruned for the purpose, as also I can of what I mean by summer pruning, or, as I prefer to call it, repression of growth, in order to induce fruitfulness. If such repression of growth by pinching back the shoots to the second or third leaf of the new growth be done twice, or at most thrice, during the summer, very little winter pruning is ever needed, and fruit buds by this operation are, as it were, manufactured by force. That winter pruning, to a larger extent than is here stated, may sometimes be necessary I do not deny; to do so I should belie my own practice, inasmuch as it is uncommon occurrence for me to allow any tree that seems waning in vigour to grow at random the whole of the season, and give extra supplies of manurial waterings the while. Winter pruning is, of course, then a necessity, but it is done with all the mercy possible, the young shoots being in some instances laid in over the old, disregarding of appearances. In this manner not a few trees have been coaxed into renewed vigour and fruitfulness.

MANURES; HOW AND WHEN TO APPLY THEM.

Pears are like most other fruit trees—they are by no means fastidious as to the kind; still, there is a best they relish most, and that is farmyard manure. I have never been fortunate to fill the combined post of bailiff and gardener, and consequently not had the opportunity of testing to the full the merits

of this kind of manure, but the little that sometimes I have been able to obtain has afforded proof positive that it is deserving of the honour of first place. An excellent substitute is that of ordinary stable manure. This comes to us in the straw state, and all that we need for fruit-tree mulching purposes is stacked for some weeks before it is used; ashes from brushwood, hedge-clippings, and refuse leaf-heap burnings being mixed with it, and when it is about what may be described as half decayed, it is then ready for application. Artificial manures are excellent in their way, but if their properties are to last for any length of time they must be mixed with soil, and that is not always convenient. The next best way is to scatter them over the soil and immediately cover with a thick layer of long litter, then water to saturation. The two descriptions of animal manures may be safely applied to a depth of from 6 inches to 9 inches, and as far round the base of the trees as it is thought the roots extend. The time to apply the manures is all the year round, not that the trees do not relish an extra supply at certain seasons. Pears do, and more especially at the time of the first swelling of the fruit, *i.e.*, immediately the fruit has set. At any cost of labour an effort should be made at that stage of growth either to give a thorough watering with liquid manure, or, lacking that, sufficient clear water over the newly applied mulching as will reach every root of the trees. The effect on the swelling fruit is magical. The same process should be repeated twice afterwards, namely, when it is half grown, and again when the final swelling commences. The manurial mulching of trees on walls should be renewed twice a year; my own practice is to do the work any time between now and December, and the mode of operation is to lightly rake off the old mulching, give a slight dressing of fresh loam, crushed bones, and wood ashes, and over this the mulching; this is the winter dressing not only of Pears, but of all our fruit trees on walls. I ought, perhaps, to add that the mulching extends to a distance of 4 feet from the walls. The second application is not so generally necessary, except for Pears, and these we never fail to re-mulch some time during the months of March or April. I have been thus particular to describe what I consider the best mode of manuring. It does not follow, however, that all trees need it—one's own judgment must decide that point—nor does it follow that there are not other excellent modes of applying stimulants. We have a number of trees that are neither mulched nor have manure directly applied to them, but being planted at the back of a Rose border that biennially is trenched deeply and manured freely, a large proportion of roots dispute the right of the Roses to a monopoly of the manure, and so long as they continue to produce fine fruit in quantity, it is hardly worth while to take notice of the trespass.

ASPECTS AND FORMS OF TRAINING.

There are varieties of Pears that do well in any aspect, east, west, north, or south; but south, south-west, and west are undoubtedly the aspects best suited to Pears in general. I do not now refer to aspects of walls, but to the garden as a whole. In a garden with a slope to any of the quarters of the compass here mentioned Pears may be planted in any part of it with the best results. But, with my present notions in regard to the importance of every tree having its own plot of ground to itself, I should, of course, advise the setting apart of the warmest and most sheltered quarters in the garden having a south or west aspect for Pear cultivation, and the distance from tree to tree must necessarily be decided by the form the trees are to be trained. Personally, I give preference to the pyramidal form of training, and the distance apart for trees on the Quince stock should be 6 feet, and be planted in angular lines, which will allow of easily getting about among the trees, and of the admission of full sunlight to every tree. Should the soil be considered better suited for the growth of trees on the natural stock, plant in the same way, but the distance apart should be increased to 10 feet. Low horizontally trained

cordons, that one sometimes sees outlining the boundary of kitchen garden walks are pretty, but I fear this is their greatest merit. Cordons for profit are such as are shown in this picture, which is a faithful representation of trees trained over a walk in the gardens under my superintendence.

The cordon mode of training for Pears is worthy of general adoption for a variety of reasons, the one of all others being that it is the best way of prolonging the Pear season. I shall best explain my meaning by quoting a circumstance in which I was personally concerned. From a large horizontally trained tree, Williams' Bon Chrétien, growing on a west wall, a couple of bushels or more of good fruit was annually gathered, a quantity far in excess of what was required for home consumption, and consequently, in the endeavours made to make them last for the longest period, a large percentage was lost. The proposition was made to me to destroy this tree and plant cordons, and, like an obedient servant, I complied. The space that that tree occupied is to-day furnished not with one tree, but with thirty, in nearly as many varieties, from which we obtain more fruit and a season of ripe fruit extending for two months or more, instead of three weeks, as formerly. The most profitable form of training on walls is as single cordons 2 feet apart, and the only other form worthy of adoption is the horizontal, 12 feet apart. Wall space for Pears in parts of the low-lying eastern counties, the midland and northern counties of England, and Scotland is imperative if good fruit be desired; but residents to the south, south-west, and west of England attach far too much importance to that necessity. Take, for example, any of the early varieties that ripen in July, August, and the early part of September, and grow them on walls with a south or west aspect. Grow the same varieties on bushes, pyramids, or cordons in the open garden, and compare notes as to quality. The wall fruit will be found to be mealy or gritty, perhaps both, and lack the piquancy of the same varieties of fruit grown in the open garden, not to mention the longer preservation of the open garden fruits. I do not overlook the necessity of having abundant wall space for the best later ripening varieties, but it is to gain this that I strongly advise the relegation of early and second-rate mid-season kinds to the open garden. The varieties most worthy of the best aspects on walls are Beurré Superfin, Beurré Hardy, Louise Bonne de Jersey, Seckle, Doyenné du Comice, Marie Louise, Pitmaston Duchess, Thompson's, Winter Nelis, Glou Morceau, Hayshe's Victoria, General Todtleben, and Easter Beurré.

THE BEST VARIETIES.

I think that the difficulty next to a bad climate for Pear cultivation is the number of varieties. I was recently informed by a friend, who ought to know, that a certain Continental nurseryman grows 400 varieties. I do not envy the man in charge of them, nor the customers that buy the trees "true to name"; I only hope the latter may not be disappointed. To make a selection from sixty varieties is bewildering to many, yet I question whether this number is not exceeded by all fruit tree nurserymen of note in England. And it is to these we should appeal to make a combined effort to reduce numbers by refusing to catalogue any but varieties that are known to be good. Granted that in varying soils, positions, and districts the quality of Pears varies greatly, and sufficient margin as to numbers of varieties is necessary to cope with these freaks. As to what the lowest number should be I will not venture to suggest, lest I find myself in a minority of one.

But now as to the best varieties. In a short paper that I read at the Apple and Pear Conference at Chiswick, a year ago, I named twenty-five varieties that I considered best for dessert. I do not see my way to erase any kinds mentioned in that list, and I therefore reproduce it here. Their names are Souvenir du Congrès, Williams' Bon Chrétien, Beurré d'Amanlis, Fondante d'Automne, Louise Bonne de Jersey, Mme. Treve, Beurré Hardy, Beurré Superfin, Seckle, Marie Louise, Doyenné du Comice, Thompson's, Duchesse d'Angoulême, Glou Morceau, Winter Nelis, Comte de Lamy, Beurré

Bachelier, Josephine de Malines, Winter Crassane, Huyshe's Victoria, Olivier de Serres, Easter Beurre, Ne Plus Meuris, Knight's Monarch, and Bergamote d'Esperen. To this list I now add the names of three varieties that I consider the best for cooking; they are Catillac, Black Worcester, and Verulam.

WHEN TO GATHER THE FRUIT, AND HOW BEST TO STORE IT.

I am inclined to think that there is no gardening operation which requires longer practice to attain proficiency than that of being able to know when a Pear is ready to gather, as on the time of gathering hinges in a large degree the quality of the fruit, because, if harvested too soon, the fruit shrivels and never ripens well, and if left on the trees long—particularly early varieties—it becomes insipid. Hence the importance of every young gardener learning by close observation the right time to harvest Pears. It is said that there is no rule without exception, and I suppose it is true as regards the gathering of Pears, though the excep-

paratively dry, in cold weather warm, and in hot weather cool. It is ventilated in chimney fashion, through the roof, and air can be given or not at pleasure. It is fitted throughout with shelves, or tables formed with strips of wood, 3 inches wide, and between each strip is a half-inch space, so that there is ample space for the escape of any moisture that may be given off by the fruit; and air has free access—I have sometimes thought too free for long keeping—hence the thin layer of clean wheat straw, on which the fruit is laid, in single layers should space admit of it, and on no account should I think of having more than a double layer, and this to be single as space became vacant.

STOVE AND GREENHOUSE.

DIPLADENIAS.

This is a very handsome genus of stove climbing plants. Of late years many beautiful addi-



Dipladenia Brearleyana.

tions I know are few, and novices at Pear-gathering need not therefore be afraid that they will get far wrong if, when called upon to gather Pears, they adopt the following methods to decide whether or no certain kinds are really fit to harvest: Slightly raise the fruit—do not pull or use any force—and if by this gentle lifting the fruits part readily from the branch, then they may with safety be gathered. Another test is to cut open a fruit, examine the pips, and if these are dark brown or black and firm to pressure, it is safe to gather. As a matter of course, a dry day must be chosen for the work, and the fruits be handled with the same care as if they were soft Peaches. As to how best to store the fruit, I can only relate my own practice, which has proved to be—I will not put it stronger than moderately successful. Our fruit room is built behind a high wall, the aspect of it being due east. The walls are hollow throughout—I perhaps ought to have said have an air cavity between the outside and inside walls—consequently in damp weather the room remains com-

paratively dry, in cold weather warm, and in hot weather cool. It is ventilated in chimney fashion, through the roof, and air can be given or not at pleasure. It is fitted throughout with shelves, or tables formed with strips of wood, 3 inches wide, and between each strip is a half-inch space, so that there is ample space for the escape of any moisture that may be given off by the fruit; and air has free access—I have sometimes thought too free for long keeping—hence the thin layer of clean wheat straw, on which the fruit is laid, in single layers should space admit of it, and on no account should I think of having more than a double layer, and this to be single as space became vacant.

tions have been made to the Dipladenia family, through the introduction of garden hybrids, but few, if any, can excel the variety which is here illustrated. This grows very freely and the flowers are produced in great profusion. The blooms are each from 3 inches to 4 inches across, of the deepest crimson, which does not fail with age, as with most flowers, but becomes more intense in colour. These plants should have a considerable amount of attention if required for exhibition. This being the case, I think many gardeners fight shy of them. In a moist stove with strong heat Dipladenias certainly make exquisite climbers upon the roof, and those that exhibit specimens of them at our shows let the shoots climb upon the roof until the flowers are set and the buds are about half grown. After this the shoots are taken down and trained over the balloon-shaped trellis.

Dipladenias must be reckoned amongst the

most beautiful of stove climbers, and they should at once be started, and if grown well they should commence to bloom about the month of June. The first essential to the successful cultivation of these plants is perfect drainage. The soil should consist of light turfy loam, leaf-mould and peat, to which should be added a considerable amount of good sharp sand. The soil should be used in a somewhat rough state. Dipladenias enjoy an abundance of moisture and sunlight and should be well exposed to the sun, shading only through the middle of the day. Bottom heat, which many use for these plants, I do not think is necessary. The syringe must be used freely, and the temperature may run up to about 90°. Treated in this manner, the plants will continue to flower all through the summer. After the flowering has ceased and the growth has been made, the plants should be subjected to cooler treatment in order that the wood may become well ripened. In the winter, water should be very carefully applied, but the plants must not be allowed to suffer from drought, and during this time 65° will be enough heat for them. In the summer the temperature should average from 65° to 85° or even 90°, and during this time, although the plants enjoy an abundance of moisture in the air, they yet require watering carefully at the roots. The following are a few of the best kinds:—

D. AMABILIS.—Flowers rosy-crimson, borne in large trusses.

D. AMENA.—Deep rose, throat orange-yellow, a profuse bloomer.

D. BREARLEYANA (here figured).—A free grower and profuse bloomer; flowers large and bright crimson.

D. INSIGNIS.—The flowers are large, thick and fleshy, the colour bright carmine, shaded rose, the inside of the tube yellow, outside white.

D. PROFUSA.—A vigorous growing plant with large deep carmine flowers of great substance.

D. WILLIAMSII.—This is a strong growing plant, and the large trusses of flowers are freely produced. The colour of their blooms is delicate pink, throat deep rose.

In addition to their other charms, the flowers of Dipladenias are very effective when cut, and they stand well. The hybrid kinds produce longer spikes than the species. G.

Impatiens Jerdoniae.—For growing in small hanging baskets this is one of the best plants with which I am acquainted. Moderate stove heat suits it better than a very high temperature. Plants that were struck from cuttings about the end of last summer will soon require a shift. When wanted for baskets it is best grown in pots, which should be plunged in Sphagnum. Three or four plants struck at the time named may be put into a 7-inch pot. The best material to use is two parts Orchid peat containing plenty of fibre to one of chopped Sphagnum, with a liberal addition of charcoal broken moderately fine and some sand. Give more drainage than is necessary for ordinary things, and do not give too much water. Cuttings may be put in shortly. They strike freely in a mixture of half sand and half peat. Be sparing with water until roots are formed. The cuttings should not be confined in a striking frame or under propagating glasses, as if kept close they are liable to decay. They will strike in a temperature of 60° or a little over.—T. B.

Rhododendron argenteum.—For large conservatories and in such structures as the temperate house at Kew, where they can be planted out and allowed to remain undisturbed, the larger Himalayan Rhododendrons are well suited, as in this way only do we get an idea of their grandeur. The earliest of all to flower is the silvery Rhododendron (*R. argenteum*), which is of quite tree-like growth, forming a large head of stout branches, whose upper portions are furnished with very large leaves

of a beautiful silvery whiteness on the undersides. This last character is somewhat variable, that is when quantities are raised from seed. In the earlier stages of the plant it is not noticeable. The flowers are borne in globular, closely packed heads, each some 8 inches or 9 inches in diameter. When in the bud the flowers are of a deep pink tint, but when open they are of an ivory-white colour, with the exception of a crimson stain inside just at the bottom of the flower. This *Rhododendron*, if not synonymous with, is certainly little removed from *R. grande*. It ranks with *R. arboreum*, *R. Falconeri*, and *R. Nuttalli* as the giants of the genus.—T.

ACACIA NOTES.

THE flowering season of the Acacias is spread over a considerable period, commencing with the peculiarly flat-stemmed *A. platyptera*, whose little golden balls are so freely borne before the end of the year. Then following on this we have a quite different species, *A. dealbata* (the Silver Wattle of Australia), which forms quite a tree, and then flowers most profusely; though confined in pots it is seldom satisfactory, but planted out, as in the temperate house at Kew, few, if any, inmates of that structure are more handsome. The beautiful silvery Fern-like foliage of this *Acacia* renders it at all seasons highly ornamental. Another species different from the last, but very desirable for planting out in a large conservatory, is *A. verticillata*, a free-growing, much-branched kind, which generally assumes a somewhat pyramidal habit of growth. In this the small needle-like leaves are of a very deep green, and thickly set on the branches. The bright yellow blossoms are borne in such profusion that the whole plant is quite a mass of that colour. In *A. myrtifolia* the leaves are of a stout leathery texture, while the flowers are of a pale primrose-yellow, a very different hue from that of most of the Acacias. Another of much the same colour is the graceful growing *A. leprosa*. The above must attain a fair size before they flower, but there are some that may be grown and flowered well in pots 5 inches or 6 inches in diameter. One of the best for this purpose is *A. Drummondii*, with very deep green pinnate foliage and little bottle-brush-like spikes of pale lemon-coloured blossoms, which are borne in great profusion when the specimen is but a few inches high. It is more particular in its requirements than most of the Acacias, but when in health forms a very beautiful little specimen. The sturdy growing *A. armata* is one that flowers equally well whether 2 feet or 10 feet in height. The foliage of this is small and of a rich deep green, while the flowers are golden. For comparatively small conservatories this is well suited for planting out, as it is always bright and cheerful, may be depended upon to flower every year, and will not outgrow the space assigned to it, as should it appear likely to become too large it may without any injury be cut back to the required limit. This is best done directly after the flowering season, as there is then ample time for the young growth to become sufficiently advanced to flower the next year. *A. lineata* is a pretty little species, whose slender branches are clothed with long narrow leaves, and thickly studded with little orange-coloured ball-like clusters of blossoms. This is well suited for pot culture, and is therefore valuable for greenhouse decoration at the present season. There are many other very beautiful species of *Acacia*, one of which, *A. pulchella*, may be mentioned as a pretty little pinnate-leaved species with rich yellow blossoms. The most graceful of the whole genus is *A. Riceana*, which in habit is quite different from any of the others. This is at home when treated as a roof or pillar plant in a large structure, as the long, pendulous, thong-like branches are then seen to the greatest advantage. They are clothed with deep green sharp-pointed leaves, while the slender shoots, when the flowers are fully expanded, form veritable wreaths of bloom. They are of a sulphur yellow colour. This *Acacia* has been spoken of as very difficult to propagate, but I have never experienced any difficulty in striking cuttings, provided suitable shoots were chosen for the purpose.

The best cuttings are furnished by sturdy shoots, such as are often pushed out just below the flowering portion of a branch. They should be cut off at a joint, and the bottom leaves having been removed for about 1½ inches, the cutting is then ready for insertion. Where they are struck in quantity, close propagating cases are usually employed for the purpose, or they will succeed equally well under bell-glasses. Whatever method is employed the pots must be well drained, and filled firmly with a soil consisting of peat, loam, and silver sand in equal parts, with a thin layer of sand on the top. This done, the sand should be slightly watered through a fine rose, as the cuttings can be inserted in a far more satisfactory manner than when the sand is dry. Care should be taken to close the soil well around the base of the cutting, as upon this, to a very great extent depends the success of the operation. Afterwards, all that is necessary is to take off the glasses occasionally to remove signs of decay, and to allow of the soil being watered when required. It should be kept fairly moist, but not too damp, otherwise the cuttings are apt to rot. They will need to be shaded from the full rays of the sun, and if kept in the temperature of an intermediate house, the action of rooting is greatly assisted. The above remarks apply to all the other Acacias, the most difficult of the whole to strike from cuttings being the curious *A. platyptera*. Besides this, a great many of the species produce seeds freely, which, as a rule, grow readily enough, and make rapid progress afterwards. Where large specimens are required these seedling plants are to be preferred to those propagated from cuttings, but when needed to flower in a small state it is just the reverse. H. P.

Azalea amcena.—This old-fashioned favourite is so well known that it scarcely justifies a note; but the superb masses of colour that large plants give is remarkable, as may be seen from the bushes of this *Azalea* in the greenhouse in the Royal Gardens, Kew. They are of great density and width, and so covered with flowers as to hide every twig; the colour varying in depth, but always bright. Large plants like these would be welcome in many conservatories and spacious greenhouses, where we usually find the plant in a small pot. It is very striking thus grown, but more so where there is a large surface of bloom displayed.

Nantes forcing Hyacinth.—This is a very early variety. The bulb is of medium size, skin blue when ripe. Each bulb produces two or three spikes composed of from five to ten pure white, very sweet-scented flowers. In Nantes it blooms in the open ground, without any protection, about Christmas, at the same time as *Scilla sibirica*, winter *Aconite*, and *Galanthus Elwesii*. It is quite hardy, will grow in any soil and in any situation, and if left undisturbed for two or three years it will increase rapidly and produce an immense quantity of flowers. It is of great value for forcing, and can be had in flower under glass at any time during the winter. It possesses the same qualities as the white Roman, but it is three weeks earlier, besides it will grow and increase in the open ground, whilst bulbs of the white Roman must be procured every year.—D. GUIHENEUF, Nantes.

Winter-flowering zonal Pelargoniums.—I notice that W. J. Murphy calls in question the mode recommended by "H." (p. 77) for cultivating the above. "H.'s" plan is almost identical with my own, and I can recommend the advice he has given your readers. "H." and numerous other growers of zonals, including myself, have been guilty both of wasting time and valuable space in our glass structures during the winter if zonals can be propagated in June or July for giving a supply of bloom the following winter. What sort of a plant is it possible to build up in so short a time? It certainly sounds like a stretch of imagination to insert *Pelargonium* cuttings in June or July, and have the same in 4½-inch pots, which are to be full of roots in the end of autumn. I think if "H." or any other

reader of THE GARDEN requires a mass of brilliant blooms, they had best follow the cultural details on p. 77.—GEO. POTTS, JUNR., Northiam.

SOME HARDY FLOWERS IN THE GREENHOUSE.

THE FORGET-ME-NOTS are very nice in pots early in spring. The white variety is not so common as the blue, but it is just as suitable and flowers with even greater freedom. The only thing to guard against with this plant is damp. The foliage grows in dense tufts, and if the damp lodges there, decay sets in and ruin follows. Grow the plants on a shelf or stage near the glass in a light, well ventilated house, and perfect potfuls will be obtained with very little trouble. For potwork the seeds should be sown not later than June, very thinly in a cool situation, or old plants may be pulled to pieces in spring and planted out in a shady situation, but I like seedlings best.

MRS. SINKINS PINK, when specially grown for indoor work, is a gem for forcing. The cuttings or pipings should be taken early. We put ours in last year in May. They were taken from plants which had been forced, and as soon as rooted they were planted out in a prepared bed, where they made fine large patches by October. Years ago I used to force the old white Pink in the same manner to produce flowers for early cutting in spring, but though very sweet, the flowers are very small in comparison with those of Mrs. Sinkins.

DIELYTRA SPECTABILIS (Lyre Flower).—What a handsome plant this makes in a pot when well grown. It forces easily, too, and comes into blossom early, but when brought on more slowly with only ordinary cool greenhouse culture, it makes a grand specimen. A well-grown plant 4 feet high and as much through is quite as well worth admiration as many of the plants now grown under glass and is well adapted for the unheated greenhouse or conservatory. The young growths are very succulent and tender, and are often cut off by spring frosts when grown in the open air unprotected. After flowering is over the plants should be hardened in a cool pit, and then plunged out in the border to mature their growth. They may be lifted in October, and, if necessary, placed in larger pots.

MARTAGON AND DOUBLE TIGER LILIES.—I have been in the habit of potting large bulbs of these for some years; they make a nice variety, and are not so liable to lose their leaves from that fungoid disease which so frequently attacks the softer, more succulent foliage of the old white Lily.

CANTERBURY BELLS may be brought on in a higher temperature than would suit most hardy plants. The principal thing in connection with the treatment of the plants intended for forcing is to sow early—not later than the middle of April—and to prick out the seedlings, as soon as large enough to handle, 8 inches apart to get strong, lifting in October and potting into 6-inch pots. They may stand out of doors till frost is expected, and then be placed under glass, and moved into a warm greenhouse early in January. Well-grown plants are very effective in the conservatory and continue some time in bloom, especially if the faded flowers are regularly picked off, as then a second crop of blossoms will be produced.

GLADIOLUS THE BRIDE.—I suppose everybody grows this in pots for flowering at Easter. Most of the early-flowering varieties, if potted in December, plunged in a bed of leaves in a pit with no heat but the gentle fermentation of the leaves, and afterwards when the spikes are showing moved to a warm greenhouse, may be had in bloom by the end of April, the later sorts keeping up a succession till they can be had in the open air. E. H.

Iris chinensis (*Moræa fimbriata*).—I have had many inquiries addressed to me as to how this plant can best be cultivated so as to make certain of its flowering. It is at its best such a lovely thing, that it is most unfortunate that it so often proves capricious in the matter of blooming. The

plant grows well potted in good fibrous loam, leaf-mould, and small stones or gravel, and may be grown in a cool greenhouse, or even out of doors in the summer-time. The main point is to induce vigorous growth, and then in order to develop the flower-spikes some warmth is an advantage, even if not absolutely essential. Our plants were grown in a sunny house without any fire-heat all last summer, but a flush of heat in October and November seemed to act like magic, one plant in an 8-inch pot producing twelve or fourteen spikes of bloom. No flower, no Orchid, no sister Iris, no Lily is more exquisite than this in colour or dainty fineness of make, so that it is a pity its non-flowering habit is not more generally overcome. A friend who brought plants of it from Madeira seven years ago complains that he has never seen a flower on it since. A little weak manure water and slight shade are essential during its season of growth. It is a native of China and Japan, and is an evergreen species.—F. W. B.

Chorozema mucronata.—This stove plant forms a very pleasing feature in one of the houses at Maiden Erleigh. Instead of training it balloon-shaped over a wire frame and contorting it out of all natural form, the plant is stood on the back shelf of a stage and the growths are tied loosely to the wirework, which covers the wall of the house. The result is a veritable wealth of flowers on growths some 3 feet long, presenting an object of exceeding beauty. It seemed to me that if a plant of this kind were stood in a wire basket or raised on a strong wall bracket, the growths being brought downwards, that a very charming effect would be produced. In the adjoining house *Asparagus plumosus* trained to the wall runs up some 10 feet to 12 feet in height, producing a profusion of shoots and leafage, and is a most valuable aid in furnishing material for house decoration.—A.

Chinese Primroses.—One of the most pleasing, as well as extensive, displays of these beautiful winter flowers I have seen this season was at Farnham Royal, where Mr. James has probably little short of 1000 plants blooming. The pure white varieties of the Fern-leaved section were very striking; indeed it does seem to be a special feature of the Fern-leaved, that whilst the blooms are pure white, those on the old plain-leaved strain invariably show a little tinge of colour. The best whites of the Fern-leaved type at Farnham Royal are White Perfection, having very dark foliage and pure white large flowers; Purity, the foliage of which is intermediate in colour; and Snowflake, foliage pale green. All have a good compact habit and are very free blooming. Of a truly grand white, the blooms of wonderful size and fine quality, only one seedling as yet exists. This has Fern foliage also, and may be classed as one of the finest whites ever seen. It will take a couple of years to create a stock of it. There can be no doubt but that colour in the Primula is far more delicately pure and beautiful out in the bright light and clear atmosphere of Bucks than is the case nearer London. The carmines, roses, and reds, and especially the deep blood reds, are indeed beautiful, the sun lighting them up with wondrous effect. Flowers which in London are dead and dull, are at Woodside glowing with beauty. The blue form there has the pleasing tint of the Plumbago, and is really charming. There are a couple of the semi-double strain, a pure white and deep red or crimson, both first-class forms, habit compact and blooming profusely. Flowers of these are invaluable for bouquets. The petals have to be split open to enable fertilisation to take place, whilst all single flowers are brush-fertilised with less difficulty.—A. D.

SHORT NOTES.—STOVE AND GREENHOUSE.

Epacris alba odorata is one of the best of the white varieties. The slender shoots are hidden with the pure white flowers, which are useful when cut.

Iris chinensis (GARDEN, Feb. 8, p. 122) always flowers freely here in a cool greenhouse near the glass, and is now throwing up its spikes. The plants are divided and repotted every May, and when growth has

fairly begun they are stood out of doors until September. They are potted in lumpy stuff in pots half filled with crocks.—J. WOOD.

Zephyranthes candida.—I have some bulbs which refuse to flower. The bulbs were carefully potted three years ago, and though they produce plenty of bright green leaves, not a single flower has yet appeared. The pot has been kept in a greenhouse, only heated to keep out frost, and the bulbs have been carefully watered. They must by this time be thoroughly pot-bound. Will some correspondent kindly suggest a remedy for non-flowering?—H. B.

Lifting Wallflowers.—Plants of these if they have been planted out rather late and in suitable soil for winter lifting will do well if given plenty of air after they have become established in the pots. The best time for lifting for potting is about the end of February, as the plants naturally make roots more quickly than if potted up in December. Of course, if stood in a little warmth damping is checked, but the plants become drawn. Potted up in February the after growth is much more natural, and the flowers come more true to colour. Thus treated, the plants are larger, and give less trouble than when grown from the first in pots.—A. D.

Eranthemum pulchellum.—This is unquestionably one of the best and most showy of stove plants, as its flowers rival those of the Gentian in depth and richness of blue. Flowering in the depth of winter it is doubly valuable. The only drawback the plant has is that its flowers do not last very long, but they are produced in rich profusion. To have nice little compact specimens, the best way is to propagate annually, the best cuttings for the purpose being those taken from plants that have been cut back and have broken again so as to form young shoots. These shoots should be slipped off with a heel or cut at a joint, and if then inserted in sandy soil and placed in brisk moist heat they will soon root and be ready for potting. After this is done the most suitable position for them is a shelf near the glass in a stove. During summer any pit or frame will do for them if closed early so as to secure warmth from the sun. If large plants are desired, those a year old must be saved. These having been cut back will start freely from the lower joints, and if potted on will make dense bushes by the end of the season.—S. D.

Violets in frames damping.—I have noticed for several years past that where the foliage of Violets is allowed to suffer from the attacks of red spider while the plants are in their summer quarters, damping in a more or less virulent form is sure to follow. This the utmost care, even when combined with a favourable locality, seems powerless to prevent. I have had a striking illustration of this this season. Some twenty plants of King of the Blues obtained in the autumn, and the foliage of which was badly marked with spider, have entirely lost their leaves, in spite of all we could do to prevent it, while plants of Marie Louise of our own growing planted side by side with them have scarcely lost a leaf, and are at the present time a mass of flowers and buds. Coddling no doubt is also the cause of many cases of damping, the frames being kept closer than is essential to the well-being of the plants in the hope of forwarding the flowers in the early part of the season. I am growing my Violets this season in some wooden frames made of rough slabs and some lights which were formerly the roof of a greenhouse. The frame is so constructed that when the lights are in position there is an open space along the back and front about 1½ ins. wide. These openings are only closed in very frosty weather, when some rough litter is spread over the lights and allowed to lap over the openings. So far the result has been very satisfactory, for although the position is low and damp (the end of the frame is only 4 feet from a running stream of water), there has been no damping to trouble about. The plants, being required for stock later on, have not had any of the runners removed. We have had a regular supply of medium-sized flowers, a small bunch of which I enclose.—F. B., *Hants.*

A gay house.—The conservatory at Maiden Erleigh is very unsuitable for the healthy growth

of plants, as it is a heavy, long, narrow structure only suitable for Camellias or Ferns planted out. When I looked into it a few days since, I found Mr. Turton had succeeded in getting in such an unlikely place a perfect blaze of bloom. Huge plants of *Salvia splendens* which had been blooming for six weeks were still aglow with their scarlet flowers; rich coloured *Rhododendrons*, various coloured Camellias, numerous *Cinerarias*, and *Primulas*, with to tone the colour, some good blooms of *Ceres*, *Ethel* and other white *Chrysanthemums*—veritable wonders for the 4th of February. As Mr. Turton blooms *Mme. Desgrange* early in July, his *Chrysanthemum* season extends to seven months.—A. D.

AZALEA ROSÆFLORA.

YOUR correspondent (p. 128) need not have been astonished at this Azalea being in flower, for it is continuous blooming. Though this Azalea has been in cultivation for years it is still uncommon, being little if at all grown in Belgium, where the Indian varieties are cultivated in such numbers, though two or three years ago I saw a quantity of imported plants grafted as usual on stems about 6 inches or 8 inches high, but not having met with any since, I conclude it is of too slow growth to please the Belgian cultivator. Some little time since, Messrs. Backhouse, of York, possessed a good stock, and with them it proved quite hardy, but it is as a greenhouse plant that this Azalea is especially valuable. The practice usually followed in propagating Azaleas is to graft them on the top of bare stems, thus producing specimens wanting altogether the beauty of those struck from cuttings. This Azalea is by no means difficult to strike from cuttings provided that suitable ones are to be obtained. The best way is to place the plants directly after flowering in a warm growing temperature and keep them freely syringed, when they will start rapidly into growth. The young shoots when they have just lost their succulent character form the best of cuttings. They should then be taken off, and without being allowed to flag, dibbled firmly into well-drained pots of sandy peat, and when watered must be placed in a close propagating case in an intermediate temperature. With careful attention they will in about a couple of months be sufficiently rooted to be potted off, which should be done in very small pots, using much the same soil as for the cuttings. The young plants grow more freely during their earlier stages if they are kept in a structure warmer than an ordinary greenhouse. Where the specimen plants are required for flowering and not for propagating from, it is still a good plan to introduce them into a gentle heat after the blossoms are over, in order to encourage a free growth and the production of flower-buds. It is now nearly thirteen years since Messrs. Rollisson, of Tooting, were awarded a first-class certificate by the Royal Horticultural Society for this Azalea, and a coloured plate of it was given in THE GARDEN for Sept. 11, 1880. When grown out of doors the best place for it is a shady position on the rockwork where the soil is fairly moist. A good open compost, consisting principally of peat, is necessary for it wherever situated. T.

The Rhipsalis form a curious, interesting, but scarcely beautiful genus of Cactus plants, and those interested in such things will find a number of species in bloom in the Cactus house at Kew, where there is a remarkable collection of succulents. There are about thirty species of the *Rhipsalis* genus, which occur in the West Indies and both Central and South America, and all appear to grow well and flower freely, judging from the specimens at Kew. They are cultivated in pots, though in their native habitats the plants live on the stems or roots of trees, as the epiphytal Orchids. *R. Cassytha* at the first glance is like *Mistletoe*, the branches numerous, with many branchlets, and leafless. The flowers are greenish white, followed by small white berries that are so suggestive of those of the *Mistletoe*, that it has earned the name of *Mistletoe Cactus*. It was introduced as far back as 1758. *R. rhombica* is of a different character. It has flattened branches like those of an *Epiphyllum*, the

colour bright green, while the flowers are small and white. The growth is free, compact, and ornamental, as in the case of *R. crispata*, which is also in bloom. Both are worth a note for the brightness of the flattened branches. *R. salicornioides* and *penduliflora* are also flowering, so that visitors to Kew who care for the curious genus of *Rhipsalis* will find a good series of the best types. Such plants are, of course, essential to those who want a complete collection of Cactuses rather than a series of the most gaudy species and varieties, otherwise they are scarcely worth growing.

KITCHEN GARDEN.

CUCUMBERS IN FRAMES.

If a good start is made with these, the plants, under fairly skilful treatment, remain in a very productive state throughout the greater part of the season, in this respect surpassing the generality of those cultivated in well-heated houses. Clean, healthy plants are most indispensable at the outset, and it is the hazardous manner of procuring substitutes for these that in very many instances leads to an early collapse. When once Cucumbers in frames become infested by either red spider, thrips, black fly, or mealy bug, it is next to impossible to get rid of them without nearly or quite killing the plants, a fact only too fully realised by some of my amateur friends. Now, these pests are most prevalent in plant and forcing houses, and those, therefore, whose plants have been raised in such places, run very great risks of having insect-infested, though apparently clean, plants to commence with. Instead of thus, so to speak, courting failure, it is far better to resort to the old plan of raising the plants in hotbeds, a single light frame being principally devoted to the purpose. While the plants are being reared, a hotbed sufficiently large to hold a two-light, or larger frame can be prepared for their reception, and from the time they are once established in these progress should be rapid.

There are other faulty practices even in raising Cucumber plants. As a rule, very few seeds are to be found in a packet obtained from any seedsman, and this is not altogether to be deplored. Scarce as usually are the seeds, not a few amateurs and professional gardeners, who, at any rate, ought to know better, place them all in one pot, this necessitating dividing and repotting the weakly plants, a severe check and, perhaps, the loss of some of them being the consequence. The wiser course is to place a sound seed, rather deeply, in each 3-inch pot, plunging these in a brisk heat, and watering sparingly, or not, till the soil is warm and somewhat dry. The seed should germinate in less than a week, and from the time the plants are up they ought to grow rapidly and without a check. It is advisable to lightly stake each plant and to stop at the second joint. Should they be ready for putting out before the site is fit for them, the plants ought to be given a shift into 6-inch pots, using well warmed, light, loamy soil. In no case should they be taken out of the frame for the purpose of being staked or repotted, nor exposed in any way to cold March winds. Those who doubt the necessity of taking so much trouble in preparing the plants can easily satisfy themselves in the matter by putting a leggy, yet starved plant that has been reared in either a house or frame, and kept too long in a small pot, alongside another raised much as I have advised, and note the result.

It is also of importance that the hotbed ma-

terial, whether this consist of farmyard manure, horse stable manure, or a mixture of one of these and leaves, tan or spent hops, be also well prepared by being thrown into a heap to ferment and sweeten, two or three turnings in the course of a fortnight or rather longer being usually needed. For ordinary garden frames the beds may well be about 4 feet high at the back, with a fall of 6 inches or rather more to the front, a width of 15 inches being allowed all round outside of the frame. Brick pits, unless well heated, are not suitable for the earliest crops of Cucumbers, as the bottom-heat, and which also provides much of the top-heat, cannot be renewed in the form of thick linings of fresh heating material. Unheated pits answer when the start is made late in April or May, the heat lasting long enough to tide over what other cold, dull weather may be experienced. The heating material when put together ought not to be in either a very moist or very dry state, this admitting of the bed being firmly made, a steady and lasting heat being thereby ensured.

After the frame is set in position, it should be half filled with some of the shortest of the manure left from the heap, the lights being then put on and kept close till the heat has risen considerably. Directly it is seen the beds are not likely to become dangerously hot, or as soon as the heat has declined sufficiently for the trial stakes to be borne in the palm of the hand, place a heap of compost from one to two bushels in extent in the centre of each light. Light turfy loam roughly broken up, with leaf soil freely added, suits Cucumbers well, and, failing turf, use the best light loam procurable, adding a little charred garden rubbish. When this is well warmed through, the plants may be safely set out. As a rule, one strong plant is sufficient for each light, but three would naturally fill the space much more rapidly. They must not be fixed in an upright position, but each plant should have its ball of soil and roots as well as a portion of the stem buried in a slanting direction, in which position it can safely be pegged down and the shoots trained in any direction. Having been already stopped, it will perhaps be only necessary to once more pinch out the points of the leaders in order to obtain sufficient shoots to thinly cover the bed. Some cultivators find it necessary to place two or three small drain pipes under the heap of soil, these forming good outlets for steam and dangerous heat, but directly the mounds are well filled with roots these ought to be lightly surfaced over with more compost, more also being added all round. This should be continued as required, the bed being soiled over as much as possible slightly in advance of the Cucumber growths. No cold soil should come into contact with the delicate roots, and all ought, therefore, to be placed just inside the frames for a day or two prior to its being required for use.

Other cultural details are of the simplest character. Over-cropping is a very great evil, and must be prevented by the timely removal of numerous small fruit. Early in the season it is frequently necessary to fertilise the female flowers, or those with an embryo fruit, at their base with the pollen of the male flowers, but after March there is seldom any need for this. For some time after the plants are put out not much water will be needed, but care must be taken not to let the old ball of soil get very dry, and the new soil must be kept fairly moist. Later on much more water ought to be given, but not in sufficient quantities to badly saturate the manure underneath. When in full bearing a little soot water or clear liquid manure of

some kind will be beneficial, and a surfacing of leaf soil will serve to conserve the moisture underneath, and also to keep the roots active near the surface. Damping down ought to be practised when the frame is closed after a few hours of bright sunshine, the foliage, as well as the soil and sides of the frame being well wetted. Water, whether applied through a pot or syringe, should always be warm or near the temperature of the frame.

In the matter of ventilation and shading, amateurs, or those who do much of their important garden work, are decidedly at a disadvantage, not being always conveniently near the frames. It does not answer well to set a frame open in the morning and not close it till late in the afternoon, but in cases that have come under my notice some such practice has perforce to be resorted to. When there is a good heat in the bed, standing say during the night at 60° to 65°, a very little sunshine runs this up rapidly to nearer 100°, and unless air is given, burning of the foliage soon takes place. In dull, cold weather it may not be necessary to open the frame all day, but on clear days a chink of air ought to be given at the back of the frame early and in anticipation of a great rise in the temperature, this doing away with the necessity for admitting much larger quantities later on. The aim should be to keep the temperature somewhere about 85° with air, and when this cannot well be done by admitting a moderate quantity either by blocking up the lights at the back or by sliding them down from 6 inches to 9 inches. A thin shading ought to be given during the hottest part of the day, nothing being better for the purpose than thin cotton blinds. In March and the early part of April the frames should be closed early, or not much later than 2 p.m., but when the sun gains more power this must be deferred somewhat later, the air being gradually taken off preparatory to finally closing. Early closing is recommended in order to increase the temperature to about 90° or rather more, this being the means of keeping up the heat for several hours longer. Well mat over or otherwise heavily cover up the frames every evening just before dark and uncover early. When the bottom-heat has declined considerably, and before the trial stakes feel cold to the hand, a lining of fresh well-prepared heating material must be given. In order to make this effective, the sides of the bed should be removed and the frame very slightly undermined and replaced by a good thickness of the fresh material, this being well banked up against the sides of the frame. These linings sometimes become overheated in mild weather, and a close look-out must therefore be kept. Tobacco powder is the best remedy for green and black-fly, this being dusted over the affected points and leaves, and syringed off in the course of a few hours. Sulphur mixed with the syringing water is a good preventive of red spider, while mealy bug must be caught and crushed. Telegraph is the most popular variety for frame culture, and, on the whole, is perhaps the best that can be grown. Cardiff Castle is smaller, but it is a heavy cropper, possesses a good constitution, and the quality of fruit is extra good.

I. M. H.

Early Peas.—Except in warm, dry soils, it is almost useless to sow Peas in the autumn, as in most cases they rot through wet and cold, and the rows become very much thinned if the seeds do germinate and grow. This being so, it is far better to sow the seed in boxes in the month of February, as then it is very easy to have a good plant. The most suitable soil for sowing the seeds in is finely-sifted leaf-mould or dusty peat, as from either the plants

may be taken out with it adhering to their roots, and be pulled apart in small patches and planted without feeling much check. Not only will Peas decay outdoors, but they also do so when sown in boxes if the soil is watered or wet at the time of using, and especially if the seed is not well harvested and ripe. The leaf-mould or peat, therefore, should only be moist, as in that condition the Peas cannot absorb more than they want. The most suitable situation to get them up is a warm pit or house where there is a temperature of about 55°. As soon as the tops are an inch long, the plants should be stood near the glass in any cold frame, so as to get them hardened ready for planting out in the open. To give them every chance, it is necessary to choose a sunny, sheltered position, such as the front of a hedge, fence, or wall facing south. After planting, a line of Laurel or other evergreen branches should be placed at the back of the lines, to stand about a foot high. With this protection, the wind must be keen and the weather bad indeed if the Peas do not endure the cold. For coming in first, Kentish Invicta is as good as any, and William the First follows quickly on. To succeed these, Advance, which should be sown at the same time as those named, is the best.—S. D.

Early-sown Brussels Sprouts.—In backward districts it is an advantage to make a small sowing for the first crop about the second or third week in September, leaving the seedlings alone till March, then pricking them out, and finally setting them out in May. It may be said they occupy the land a long time, but they are very reliable, and where early sprouts must be had, there is no better way of getting them. Where there are plenty of glass structures, some seeds may be sown now and placed in a warm house till they germinate, and then moved to a cooler place to harden ready for pricking out next month or early in April. In due course the plants will be ready for going out in May, and this will give them time to attain a full development. The late-sown crops in many places this last season have not done well, the sprouts being poor. This is the usual result when the plants are not given time enough to reach full size. I do not think it is much use sowing this crop after April in late districts, taking one year with another. I have sown as late as May for a late crop, and have had the plants do well, but seasons vary, and if the plants get a check when young they seldom do much good. Those who wish their plants to do well, if the ground is not ready for them to be planted out as soon as they are large enough, should prick them out. Many plants of all kinds are ruined through being left a week or two too long in the seed bed.—E. H.

Forced Mint.—In the extensive range of glass which has from time to time been erected at Hounslow, by Messrs. W. and E. Wells, on the site of what was once the late Mr. Charles Lee's garden, there may be seen, perhaps, one of the largest breadths of Mint in growth just now. It has long been the practice of this firm to furnish the market with forced Mint, and as houses for Peaches, Vines, Strawberries, and Tomatoes, the stock market fruits, have been extended, so has the growth of Mint. In the neighbourhood of the glasshouses a piece of ground has been specially set apart for the outdoor culture of the Mint. It is allowed one or two years, according to strength, to get sufficiently solid or densely rooted for taking into the houses. That is done with the first batch early in the winter, as the supply begins early and is continued until there is plenty of the sweet herb out of doors. The practice is to cut down right in under the roots and take up big turf-like clumps, place them on boards, and thus carry them into the houses. These clumps are then blocked closely together on the floors or in beds—if late, in large shallow boxes—and having a little fine soil cast over to fill up crevices, the surface is neatly levelled, well watered, and then left to the exciting influences of the warm temperature. In a few weeks there is plenty of the young green growth to gather, and the yield continues for a considerable time. The variety, though apparently somewhat mixed, is chiefly of the common garden sort. When

the growth becomes too weak, the roots are shaken out, the best selected, and replanted in well-prepared soil outdoors. The removal of such solid clumps of roots earlier renders needful the addition, when replanting takes place, of fresh soil, so that exhaustion does not follow.—A. D.

Raising Mustard and Cress.—Cottagers and other small people often raise this in sufficient quantities for home consumption at this season by sowing the seed on thick coarse flannel, moistened with chilled water, and keeping it in a warm room. Some of the more ambitious spirits wrap flannel round a bottle, or some other vessel that will hold water, and stimulate its growth by filling the bottle with warm water. The other day, in looking through an amateur's little greenhouse, I found old hamper lids turned to a very useful account in this way. The flannel was fastened on the lid and the Cress seeds scattered over it, and being placed near the hot-water pipes and kept moist, a very short time was sufficient to raise a crop of Cress, and as no soil at all was used, there was an entire absence of grit. About three old hamper lids will keep up a supply for a large family. Old box lids would do as well. All that Cress requires is warmth and moisture, and this can be given better without soil than with it, and as soon as one crop is cut the *debris* can be cleared off and another sown.—E. H.

EDGINGS.

The edgings to walks, beds, and borders are often a source of considerable trouble and annoyance. As a rule, none are more unsatisfactory than the cast tiles of various patterns. They are generally formal and not pretty, of a harsh colour and soon injured by frost, which breaks and greatly disfigures them. If stone edgings are required, they can often be furnished by using material plentiful at home, especially in stone districts. In gravelly and chalky places there is generally an abundance of flints, and these make a very good edging if selected of suitable size and partly let into the ground. In some districts the sandstone occurs in thin flakes, which, if selected according to size and let into the ground edgewise, form a pretty informal edging. Even where these flakes of sandstone do not occur, moderate-sized pieces of the native stone might be used in the manner advised for the flints. All of these edgings are, even in their nakedness, prettier than the most elaborate and expensive cast edging-tile yet made; but they can be made prettier still, as beside them and in the chinks between may be found a home for many a frail, but beautiful alpine plant that perishes upon the ill-constructed rockery, which is often little more than a mound of rocks and dust. The stones would shelter and keep them moist, and they would root deeply in the soil, and not readily dry up or perish. What a beautiful edging might be made with the Saxifrages alone; the mossy ones forming verdant carpets and spreading out into the walks, the silvery and encrusted kinds forming crisp cushions beside, or spreading rosettes between the stones. The *Sempervivums*, too, would here find all that they require, and no better means could be found for studying the extensive variety of this family than by having them on the margin of the walk. These two families are merely selected at random to illustrate the idea, for so great is the variety of alpine and rock plants that could be used in association with natural stone edgings, that it is possible to make a number of them, all quite dissimilar.

The generally accepted form of evergreen edging is either Grass or Box. The stones and plants are infinitely superior to the narrow verges of 1 foot of Grass which are sometimes laid down in gardens. As regards Box, its only merit is its primness, and that is a quality one soon tires of, whilst there is considerable trouble to maintain it in that state by clipping in spring and summer and patching and mending in winter; moreover, it is a most effectual harbour for slugs and other vermin.

I have seen Ivy effectively used as an edging, and perhaps for certain situations it has no equal. It can be kept neat, and still not look so formal as

Box, and it may be had of any desired width. In a town churchyard I recently saw some very good Ivy edgings. They were about 1 foot wide and 9 inches high; and whereas a Grass edge in such a situation would soon have been trodden out of shape or entirely killed, the Ivy seemed to obtain greater respect.

The common Thrift makes a dense and pretty edging, and for such a purpose it finds favour with the cottagers, many of whom really pride themselves upon their well-kept edging of this plant. For my own part, I would wish for no better edging than that proposed, namely, natural stones and alpine and rock plants. If there are any who are lamenting the fact that they have not a rockery, they may cultivate some of their favourites in the way advised. Even the garden with an extensive rockery would gain in interest and beauty if formal brick or beaded tile edgings were all pulled up, and informal edgings substituted.—A. H., in *Field*.

CHRYSANTHEMUMS.

OLD FAVOURITE INCURVED VARIETIES.

I HOPE it is not too late to call the attention of those cultivators who do not grow for exhibition to some of the old favourites in the incurved section. I have no doubt but that some varieties may still be found cultivated in country gardens or by some of our provincial trade growers, but one may look in vain through the catalogues of some of our largest nurserymen without finding many of them. The rage for large exhibition varieties pushed them into the background, and there being no demand for them they were discarded or superseded by other newer ones. I noticed with pleasure some of the old varieties in the collection staged by Mr. Barron at the Centenary Exhibition at Chiswick, showing that some of them are not quite lost to cultivation. The blooms of the smaller-flowered incurved sorts are very pretty and of good shape, which cannot be said of those of the larger incurved varieties, which, if not well grown, come with an open eye or they reflex, which does not add to their beauty. It must be borne in mind that a close atmosphere or high temperature at flowering time is very detrimental to the incurved class as a whole, more especially if the plants have not been grown strongly. The best way to grow these varieties would be on the bush system, that is, stopping the plants about twice to form from ten to twelve breaks, then feeding and growing on as strongly as possible, when they will produce plenty of useful flowers for decoration. It is worthy of note how many of the pink and purple-tipped varieties there were in demand about twenty years ago; there were no improvements in them until the introduction of *Jeanne d'Arc*. The improvement then was only in size. The shape and quality of the florets of *Jeanne d'Arc* cannot be compared with those of *Aimée Ferrière* or Mrs. Huffington, blooms of the first mentioned being very chaste and pretty, with a very clean petal; whereas the florets of *Jeanne d'Arc* are often very thin, likewise split and turned back at the points, giving the flower a very rough appearance.

The following are a few good old incurved varieties:—

- Aureum multiflorum*.—Bright yellow, small and free.
- Albe Pasaglia*.—Orange-buff, deep full flower.
- Aimée Ferrière*.—Blush-white, tipped purple, a pretty button-hole flower, and an old favourite.
- Angelina*.—Cinnamon-fawn, rather late, a sport from Lady Slade.
- Antonelli*.—Bronze-red.
- Beauty of Stoke*.—Amber.
- Belladonna*.—Lilac-rose, very neat and pretty.
- Cassandra*.—Blush, pink tipped.
- Countess of Dudley*.—Rosy purple, late, and rather tall variety.
- Donald Beaton*.—Orange-red.
- Duchess of Wellington*.—Light rosy pink, dwarf.
- Duport de l'Eure*.—Amber, shaded reddish bronze.
- Enamel*.—Blush, shaded pink.
- Grange Lodge Rival*.—Orange-bronze.
- Her Majesty*.—Rosy lilac, dwarf.

Iona.—Citron-yellow, pointed florets, late flowering, good.

Lady Russell.—Blush-lilac, very free.

Lady Slade.—Rosy lilac, late, medium size.

Le Grand.—Fawn, shaded pink, dwarf.

Leon Leguay.—Crimson-purple, lilac turnover, liable to reflex.

Little Harry.—Amber-yellow.

Little Pet.—Small, blush-white.

Miss Hope.—Rosy lilac, very pretty, small.

Mrs. Huffington.—White, pink tipped.

Nonpareil.—Rose-lilac, medium.

Oliver Cromwell.—Bronze-red.

Sam Weller.—Bronze-red.

Sylvia.—Light rose.

I have not included what are generally called the Rundle family in the above; they are too well known to need description. C. ORCHARD.

Bembridge, I. W.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

A LARGELY attended meeting of the general committee of this society was held on Monday evening last at Anderton's Hotel, Fleet Street, Mr. E. C. Jukes occupying the chair. The minutes of the previous meeting having been read and confirmed, six new members and Fellows were elected, and the Norfolk and Norwich Society received into affiliation. Before the next business was proceeded with, a question was put to the chairman as to the right of a member to vote for himself when nominated for an office. The chairman ruled that a member so nominated was entitled to record his vote in favour of himself if he wished. The members of the floral committee retiring in rotation for the ensuing year again put up for election, the result of the voting being that Mr. Geo. Gordon, Mr. Gibson, Mr. Boyce, Mr. H. Cannell, and Mr. H. J. Jones were successful. A discussion ensued upon the regulations of the floral committee, and a motion to the following effect was carried: "That it be a recommendation to the floral committee that in the event of a new variety being submitted to the committee under an old name in its section, that the exhibitor be required that the name be altered before considering it." The dates fixed for the meetings of the floral committee are September 10, October 15 and 29, November 11 and 25, December 10, 1890, and January 7, 1891.

An important part of the evening's proceedings was the receiving and adoption of the further interim report of the centenary celebration committee. It was proposed that on the first day, November 11, the arrangements for the opening ceremonial and exhibition be placed in the hands of Mr. R. Ballantine, Mr. Drain, and Mr. Holmes; that the second day, November 12, be devoted to conferences, &c., to be under the management of the catalogue committee, who will also superintend a similar meeting on the closing day. On the third day a banquet will take place, and a small sub-committee will also take charge of the arrangements for that event. Considerable changes in the schedule for this year are suggested, the main features being the instituting of a special centenary class for cut blooms, in which the largest amount of money ever yet offered for Chrysanthemums (£75) will be divided among the competitors in the following proportions: £25, £20, £15, £10, and £5. The prize money in many of the ordinary classes will also be augmented to a large extent. Special prizes offered by the Veitch Memorial Trustees, Messrs. John Laing and Sons, Messrs. A. Peel and Sons, Messrs. Wood and Sons, the *Journal of Horticulture*, and the *Gardening World* have been accepted, to most of which the society will add a second and a third prize in due proportion. Novel and interesting features for the show will be provided, and new classes have been instituted for a new section of incurved Japanese cut flowers for naturally grown bush specimens and for foreign growers. A new medal to be called the centenary medal is to be struck, and every competitor in Classes 1, 3, and 10 will receive one. These three classes are the centenary classes for forty-eight blooms, 24 incurved and 24 Japanese

distinct, the usual class for forty-eight incurved, and the one for forty-eight Japanese. The new bronze medal will also be presented to each of the affiliated societies, to be offered at their forthcoming shows in commemoration of the centenary year. Owing to the great tax on the National Chrysanthemum Society, and the duties being of a more than ordinarily heavy nature, no provincial exhibition will be held during the present year, as every effort must be made to ensure the success of the great Centenary Festival. Apart from special prizes, the sum of £486 19s. 6d., being £90 over the society's probable available income for the prize money for the year, will be offered for competition. The report was cordially received and adopted very heartily. The Marchioness of Headford and the Right Honourable Lady de Walden were elected patronesses of the society, and the meeting was brought to a close with the usual votes of thanks.

NATIONAL DAHLIA.

THE annual meeting of this society was held recently at the Horticultural Club, Hotel Windsor. Mr. E. Mawley was in the chair, and among others present were Messrs. J. Cheal, H. Turner, W. H. Williams, J. Walker, T. J. Saltmarsh, W. Holmes, J. T. West, Rawlings, Tranter, &c. The minutes of the last meeting having been read, the hon. secretary, Mr. T. W. Girdlestone, read the annual report and balance-sheet, which showed that the society is prospering, and that the annual exhibition at the Crystal Palace on September 6 and 7 was excellent. The centenary conference was also well supported, and some excellent papers were read. The receipts from all sources amounted to £160 5s. 6d., which includes the £50 given by the Crystal Palace Company, and the expenditure £135 5s. 6d., leaving a balance of £25 to be carried forward. Of this sum £125 3s. was paid as prizes, the working expenses being remarkably low. The annual exhibition during the present year will take place on September 5 and 6. Only subscribers to the society of 10s. and upwards are now allowed to compete. Some discussion then arose as to printing the papers read at the centenary conference, the report and balance-sheet, and eventually it was resolved to do so, it being stated that the expense would be comparatively small, while the papers, and especially that by Mr. J. T. West on the cultivation of the Dahlia, would be found useful. The name of Mr. John Lee was added to the list of patrons. The Rev. Charles Fellowes was re-elected president. Dr. Hogg, Dr. Masters, and Mr. W. H. Cullingford, Mr. H. Glasscock, Mr. J. Shirley Hibberd, and Mr. W. Keitch vice-presidents, and the following were appointed a committee of management for the ensuing year: Mr. E. Mawley, chairman; Mr. W. H. Aphorpe, Mr. J. Burrell, Mr. H. Cannell, Mr. J. Cheal, Mr. J. Douglas, Mr. G. Gilbert, Mr. J. Henshaw, Mr. W. Holmes, Mr. G. Paul, Mr. A. Rawlings, Mr. T. J. Saltmarsh, Mr. J. Tranter, Mr. H. Turner, Mr. J. Walker, Mr. T. S. Ware, Mr. J. T. West, and Mr. W. H. Williams, with Mr. T. W. Girdlestone as hon. secretary and treasurer. A hearty vote of thanks was passed to Mr. T. W. Girdlestone for his services during the past year. Mr. Girdlestone, in acknowledging the vote, said that one of the vice-presidents, the hon. secretary, and a member of the committee had been invited to read papers at the Dahlia conference to take place in connection with the Royal Horticultural Society at Chiswick in September next. The schedule of prizes which had been re-cast by the hon. secretary was then considered and some modifications made. A proposal to continue the centenary class of last year was lost by a narrow majority. We may add that a good schedule has been prepared for the forthcoming season, so that we may expect as interesting and extensive a show as last year.

The Carnation and Picotee Union.—It will be remembered that this union among Carnation and Picotee growers was founded in 1885, in which year it held its first exhibition at Oxford. There were then 110 names of members and an income of £59 15s. 6d. In five years the growth has been so rapid, that the fifth annual report just issued shows

an income of £189 15s. 1d. and a subscription list amounting to £155 9s. But the annual report by Mr. E. S. Dodwell is something more than a mere report and balance-sheet. It is really a closely printed pamphlet of 56 pages, and contains the names of all the winning flowers shown at the last exhibition on August 1, together with some most valuable notes contributed by leading cultivators and others from different parts of the country; giving the names and descriptive notes of many important novelties, and also information in reference to the incidence of the season. This knowledge is especially valuable to those who contemplate forming collections of named varieties. Perhaps one of the main reasons why the union shows such a remarkable growth in the number of subscribers is that everyone who pleases can participate to the full extent of the subscription in the annual distribution of Mr. Dodwell's surplus growth of new or older varieties. By these means the culture of the Carnation is being greatly extended. One peculiar feature about the union is the impetus it has given to the production of new varieties, and they are now being announced on every hand.

NOTES OF THE WEEK.

The Ricinus in Austria.—According to Austrian papers, efforts are being made to cultivate the Ricinus for commercial purposes in the south-east of Austria and some parts of Bosnia.—LOUIS KROPATSCCH, Vienna.

Spiræa Thunbergi.—This is useful when forced. The plants are smothered with the small, white, starry flowers when brought on in gentle warmth, and are welcome at this season in the greenhouse. *S. Thunbergi* has become common of late.

John Apple.—We have to thank Mr. Barron for some fruit of this interesting Apple. At the approach of spring, when so many Apples are devoid of flavour, any variety that retains its freshness is really interesting. The above is quite distinct from the French Crab sometimes known under the name of John Apple.

The first Narcissi.—*Narcissus minimus*, *N. minor*, *N. nanus*, *N. pallidus praecox*, and a few of the *Tazettas* are the heralds of the Daffodil season at Kew this spring. It is remarkable how the *Tazettas* go on flowering abundantly from year to year with exactly the same treatment as the others receive.—K.

Darlingtonia californica.—Mr. Burbidge mentions in your issue of 15th inst. that *Darlingtonia californica* has survived mild winters at York. It was planted here, 400 feet above the sea in October, 1887, and has not only survived, but quadrupled the number of leaves. The plant is close to a rivulet of water, and the longest leaf is about 18 inches.—J. H. R., Leeds.

Hardy plants in France.—For the purpose of growing plants under more natural conditions than those usually afforded by the soil and surroundings of ordinary botanic gardens, M. G. Bonnier, the director of the Botanic Garden in Paris, has obtained from the Director for Higher Education in Paris the grant of a piece of land in the Forest of Fontainebleau as an annexe for experimental culture. It has been placed under the special charge of M. Cl. Duval.

Rose Docteur Grill.—In reply to your note in THE GARDEN of 8th inst., and stating that some of your readers could not obtain this Rose, Mme. Schwartz, of Lyons, quotes it in her last catalogue.—C. BECKINGHAM.

* * We understand that it is now included in some of our English Rose growers' lists. See GARDEN, Feb. 15, p. 143.—ED.

Orchids from Haslemere.—We have received a small selection of flowers from Mr. A. Evans, Lythe Hill Gardens, Haslemere, comprising a spike of a good form of *Odontoglossum pulchellum majus*, also blooms of *Cattleya Percivaliana*, and *Phalenopsis amabilis* and *Schilleriana*. With the above was a series of *Cologyne* blooms that we shall make a note of next week.

Hardy flowers at the York Nurseries.—There are many interesting hardy plants in flower now with Messrs. Backhouse and Son, of York, and among them Mr. Potter mentions: *Iris reticulata*, *Galanthus Sharlockii*, *Hyacinthus azureus*, *Leontice altaica*, *Daphne Blagayana*, *Primula denticulata alba*, *Iris stylosa alba*, *Cyclamen Atkinsi* in var., *Cyclamen coum verum*, *Galanthus Imperati* var. *latifolius*, *Rhododendron lapponicum*, *Colchicum luteum*, *Saxi-*

fraga albo-purpurea, *Narcissus minimus*, *Chionodoxa cretensis* alba, *Puschkinia libanotica*.

Dendrobium nobile.—Flowers of an excellent form of this Orchid come from Mr. C. J. Catt, Grappenhall Gardens, Heyes, Warrington, a vast improvement on the type; the flowers larger and richer in colour, the best portion of the sepals and petals being suffused with deep rose, and the central velvety blotch is bolder than in the ordinary form. It is one of the brightest we have seen this season. Mr. Catt says the bulbs are longer, two or three being about 3 feet in length. It is not the form *nobilius*.

Two useful Cactuses just now are *Echeveria retusa* and *Crassula lactea*. The first of the two is one of the best winter-flowering greenhouse plants of its kind we have, and that the flowers are welcome when cut, it is only necessary to point to a large batch for cutting from in Messrs. Cannell and Sons' nursery at Swanley. It is easily grown and propagated quickly by offsets, which should be inserted singly in small pots and placed in warmth. They will soon root. *Crassula lactea* is quite different. It is a pretty kind, with starry white flowers, and may be easily grown in a greenhouse.

Turner Memorial Prizes for 1890.—The following prizes are offered by the trustees for the present season. National Tulip Society. Exhibition to be held at Manchester. The date not yet fixed; probably the last week in May. For six distinct seedling Tulips, three rectified and three breeders: 1st prize, 30s.; 2nd prize, 20s. For twelve distinct named Tulips, six rectified and six breeders: 1st prize, £3; 2nd, £2; 3rd, £1. At the Tibshelf Horticultural Society's exhibition the following prizes are offered for Roses, viz: for twenty-four cut Roses, distinct (amateurs only): 1st prize, £5; 2nd, £3; 3rd, £2. At the autumn exhibition of the Royal Caledonian Horticultural Society, Edinburgh, September 10 and 11, twenty-four Dahlia blooms, distinct show and fancy varieties: 1st prize, £5; 2nd, £3; 3rd, £2.

Streptosolen Jamesoni is an old-fashioned flower that for a time suffered neglect, but has since appeared in many gardens and nurseries. We noticed it in full bloom the other day in Messrs. Cannell and Sons' nursery at Swanley, where many of the choice old things that used to delight a former generation are still kept. This *Streptosolen* was introduced from Columbia in 1847, and is a solanaceous greenhouse evergreen species, the orange-coloured flowers borne in dense terminal panicles, and very handsome against the downy leaves. It grows about 4 feet in height, making strong bushy specimens when stopped occasionally during the season of growth, and flowers freely from March until July—a long season. Some will know the plant better under the name of *Browallia Jamesoni*.

Winter-flowering Begonias.—This is a class of winter flowers that has fallen into comparative oblivion, but there are signs of a revived love for the types that were once the finest features of the greenhouse and conservatory in winter. There is a large collection at Kew, always interesting, and with one or another of the kinds in bloom. Such Begonias as *Knowsleyana* and *nitida* have a freedom, grace, and beauty denied the stiffer tuberous varieties that have received such favour of recent years. A large house of winter-flowering Begonias in the nursery of Messrs. Cannell and Sons the other day showed what a wealth of attractions there is in this section, a value not only in the plants themselves, but in the flowers, which are useful when cut for choice decorations. One of the prettiest is *nitida*, the flowers blush in colour, and a charming contrast to those of *nitida alba*, which are smaller and of the purest white. *Undulata*, *Carrièrei*, the strong-growing *semperflorens gigantea rosea* were all in full beauty, besides a rich group of the handsome *Gloire de Sceaux*, which has large, rich chocolate-shaded leaves and a profusion of pink flowers, made brighter by the deep-coloured foliage.

Japanese Camellias at Twickenham.—We have heard much lately of the race of Camellias known as "Japanese," and of which a coloured plate

was given in THE GARDEN for Sept. 14 (p. 246). That plate will convey to the reader a better idea of the flowers than mere words. They have a freedom, informality, and yet boldness of form that are quite different to those of the ordinary type that are out of court now that a strong appreciation is shown flowers of greater grace. The varieties mentioned are either semi-double or single, the florets broad, massive, and richly or delicately coloured. We made a note of them in the nursery of Mr. Gordon, of Twickenham, who has a good collection of the Japanese Camellias. *Mikado*, white mottled and suffused with red; *Lady Jane*, crimson; *Purity*, pure white, well-shaped flower; *Iolanthe*, beautifully coloured with white and red; *Lady Lynn*, white, mottled and suffused with red; *Lady Clancarty*, white; *Lady Gray*, pale pink, double; and *Lady Marie*, a large flower, reddish crimson, each petal marked with a central longitudinal line of white.

Hardy Cyclamens.—These charming little hardy plants are a source of great enjoyment to us just now in the open garden, flowering as they do in such abundance. We never remember to have seen them so bright in early February, and curiously those in the shadiest border are much more advanced than those in warmer positions. A shady north border such as is recommended for *Hellebores* is just the place for them; at any rate, this is our experience; the soil loose *debris* composed of broken mortar, leaf mould, and loam. The autumn flowering *C. hederæfolium* is beautiful just now on account of its marbled foliage only, but *C. ibericum*, *coum*, and the fine *Atkinsi* forms are charming additions to the hardy spring border. On some of these last the flowers are very freely produced, and form most attractive tufts.—K.

A new Iris.—*Iris sindjarensis* is a new species now in bloom at Kew for the first time. Though not nearly so attractive or interesting as many of the other bulbous sorts, it has the merit of being an early flowerer and quite hardy in the open, both of which will go a long way in making it a favourite. It may be briefly described as a blue-flowered *I. caucasica*, with the addition of a distinct crest, the reflexing standard being entire instead of serrate, as in typical *I. caucasica*. It produces three to five flowers in succession. The standards are pale blue, reflexed, and the falls pale blue, with distinct darker blue lines, a yellow crest, and yellow and purple markings. It is a native of Mesopotamia, the Sindjar and Gebel Mountains, Taktak, where it flowers in May. It seems to have a robust constitution, and as it appears to flower under cultivation so much earlier than it does wild, it should be welcomed, as flowers of any kind are scarce in early February.

Saxifraga luteo-purpurea.—Amongst the early-flowering Saxifrages we have seen none to surpass the charming hybrid *S. luteo-purpurea*, known in many gardens as *S. Frederici-Augusti*. At the present time, both in the open air and in the cold pits, the plants are covered with large bunches of clear primrose-yellow flowers. It is said to be a natural cross between *S. media* and *S. aretioides*, much more resembling the latter than the former parent. It seems strange that there are so few Saxifrage hybrids in cultivation, seeing that in most cases the hybrids are not only more free-flowering, but are more easily managed and do not run out so quickly. *S. aretioides* and *S. media* are both difficult to manage well; while *S. luteo-purpurea* and *S. aretioides* var. *primulina*, which I suspect to be a hybrid, are both more easily managed and more satisfactory in every way. *S. tyrolensis* flowers more freely and is more easily established than either of its parents, *S. cæsia* and *S. squarrosa*. The same may be said of *S. Engleri*, *Porteæ*, *Regenæ*, *Zimmereri*, and others. There is no doubt but that there are many hybrids yet to be found wild, a large percentage of which at least would prove valuable garden plants.—K.

Crocus Balansea seems to be a comparatively rare species in gardens, though one of the prettiest of the spring flowering ones. The individual flowers, though small, are produced in great profusion; the inside of a deep rich orange, coated with dark brown on the outside. It is one of the easiest to establish,

being perfectly at home on the open border, and increasing with great rapidity by small corms produced at the base of the stem. A fine species for pots for cool house or corridor.

Scoliopus Bigelowi, in flower in the alpine house at Kew, is a very singular and pretty liliaceous plant. It is nearly allied to the *Trilliums*, producing oval leaves 4 inches to 6 inches long, bright green, and mottled. The flowers are medium-sized, pale, with deep brown lines, and emit a disagreeable odour. It is very useful on account of its flowering so early, and it does well in a shady peat bed where it can secure plenty of moisture during the growing season. Though more curious than beautiful it is well worth a place among spring flowers. Native of the coast ranges of California.—K.

Draba lasiocarpa at first sight very nearly resembles *D. aizoides*, but differs from that species in that the rosettes of leaves are larger and more robust in appearance, the golden yellow flowers being nearly twice the size, and produced more freely at least a month earlier than those of that species. We have grown *D. lasiocarpa* for many years on the open rockery, where it has been much admired. It soon forms fine compact masses of dark green leaves and so far has not once failed to give a crop of its fine golden flowers. It may be increased by division or seed, which ripens freely.

Narcissus monophyllus.—It is quite unaccountable that this *Narcissus* should be so rare in gardens when we consider how easily it can be established, as has been proved at the Hale Farm Nurseries, Tottenham. A few days ago I saw there a frameful of this charming *Narcissus*. The plants were in full bloom, the flowers almost entirely hiding all traces of foliage. Here the bulbs are grown from year to year, simply lifting and drying them for a short time after the leaves have died down, afterwards replanting and leaving them to take care of themselves, with the exception of a little water occasionally. With exactly this treatment, *N. monophyllus* may be planted in the open air, where it will flower abundantly. It should have a southern exposure if possible.—K.

Wireworms in Vine border.—Would you kindly inform me, through THE GARDEN, how I could destroy wireworms in an inside Vine border without injury to the Vines?—W. H. M.

* * Insert a number of Carrots; the more the quicker the clearance; leave them undisturbed for a few days, then draw and examine them every morning. When the worms no longer find their way to these tempting baits, dust the surface of the border with soot and water it in. Repeat the dusting prior to each successive watering throughout the growing season, but avoid using the soot in excess, as it is fiery and powerful. A 6-inch potful will dress a border 6 feet in width and 40 feet in length, and the growth of the Vines will be all the better for it. A solution of sulphide of potassium is an excellent insecticide, and used at the strength of half an ounce to a gallon of water will destroy all living things in the soil without doing the slightest injury to roots or foliage.—W. C.

Amount of rain in 1889.—In your issue of Feb. 1 Mr. Coleman in "Choice Pears for Profit" attributes the unseasonable ripening of the later sorts to the lack of water the trees obtained during July and August in 1889. I beg to point out that according to the meteorological reports those two months were remarkable both for the number of days on which rain fell and for the large amounts, which were greatly in excess of the average for the past twenty years in all parts of the kingdom. June, September, and the first week of July were all very dry. I think that Mr. Coleman must seek some other cause for the peculiarities of the Pears of last year.—R. B. SARGEANT.

Names of plants.—*J. Cording*.—1, *Thuja gigantea*; 2, *Thujaopsis dolabrata*; 3, *Juniperus chinensis*; 4, *Helleborus foetidus*; 5, *Wood Laurel* (*Daphne Laureola*).—*A. Birmingham*.—*Odontoglossum Cordinei*.—*Amateur*.—The Winter Sweet (*Toxicophlea spectabilis*).—*A. W.*—Excellent form of the ordinary *Dendrobium nobile*.—*W. C.*—We do not name florists' flowers.

Names of fruits.—*Anon.*—1, Braddick's Nonpareil; 2, not recognised; 3, Rymer.

WOODS AND FORESTS.

OREGON PINE AND ITS PROBABLE USES.

THE increasing consumption of wood for structural and other purposes is so rapidly encroaching upon the somewhat restricted areas heretofore relied upon as sources of supply, that not only individuals (the direct users of such products), but communities and countries as well are becoming interested in the question as to the quarter from which future supplies may be had. In this direction the attention of those interested is called to the large areas of virgin timber located on the waters of and tributary to the shores of that far-famed body of water known as Puget Sound, situated in Washington Territory, in the north-westerly corner of that part of the United States of America. The principal growth of this district is the species known as Douglas Fir, commonly termed Puget Sound or Oregon Pine. The year 1889 has in the timber trade been a notable one, not only owing to the very heavy imports in face of increased cost, but also because of the extended operations in Oregon Pine shipped from Puget Sound to Europe.

Previously an occasional cargo, consisting of mast pieces, spars, sawn deals and planks, &c., was imported into London, and some years ago into the Clyde and the Mersey, whilst in 1889 a considerable number of cargoes were sold and shipped, and of which several have arrived, to London, Liverpool, the Tyne, the Clyde, the Bristol Channel, Belfast, Dublin, and the Continent, a very favourable feature being that contracts were closed in some of the above ports after the earlier cargoes had arrived and been inspected.

As we have said, this wood had, up to last year, been only occasionally imported into this country, there being no regular supply to depend upon, and consequently an indisposition on the part of consumers generally to try a new thing with no guarantee of further supplies. We understand, however, that shippers intend keeping up a full supply regularly, either by selling on contract or consignments, taking care that the latter shall not compete with the former, and which they, we believe, have done during the past year most loyally. If, however, the wood has not been hitherto consumed largely in this country, it is, and has been, used in great quantities on the west coast of America, River Plate, and Australia, and in a less degree in China, India, and South Africa. The shipments to Australia alone in 1888 (we have not yet received returns for 1889) consisted of about 80,000 St. Petersburg standards. Considering the heat of those climates this speaks well for the durability of the wood. The planks and deals can be shipped in three qualities, viz., clear, selected, and merchantable, all perfectly square edged; the timber in two qualities—selected and merchantable. The clear planks and deals are absolutely free from defects, the selected have but few small defects, and the merchantable being, as its name implies, good, sound, merchantable wood. The timber is sawn square from end to end, no taper nor wane, the best quality being selected logs without any apparent defects. Specification of planks may be 11 inches and wider if required, with a wide average (some few pieces of clear have come to London 50 inches wide), any thickness up to 6 inches and length up to 40 feet. Of course less than 11 inches may also be shipped. The timber is generally sold 16 x 16 and larger, 30 feet to 40 feet long, and it can be shipped up to 120 feet in length; the price

increasing proportionately for every additional 10 feet over 40 feet.

The only difficulty in shipping large dimensions is size of vessel's bow ports, and vessel's capacity for stowage. Some of the trees grow to 300 feet in height, with a diameter of 6 feet to 12 feet. As to prices, these goods are much cheaper than Quebec Pine, and nearly as cheap as the larger dimensions in pitch Pine. A superior deck planking cut to any size is also shipped. This being cut on the quarter, i.e., edge of grain upwards, makes a perfect deck of great durability. It averages 40 feet in length, and runs up to 60 feet or 70 feet. That these long lengths can be handled by two men without breaking speaks well for the strength.

USES OF THE WOOD.

With regard to the uses of the timber in this country, we could not enumerate them all, but for railway work, bridge and carriage building, the wood should at least have a good trial. We are informed that it creosotes just as well as Quebec Pine, requiring, however, somewhat longer time. It should, therefore, be useful for bridge and road work, sleepers, &c. Its long lengths are useful for signalling-posts, boxes, and long beams where tenacity in holding heavy weights is required. In addition to this heavy work, it has been proved in America as good as American Oak for carriage, wagon, and tram-car building. It is a wood that will take a surface as smooth as satinwood, and contains a quantity beautifully figured. We should, however, think it would be somewhat harder and more difficult to work than ordinary Quebec Pine. The great fault we have to find with what we have seen—and this is more noticeable in the deals and planks—is the rough, although even, sawing. The wood almost seems torn asunder by the large toothed-saws used at high pressure, and the shippers would do well to obviate this by cutting with finer saws (indeed, we understand they are already doing so), at least for the European markets; it would pay in the long run. At present they libel an otherwise superior article.

Shipbuilders should try the decking, especially as we understand it does not cost much more than pitch Pine decks, taking sawing waste, &c., into consideration, and is probably more durable from its being cut on the quarter. We fear its cost would be too much for ships' ceilings, inside scantling, &c., unless for some specially superior work.

Architects and contractors will, we think, be inclined to consider this wood, after perusal of the foregoing tests, and especially as the goods now will always be in stock on this side. The magnificent proportions of the planks and logs meet a want felt for some time from the scarcity of Quebec wide Pine. For church purposes, long, wide signboards, counter and desk tops, as well as wide panelling, it has been found most suitable.

Engineers have used it, but we have not heard with what success. The above-named tests are probably worth their consideration, it being the first time within our recollection that anything so definite and conclusive has been published in this country.

Agricultural machinists will probably also benefit by the great widths and comparative lightness combined with strength. Owing to its remarkably handsome figure (much of it of a curly appearance) and its very smooth surface, the deals and planks make strikingly effective as well as strong and enduring furniture. As to other probable uses "they are many." The wood has now obtained a footing in Europe,

and if all the consumers on the other side say be correct, it must become a large trade.—*Timber Trades' Journal.*

NEW LIGHT ON TRANSPLANTING.

It is a pity "Arbor" did not make the discovery alluded to by him (GARDEN, Feb. 8, p. 132) many years ago, as it would have been the means of saving himself and others from a great deal of unnecessary labour and expense, not to speak of the superior growth of his trees and the rapid way in which the bruised and mutilated roots would have been healed up. No experienced planter would ever think of planting trees with bruised and mutilated roots. When the roots are damaged at the time of lifting the tree, the mutilated or bruised part should be cut off with a sharp knife, so that the wound may present a clean, smooth surface. The healing process is in this way accelerated, and the risk of damage by fungoid growth lessened to a large extent.

I have, however, no hesitation in saying that "Arbor's" experience and success are exceptional. All experienced planters—Brown, Grigor, and many others—lay particular stress upon the utility of digging round trees, both large and small, to encourage the formation of bushy, fibrous roots, which, in the great majority of cases, have proved to be so beneficial in promoting the healthy growth of the trees immediately after their removal to their permanent quarters. This digging had better be performed the year previous to the trees being removed to where they are to remain.

I have seen trees removed and planted in the way specified by "Arbor," and fully 50 per cent. of them died, and what remained took a number of years to recover the shock and become re-established. In cases where a good ball of earth can be removed along with the roots the case is quite different, as I have transplanted pretty large trees when so provided with perfect success. A good deal depends upon the species and age of the trees operated upon as well as the texture of the soil in which they are growing. Light mossy ground, vegetable mould, and soft pliable loam promote the growth of fibrous roots, while trees growing on stiff plastic clay and poor, hard matter have generally bare thong roots, and consequently cannot be transplanted with the same prospect of success as trees growing upon the former class of soil. All these matters must be studied by the planter, as success is simply the outcome and development of past experience and observation. Although we may occasionally meet with isolated cases which at first sight we think cannot be reconciled with the majority, yet by a little investigation the mystery can be solved in a very satisfactory manner. Perhaps there is no class of men that are more fully alive to the advantages of transplanting than nurserymen. Most of them keep a stock of ornamental and other trees that are capable of being removed and planted for immediate effect in the park or lawn as the case may be without any risk of failure, provided the work has been executed under the supervision of an experienced practical person. J. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

TREE WILLOWS.

KINDLY replying to a question of ours as to tree Willows in Central Europe, the Baron Von St. Paul sends us the following interesting note on this subject from Fischbach:—

"There is no species of *Salix* which equals in majestic stateliness *Salix alba* (L.), except perhaps *S. fragilis* (L.). Both of them grow in our country to a great height, and I know a few specimens of *alba* near Berlin with not less than 20 feet circumference of stem. *S. fragilis* is more spreading in its habit than *alba*. It will grow to about 60 feet, and has sometimes a circumference of stem of 15 feet. A famous specimen of it is to be found in the park of Muskau, belonging to Count Arnim. There is also a tree at Lichfield, in England, overshadowing an area of 4000 square feet.

"Next to these two Willows comes *S. vitellina*, frequently considered only a variety of *alba*. Both *vitellina*, with clear yellow branches, and another red-twigged form, *S. rubens* (Schrank) = *S. palustris* (Hort.) = *S. Britzensis* (Hort.), grow up to magnificent specimens, as also does the pendulous form of *vitellina*, of which I know very fine trees at Potsdam and Cassel. *S. blanda* (Anderss.) is a stately tree found near Hanau, and considered a bastard between *fragilis* and *babylonica*.

"*S. babylonica* itself I need not mention, as it grows well enough in England. With us (in Silesia and further east and north) it is tender and small; we prefer on this account *S. elegantissima* (C. Koch), which is a quick grower and quite hardy. It came from Japan, and is sometimes wrongly called *S. Sieboldi* or *S. babylonica femina*. Two more Willows from Japan reach the size of trees in Germany, *S. japonica* (Thunb.) and *S. gracilistyla* (Miqu.), but I cannot tell you where. *S. nigra* (Marsh) = *caroliniana* (Michx.), (not to be confounded with *S. nigra* of gardens), is a fine tree, known all over North America, but lost again in German gardens—I do not know for what reason, as it is perfectly hardy.

"Finally, I will mention *S. pentandra* (L.), with beautiful shining leaves. I have a tree of it above 30 feet. It is not a fine one, because it has been overcrowded with Birches, but if it has a fair space allowed it is beautiful.

"Summing up, you may call *Salix alba*, *fragilis*, *vitellina*, *rubens*, *blanda*, and *nigra* trees of prime merit, followed closely by *S. elegantissima*, *babylonica*, *japonica*, *gracilistyla*, and *pentandra*.

"If you want a Willow growing upright, almost as close as an Italian Poplar, take *S. caspica*, with blue wood frosted like a Plum.

"The best silvery tree Willow I know is *S. regalis* of Wilhelmshöhe, near Cassel. It is a

form of *alba*, and may grow eventually to a large tree. At present it is not higher than about 15 feet or 20 feet."

Fischbach, Silesia.

VON ST. PAUL.

MEMORIAL WREATHS OF VIOLETS.

THERE are no signs of any change in the custom of sending memorial wreaths, crosses, and anchors to the graves of departed relations and friends, and from a commercial point of view florists have every reason to be thankful that such is the case. As a rule, very few people venture to use other than white flowers and greenery, the principal exception being in favour of Violets. Small wreaths of these are a welcome change, and seeing how simply and cheaply they can be sent by either parcels post or rail, the wonder is so few of them are seen. Added to this they are not very expensive to buy or at all difficult to make, though there is good scope for tasteful arrangement. No one seems to expect to see a very large or massive wreath of Violets, or say of the same dimensions as the average wreath of mixed flowers, the smaller ones being really the most pleasing. It has fallen to my lot lately to make a considerable number of wreaths, but none among them gave greater satisfaction than a small example of Violets and Ivy leaves, and the construction of which I will fully describe. First a small, fairly stiff wire hoop 8 inches across was formed, this being neatly and well covered with the best green Moss procurable. Violets, it will be conceded by those at all experienced in the matter, do not lend themselves readily to the formation of wreaths, especially if those using them have neither the time nor inclination to attach wire stems to each flower. The wreath I am describing was formed of both single or Russian Violets and the double Neapolitan Marie Louise. The former were made into bunches of about the size and form that gentlemen wear in their button-holes, the flowers all facing outwards and backed with a neat Ivy leaf. About fourteen of these were first bound in a neat circle on the upper surface of the Moss-covered wire, and with them on each side a number of neat sprays of prettily veined Ivy. None but good blooms of Marie Louise were used, each having a fairly stiff wire stem neatly attached, the Violet stems being shortened somewhat to admit of the wire being easily thrust into the Moss. These wired Violets were then stuck in rather freely on either side of those in bunches, a few being interspersed among the latter. Where the Ivy leaves bound in were not sufficiently effective, a few of the prettiest to be found were provided with wire stems and stuck in, these contrasting well with the Violets.

Wreaths thus made can be the most cheaply dispatched to a distance by parcels post. Not unfrequently Cocoa or other light boxes can be bought cheaply, and if the wreaths are surrounded by paper and lightly tied to the bottoms, the strings being passed through holes and fastened underneath, nothing short of crushing the box will injure the contents. I was under the necessity of making a light box, this being 14 inches square, 4½ inches deep and formed entirely of quarter-inch deal. After this was lined with paper, the wreath duly tied to the bottom, and the lid put on, the whole weighed under 4 lbs., so that I could have sent it to any part of Great Britain and Ireland at a charge of 7½d. Very few, if any, flowers travel and keep better than Violets, the Ivy also keeping fresh for a long time, and this being the case, those who send a wreath of Violets to a considerable distance need be under no apprehension regarding its arrival in a fresh condition. Any flowers if loosely packed and sent in flimsy paper or cardboard boxes by post are liable to come to grief, being either badly bruised or completely crushed in transit.

W. I.

Berberis Aquifolium for flower arrangements.—During the winter and spring months we use its foliage so much in the arrangement of flowers, that although no doubt its use for such purposes is common enough, a note on the subject

may be interesting to some who not having much glass are sometimes short of greenery. Here the leaves do not assume the splendid red shades, which, I think, are the finest when the plants are growing on a chalk soil, and which placed by themselves in a vase are most beautiful. We have now a tall Munstead glass in which sprays of the pretty pale mauve *Primula obconica* are mingled with the dark *Berberis* leaves, which latter show off the delicate colouring of the *Primula* to perfection. Again, a large bowl filled with the same foliage, among which some fine trusses of *Pelargonium* Henri Jacoby and Raphael are placed, is a most beautiful combination. A flat dish filled with *Berberis* leaves, and peeping out from amongst them blooms of the white *Hellebores*, is also a very pretty arrangement. Later on, in spring, bunches of the common yellow *Primrose* will be substituted in the same dish for the *Hellebores*. I know nothing that shows off fine blooms of good *Daffodils* so well as masses of these dark *Berberis* leaves. Many other beautiful combinations suggest themselves. Not only the leaves of *Berberis*, but those of many evergreen shrubs are useful for arranging with flowers in the winter months.—LOXWOOD, Sussex

Feeding tomtits.—As you frequently insert letters in your paper respecting the little birds which frequent gardens, I venture to address you on the subject of the tomtit, of which there are several different sorts. I have for some years fed these birds by suspending wire cages filled with raw fat. It was formerly the custom in these parts for the gardener to shoot all the tits he could to prevent them injuring the buds of Gooseberry and other trees, but I find that my system is just as efficacious as the old one, for if they are fed they leave the trees alone. This year I observed large flocks of these birds coming earlier than usual from the woods on the higher ground, and making for shrubberies and gardens. I imagined that a hard winter was likely to follow, and so set about feeding more than usual. I have never seen so many coming for their daily meals—often eight or ten at once, and I should say hundreds in the course of the day. Although I have a quantity of Gooseberry trees hard by, the tomtits have not injured them at all. Perhaps if one fed blackbirds and thrushes they would spare the fruit, but I am afraid this is doubtful.—AN AMATEUR GARDENER.

A mild winter everywhere.—California seems to be almost without a winter of any sort this year. So far, the season presents some features that are hardly paralleled in the horticultural history of the State, since the first Americans began to plant trees and vines in the early fifties. Many parts of the State suffered from drought last year. Last summer the heat was unusual in the interior valleys, and the forest fires in the mountains were gigantic. The early winter rains came at the beginning of October, and were so heavy as to spoil hundreds of acres of Beans in the coast counties, and hundreds of tons of Grapes in the fruit-growing districts. The rains, in other words, came down a month earlier than usual. It is only once in twelve or fifteen years that October rains occur in California; November is the rule, and the "early rains" often do not come until December. Last year from 8 inches to 12 inches of rain fell in the coast counties, and all over California the Grass began to grow; the farmers began to plough and sow during the latter part of October. Besides this, there were fewer frosts than usual, warmer days, and no violent winds. On the 1st of December, such a growing season, such a semi-tropical winter as we had, was never put on record on the Pacific coast before. The best illustration of all this that I can find is perhaps in the condition of the fields, pastures, and orchards. The Grass on the road-sides and on the hills was at that date as tall, thick and strong as it usually is seen three months later. The wheat sown since the rains was up and beginning to cover the fields. The buds of many of the deciduous fruit trees in the orchard were swelling and almost ready to burst, while as yet the leaves had not fallen. There was no autumn, and seemingly no winter. The spring followed the summer without a break. The Apricot, Plum, and Cherry

orchards presented the curiously mingled aspect of a few yellow leaves mixed with dark green ones, yet fresh as in summer. Men were pruning in larger orchards, where as yet few leaves had fallen from the tree, and this in December. The Blackberry, Raspberry and Strawberry vines were full of blossoms and green and ripe berries. New Potatoes were in the markets, while the late Pears and Apples were hardly all gathered, and the Quinces and Japanese Persimmons yet hung in the tops of the trees. It was a year of contrasts in every field of outdoor interest.—CHARLES H. SHINN, in *American Agriculturist*.

KITCHEN GARDEN.

PREPARING FOR SEED-SOWING.

At this time of year those who are anxious to get on with important work in the kitchen garden may easily be, and very often are, much deceived by the appearance of the ground, the consequence being that they sow in haste and repent at leisure. The surface is perhaps all that we could wish it to be, while not more than 4 inches down the soil may be altogether different. This holds good not merely with naturally stiff, bad-working ground, but also with much that is lighter and more finely divided at all times. In one case there is nothing but tough, cold lumps of soil just below the surface; in the other the surface is fairly dry, but directly underneath it is very sodden, finely divided soils absorbing more moisture than, and not drying so quickly as does lumpy ground. We have several wall borders, the soil of which, owing to frequent additions of various heaps of soil and the manure collected in the frame ground, has become very free working, though the greater portion of the garden is much heavier and difficult to get into good working order. Up to the present date (February 17) not a seed has been sown nor a plant set in any direction. There are a few seeds that must perhaps be sown in February and during March, notably Peas, Broad Beans, Spinach, and salad-ing, but April is the month for doing most of the seed-sowing, and by that time the ground can in most instances be well prepared for the reception of either seeds, tubers, or plants. With the ground in good order, an increased heating power of the sun and warm showers, the seeds sown and roots or plants put out all do well, the former coming up evenly and the two latter growing more strongly. In addition to not being so long a prey to insect pests, the progress is satisfactory from the first, the crops eventually being nearly, or quite, as early as those put out in March, and certainly much heavier.

But if it is unwise to be in too great a hurry to sow seeds, it does not by any means follow that the let-alone policy will fit the ground for their reception in April. As a matter of fact the pulverising influences of east or drying winds, bright sunshine and gentle showers not unfrequently act more beneficially on soils than do frosts much earlier in the year. The latter may disintegrate the soil too soon, saturation following upon the loosening process. There is much less danger of this happening later on, or, say, when the ground is first roughly broken up early in March. We have been favoured this February with an unusual number of fine days accompanied with cold, drying winds, and many gardeners have taken advantage of this to push on digging operations rapidly, rightly so, I consider. The surface most probably is this is fairly well pulverised in most instances, though very stiff clays are not so quickly affected. As before pointed out, the

inexperienced must not be deceived by appearances, as not only is it necessary that seeds should be surrounded by fine soil, but that underneath ought to be in an equally suitable condition for the reception of the delicate tap roots and fibres these emit. Instead, therefore, of smoothing over the surface, making this look as if there was not a lump of soil to be found anywhere, the thorough gardener should now unhesitatingly fork over the ground, bringing up the lumps underneath to nearly or quite from down to the manure, letting that which is already finely divided go in their place. The March winds and sunshine will quickly dry and bake the newly turned up soil, and when the next penetrating rains fall all will most probably crumble to pieces. Thus prepared, seed-sowing and Potato planting will be most pleasant work whenever it is undertaken, always provided it is not done while the ground is very wet. Those who take this extra trouble may rest content that they will get good returns.

This is by no means the only preparatory measure to be recommended, nor is it possible to successfully apply it in all cases. Some ground cannot be properly fitted for the reception of seeds without the addition of much fine material of a somewhat insoluble character, while in not a few instances the seeds have to be wholly surrounded with added light soil, or otherwise failure is almost inevitable. We have frequently been obliged to open shallow trenches for Peas and Beans, partially filling these with compost from the frame ground and covering with more of the same. Nor in numerous cases is it possible to lift as well-formed Potatoes as might be required for exhibition unless a thick dressing of sandy or light compost or abundance of leaf soil and burnt rubbish had at planting time been either substituted for the ordinary soil or else freely forked into the lines intended to be planted. The least that can be done in all cases where the soil is of a very clayey or lumpy nature is to cover the seeds after they are sown with light sandy soil, this causing them to germinate far more freely than would be the case if not so covered. Too often seedsmen are blamed for having sent seeds of an inferior quality when perhaps the fault rests with those who have not taken sufficient trouble in sowing them.

Then there are several enemies to delicate seedlings, and unless some preparation is made in anticipation of their attacks, much mischief may be done before those in charge of the garden are even aware the seed has germinated. Much may be done by way of prevention, frequent stirring of the ground to a good depth prior and surface hoeings subsequent to cropping, greatly checking the increase of slugs and also disturbing grubs and other pests in their resting places. Then, again, if either soot, ashes of various kinds, charred sawdust, burnt soil, lime, or salt, or all in mixture are well stirred into the surface, these would prove to a certain extent destructive to insect pests, and in any case will have a stimulating effect upon the seedlings or young plants of any kind occupying the ground thus treated—rapid growth preserving many of them from their enemies. Gas-lime is sometimes recommended as a dressing for insect-infested ground, but this may easily be used to excess, and ought certainly to be applied and forked in fully three months before the ground is cropped; nor is it safe to trust an inexperienced labourer with salt, as this also must be used with great caution, or otherwise it will do much more harm than good. Its effect on clayey land is to make it cold and pasty, and it ought to be very sparingly

sprinkled over lighter soils. On the whole, nothing equals in effect a liberal application of burnt rubbish or the contents of a large smother. This should be merely stirred into the surface of ground to be sown with Onions, Carrots, Beet, and other crops of a somewhat similar nature, and in addition to acting as a good fertiliser, it will also prevent the surface from binding together badly in wet weather and cracking when a hot dry time sets in. This binding and cracking may also be prevented by a free use of either spent tan or fine peat. Where many err is in deeply burying what should be only lightly forked or stirred with a flat hoe into the surface. By all means deeply bury strong, comparatively raw manure, but let the lighter fine materials be kept near the surface. I. M. H.

SCARCITY OF PARSLEY.

In this district Parsley has suffered much from the few severe hoar-frosts experienced during the winter. At this time last year it was abundant enough, nearly everybody possessing a garden being well supplied; but the case is very different now, and those who have a fairly good stock find plenty of customers for it, Parsley being indispensable in most establishments. It is surprising how slight a protection was sufficient to save the plants, any near the stems of fruit trees escaping almost uninjured. That covered by rough or poorly-glazed frames and handlights is very fresh and appears to be growing strongly, but it will be gathered very closely for some time to come. Unfortunately, when once there is a scarcity of Parsley in a garden it takes a considerable time to overcome the dilemma, the newly-raised plants coming on very slowly (they do not, to the anxious gardener, appear to move at all), and being gathered from very closely, they are a long time in gaining strength. When I have been in this predicament, and it has happened more than once, I have ransacked the neighbourhood for both leaves and strong roots, it being a well-known fact that the old self-sown strains found in cottagers' and farmers' gardens are much harder than the presumably superior curled forms. A slight hotbed was formed for these collected roots, a frame being set on this, and about 9 inches of rich soil placed in it. A single light will hold a lot of plants, as they can be, and were with us, dibbled in thickly, there being little likelihood of any of the new leaves being left untouched long enough for them to attain full size. Kept moderately close and watered occasionally, these forced plants soon formed fresh leaves; but in order to maintain a good supply it was considered advisable to raise a number of plants from seed sown early in heat, these being transplanted to a border as soon as large enough. Sufficient plants for a small garden could be raised in a good-sized box or in pans; but we annually devote a single light frame to raising a stock of plants, as by no other means can we be certain of obtaining a good even bed of Parsley. The seedlings are raised in much the same way as Celery, the only difference being that the plants are pricked out direct from the seed-bed to where they are to remain for at least twelve months unless cut down by frosts. There is really no necessity to raise more than one batch of plants, as should a sufficiency be obtained or transplanted, these, not being kept closely stripped of leaves, will last, if not allowed to flower, for at least one year, and not unfrequently during two seasons.

W. IGGULDEN.

Blanching Seakale.—Mr. Iggulden, in writing on this, states that he uses tan, or leaf soil and earth, but if he will try straw simply laid on over the rows I do not think he will ever again use either of the first named for blanching his Kale. For a late supply I cover a large breadth with straw. Sometimes after heavy rains the straw gets a little too heavy, and I thought of laying along the rows some Pea sticks to help support the weight, as all that is wanted is to exclude light. Under straw, the Kale comes out as white as it does out of pots.—S. D.

TREES AND SHRUBS.

THE AFRICAN CEDAR.

(CEDRUS ATLANTICA.)

THE Cedar of Lebanon, so familiar to all readers of Scripture history, is generally admitted not only the patriarch of the tribe, but also the most noble and majestic Conifer as yet introduced into Great Britain. Its introduction is rather uncertain, but dating back more than 200 years, being perfectly hardy, and carrying

myself open to the charge of partiality, I venture to say, is to be regretted, for the Mount Atlas Cedar in this country is not a long-lived tree; therefore, whilst advising all planters to introduce the straight-boled African Cedar as freely as possible, I would ask them to perform their part in catering for the delight of future generations by a more liberal use of an old friend which formed so many conspicuous landmarks in this country a century before the Californian and Japanese Conifers reached our shores. With this digression, accompanied by a plea to

in their respective habitats, that they must all have originated from one common stock. Hard of belief, planters for a long time dissented from this opinion, but the day, I believe, is coming when science will win, as the two modern types planted here more than forty years ago are becoming more like the Cedar of Lebanon every day. Each form, nevertheless, like those of all other families having a wide geographical range, will always retain its own particular characters, and these being very marked, the three Cedars must and will be extensively used in the practical operations of planting.

CEDRUS ATLANTICA, now very plentiful in England, was introduced from Mount Atlas, in Northern Africa, into Europe in 1841, and being perfectly hardy, by no means fastidious as to soil provided it is not wet, and rapid in its growth, a great number of very fine specimens already may be seen towering up and bravely holding their own by the side of all, save the extreme giant Abies and Piceas from the West. The tree, as may be gathered from the engraving made from a most beautiful photograph taken by Miss Marian Winter at Broomfield, Caterham, assumes a broad, pyramidal habit, but the branches being shorter, stiffer as a rule, and irregularly set on the stem, it does not as yet throw out those enormous horizontal tabuliform limbs so characteristic of the Cedar of Lebanon. The Mount Atlas Cedar further differs from the patriarch in having shorter, stiffer, and more prickly leaves set upon the shoots, which are less drooping at the points. An unfailing guide as to identity is its having a perfectly straight, fast-growing stem. A great number of the three forms of Cedar have been planted at Eastnor, some on the limestone, others on the igneous detritus of the Malverns, and some of the African trees so closely resemble some of the Lebanon forms, that experienced persons might be taken in, were they not guided by the stiff points of the shoots and the Larch-like straightness of the trunks. The tree herewith figured, one of the softest and most flowing forms I have seen, comes, I have no doubt, from a medium altitude of 5000 feet to 6000 feet on the Atlas range, and being so thoroughly accommodating as to soil, planters in all parts of the kingdom who have not hitherto done so should at once find for it a place. In these days of mimicry when the Pines, the Spruces, the Silver Firs, the Cypressess and Junipers are supplying the planter with representatives in grey and silver and gold, it would be strange if the Cedars were behindhand in contributing their quota to his store. Behindhand they are not, for about the time the normal form was introduced, the late Earl Somers made the ascent of the Atlas range, and there in Jenial el Haad discovered a most beautiful tree, as remarkable for its silvered foliage as for its peculiar style of growth. From cones gathered by his lordship, trees in due course were raised at Eastnor, and some of them retaining all their peculiar characteristics, including the colour of the leaves and the irregular setting of the main branches in a triangular form had attained to the height of 50 feet before he died.

W. COLEMAN.



A Mount Atlas Cedar (*Cedrus atlantica*). Engraved for THE GARDEN from a photograph by Marian Winter, Broomfield, Caterham.

in its name such a thrilling history, there is hardly a domain in the kingdom which does not boast one or more aged trees planted and cared for by our forefathers. It is not, however, of Solomon's tree, but of one of more recent introduction that I am about to write, and, notwithstanding the fact that botanists do not accept it as a distinct species, it is so distinct in its style of growth, especially when young, and so rapid in its progress, that planters for immediate effect now give preference to the Mount Atlas Cedar. This preference, without laying

nurserymen who push the Atlantic Cedar because it becomes quickly ready for sale, I must say the three types forming the genus are confined to three separate regions in the great mountain chains that cross the eastern continent from the Atlantic Ocean to the Chinese Sea. These types, it is hardly necessary for me to say, are *C. Libani*, *C. Deodara*, and *C. atlantica*, and although the groups are more than a thousand miles apart, we learn from Sir Joseph Hooker, who has examined them, not only botanically, but as an observer

Bell-flowered Heath (*Erica codonodes*).—This is usually regarded as a variety of the Tree Heath (*Erica arborea*), but it appears to be somewhat harder than that beautiful species. Both are, however, grand objects at this season, though *E. codonodes* seems to be the earlier of the two. This forms a small shrub of 3 feet to 4 feet high, the branches being numerous, slender, somewhat erect, and thickly clothed with very small leaves. During

early spring each of the slender shoots is completely wreathed for about a foot of its length with myriads of tiny bell-shaped blossoms, which in a bud state are pinkish, but on expansion become of the purest white. The individual blooms of *E. codonodes* are somewhat larger and more bell-shaped than those of *E. arborea*. Such a beautiful shrub, flowering as it does so early in the season, well repays a little protection, for where fully exposed it cannot, unless in the more favoured districts of England, be depended upon to bloom well.—H. P.

THE JAPANESE ARBOR-VITÆ.

THIS beautiful tree (*Thuopsis dolabrata*) is invaluable for pleasure grounds and woods. Even when Conifers do well (as a matter of fact very many of them do not), they are entirely unfitted for our country. When the gardener digs deep holes for them, and surrounds them with 4 feet or 5 feet of rich moist loam, they thrive very well for a time; but once they get into the natural soil of the district, and have to submit to the actual conditions of our climate, then it is seen that many of them are unfitted for it. Many of them, too, are tender, and get killed by frosts. But this tree is as hardy as our own Holly. When so many trees were killed in France in the terrible winter after the war, this tree was uninjured. Moreover, it is more beautiful than many of the hardy Conifers; the foliage and form are so distinct and graceful.

Those who can get good plants of it will do well to form a bold group of this tree. When young it is somewhat shrub-like, and the danger which so often occurs in our gardens of overcrowding is present.

In transplanting all trees of this kind it is a great point to make them very firm. Having put the ball in position, wash the roots in, so as to settle some fine soil round the fibres. Then make the soil even and quite firm up to the level of the ground. Having done this, lift a few sods of earth and throw them above the general level, leaving them loose on the top. This prevents the trees from being blown about, as the top of this tree offers so much more resistance to the wind than the top of any summer-leaving tree. It is important to thoroughly anchor (so to say) the trees, no matter what size they may be, so that the wind cannot have the power to move the ball.

This tree, when young at least, keeps its branches near the ground, and roots very freely where it touches the earth; so that in this case one has some chance of escaping the grafted plant, far too common among coniferous trees. It is a beautiful tree in its native land; when young, gracefully furnished to the height of 15 feet or 20 feet; then it eventually becomes a tree, and, like many other Conifers, it loses its lower branches. To the ordinary gardener this seems a loss, but it is natural that the trees should lose their branches. The great Pines—whether Scotch Firs or Japanese Arbor-vitæ—are never picturesque until they have lost their lower branches and show their handsome stems.—*Field*.

Early-flowered Rhododendrons.—Exclusive of the smaller Rhododendrons represented by such kinds as *dahuricum*, *præcox*, and others, several of the large, showy-flowered varieties bloom very early in the year if the weather is not too severe, and as we have had very little frost for some time the season has been unusually favourable for Rhododendrons of this section, many of them having been more or less in flower for some weeks. One of the very best is *Nobleanum*, of which there appears to be many forms, some much brighter than others. Several of our nurserymen make a specialty of these early flowering Rhododendrons, and publish a long list of varieties, among which may be mentioned, besides the above, *caucasicum*, *Broughtonianum*, *Russellianum*, and *altaclarens*. From their early flowering character it is evident that some shelter will be of advantage to them, as if protected only by a few neighbouring trees they will often

resist frosts that would in the open completely destroy all expanded blossoms. The damage by frost is generally limited to these last, as in the bud state, even if well advanced, they mostly escape uninjured. A very suitable position for Rhododendrons of this class is where there are some tall deciduous trees to protect them from the north and east, but they should be open towards the south, as the thorough ripening of the wood is necessary in order to ensure a floral display. Rhododendrons of this class form magnificent objects for vases indoors during the early part of the year. For this purpose it is by far the better way to cut them when in the bud state, or rather just as the very earliest blooms in the cluster are on the point of expanding, as they open beautifully in water and remain in perfection a long time.—T.

TRANSPLANTING EVERGREENS.

THE orthodox seasons for transplanting evergreen trees and shrubs are in autumn, from the end of September to the end of October, and in spring from the end of March to the end of April. Autumn planting is better than spring, but the experience of others may incline to the spring season. No doubt the new growth does give an impetus to root action, but the keen, drying winds in exposed situations are difficult to deal with, and often dry up the life of the plant before the new foliage has a chance to bear upon the root action at all. Most planters who have much work to do, generally find the season too short for it. And as regards the hardiest Evergreens, if proper care is taken, they may be moved at any time, either winter or autumn, when the weather is suitable. When Evergreens are sent a long journey in spring the roots often come to hand very much dried; even if packed carefully the winds are often so piercing as to penetrate any ordinary thickness of packing material, and then such things as Lawson's Cypress are nearly sure to fail. I know no reason why this beautiful family should be more difficult to transplant than the Japanese Cypress (*Retinospora*) but they certainly are, unless grown in a soil that encourages the production of fibres. All the Berberis family are bad to transplant, simply because they have no fibrous roots. Possibly if they were more frequently transplanted in the nursery this difficulty would be somewhat obviated, but this would check their growth and the average purchaser requires a big plant for his money. The best way with Barberries when transplanting is to head them back; this takes the strain off the roots, and in due time new growth breaks away. In many cases if they are not headed back, the long shoots will die back. Those who are thinking of planting Evergreens and contemplate making purchases should get them from a nursery where they have been frequently transplanted. This is the secret (if there be any secret about it) of successful transplanting. Moreover, the plants that have been properly prepared by frequent disturbance of the roots may be planted at any time. It is only the badly-grown stuff with long naked roots too often coming to hand, chopped about with the spade, that requires to be studied as regards the particular hour or minute for planting. Again, the proper preparation of the site where the trees are to be planted has something to do with the after success. One most successful planter never planted anything without first having the ground trenched or bastard trenched 20 inches deep before planting. But all good work is expensive. It is more satisfactory, however, in the end, for the trees will grow and be healthy, and that should be the planter's aim. Among the safest things to move are Yew trees, Arbor-vitæ, and Box. The Cedar of Lebanon moves well, and the Mount Atlas Cedar (*Cedrus atlantica*) rarely fails. The Deodar does not always succeed so well. *Picea Pinsapo* and *P. Nordmanniana*, two of the most useful Conifers for lawn planting, are easy to transplant. The Holly used to be considered a difficult subject, but when it has been frequently transplanted it may be moved at any time with safety. But on moving anything from a sheltered to an exposed situation, it is always advisable to put up some temporary shelter

until the cold spring winds are over. A few stout stakes should be driven into the ground a foot or so apart, and high enough to lift the cold current over the plants it is intended to protect. Branches of any kind may be woven between the stakes in such a manner as to break the wind. Whether the planting is done in autumn or spring, the trees will probably require water, if the weather should be dry in March and April, till the roots commence work, and a dash with the garden engine over the leaves is often a great help in checking evaporation from their surface, and this may be done whenever there are any signs of distress. It will be probably better to anticipate these signs. Everybody knows the value of mulching newly-planted things, as well as the necessity there is for affording support to any plants or trees that are large enough to offer much resistance to the wind, as no tree nor plant will grow unless firmly fixed in the ground. E. H.

THE TRUMPET CREEPER.

(*TECOMA RADICANS*)

THIS is one of the commonest, most easily grown, and most ornamental of all our woody climbers. Its botanical name is *Tecoma radicans*, and it belongs to the Bignonia family of plants; *Catalpa* trees also belong to the same order. It grows wild from Pennsylvania south and west, and abounds along the outskirts of woods, road-sides, and neglected grounds and thickets of shrubs where the soil is good, but it is seldom found in dense, shady woods.

As an ornamental climber it is cultivated in all temperate countries. The typical wild plant is the one most commonly cultivated, but nurserymen have given us a few distinct varietal forms of it; for instance, *præcox*, which is claimed to bloom a little earlier than the common form, *grandiflora*, which has larger flowers, and *atrosanguinea*, which has darker-coloured blossoms. The last-named is quite distinct, but the other two, although perhaps distinct enough, occur, I believe, not infrequently in a wild state, at least anyone in the Southern States may observe that some plants bloom earlier than others or have larger and handsomer flowers.

Trumpet Creepers are very serviceable wherever vigorous, permanent vines are wanted, but they should not be planted against light trellis-work, as they might wind around and break it. They luxuriate in warm sunshine, and will blossom well even in north-facing aspects provided they are not overshadowed by trees. We have an old two-story barn covered to the top of the roof with one on the south side and on the west gable end, and when it is in bloom in midsummer it looks lovely. We cut the vines hard into the boards every winter. Associated with many other vines we have it covering a large summer-house, and alone trained up arched pillars. It is really pretty when allowed to run up trees and spread out among their branches, and depend again in flower-tipped sprays, as we find it wild along the margins of Southern woods. A very striking way to use it is trained up a high pillar by itself in columnar fashion. Set a 12 feet to 20 feet high Locust or Chestnut post in the ground where you wish to have the pillar and plant Trumpet Creepers about it, and let them climb up the pole at freedom, but clip them in close to the pillar every winter for tidiness' sake.

It clings to any rough surface by stem roots, just as English Ivy does and, too, it often twists around a narrow support. It spreads a good deal at the root and sprouts crop up at the distance of some yards from the stems of the old plants, but they are easily chopped out if not wanted. It is quite hardy on Long Island, and hardy enough at Boston.

TECOMA GRANDIFLORA is a splendid species from China and Japan. Its flowers are shorter and more open than those of *T. radicans*, and hardly so dark coloured, but they are very showy and produced in quantity in large terminal panicles. It is a much finer species than our native one, but unfortunately not nearly so hardy. It is too tender

for cultivation out-of-doors north of New York. From Philadelphia southward, however, it is one of the finest of all hardy vines. At Arlington, in Virginia, last summer I saw it in splendid bloom; also, near by it, a handsome form almost intermediate between this and the American species.

TECOMA THUNBERGI has not yet bloomed with us, but Parsons describes it as "resembling *T. grandiflora*, but less vigorous, with flowers of a deeper tint."—W. FALCONER, in *Rural New Yorker*.

The white flowered Mezereon.—This appears to be rather later in flowering than the coloured varieties, for while the red-flowered forms are fully expanded, this is just opening its blossoms. It is very distinct from any of the others, not only in the colour of its flowers, but also from the fact that the berries, instead of being red, as in the common Mezereon, are when ripe of a yellow hue, so that in all stages it forms quite a contrast to the better-known kind. There is a dark-coloured form of this last, known as *rubra* or *purpurea*, which, owing to its deep tinted blossoms, is in a mass more showy than the ordinary Mezereon. These *Daphnes* are certainly among the very best of our hardy shrubs that flower thus early in the year, but they are often seen in a far from satisfactory condition. On hot sandy soils they will not thrive, but prefer a cool, moist, and well-drained spot. A good loamy soil seems to suit them better than anything else. The autumn-flowered variety of the Mezereon is another very desirable form.—T.

***Cassandra calyculata*.**—This is sometimes included in the genus *Andromeda*, two members of which (*A. japonica* and *A. floribunda*) are now in bloom, while the *Cassandra* is nearly approaching that stage; indeed, a few of the earliest blossoms are already expanded. It is a native of the colder districts of North America, and is therefore perfectly hardy in this country, where it forms a low branching bush, seldom a couple of feet high, the branches being clothed with small, oblong-shaped leaves of a rusty hue underneath, while the upper surface is of a peculiar bronzy tint. The drooping, bell-shaped flowers are borne in great profusion, and depend thickly from the undersides of the shoots, so that a specimen in full bloom is very pretty, though it can scarcely be called showy. Soil of a peaty nature that is always fairly moist seems to best suit this *Cassandra*. It readily lends itself for flowering under glass early in the year, as from the season at which it blooms in the open air no forcing is necessary to induce it to flower very early in the year when protected from frost. Like many of its allies, the dense rooting character of this plant is in its favour when lifted for blooming in pots.—T.

***Abies brachyphylla*.**—This is one of the best of the Silver Firs, as it forms a very handsome specimen, and is not injured by late spring frosts. It appears to be of rapid growth, and pushes up a strong, vigorous leader, while the branches spring at regular intervals, but the minor branchlets are not so formally disposed as in *A. Pinsapo*. The leaves are deep green, almost as dark as those of *A. Nordmanniana*, but they are much shorter and less regularly arranged on the branchlets. The cones are about 4 inches long, erect, as in the Silver Fir, and purple when mature. We have to thank Messrs. Veitch for this handsome Conifer, as they introduced it from Japan. In the "*Manual of the Coniferæ*" it is described as one of the hardiest as well as one of the handsomest of the Silver Firs, and is said to stand the severe Danish winter uninjured. In its native country this Fir reaches a height of 120 feet, but owing to its recent introduction no large specimens are to be met with in this country. Few of its class succeed so well in gravelly soils.—T.

Arrow-jointed Broom (*Genista sagittalis*).—This species of *Genista* is very useful for the rockery, and if planted in a sunny position will flower freely. It only reaches a height of 6 inches or thereby, but forms a thick mass of curiously-winged stems.

***Philadelphus grandiflorus*.**—I planted this in 1886. In 1888 it flowered abundantly, but in 1889

not a single flower appeared. It, however, grew very strongly, and has now shoots of great length. Kindly let me know whether the tree ought to be pruned, and if so, whether moderately or sharply.—H. B.

ORCHARD AND FRUIT GARDEN.

RENOVATING OLD ORCHARDS.

It is gratifying to find an experienced practitioner like "A. D." (p. 132) approving my advice to the owners of inferior sorts of Apples, of which we have far too many in the west midlands, and his criticism of my method of managing the stocks for the first year or two after grafting is by no means objectionable, as discussion upon these points may eventually benefit the masses. "A. D.," like myself and other horticulturists, is anxious to see the owners and tillers of the land stirring themselves and trying to assist others in the better culture of our national fruit, the Apple; but it is uphill work, for much as I have laboured with my pen and the grafting tools, my neighbours, I say with regret, make no sign, whilst some who might take the lead in those important matters are hostile to men of progress. Dogs in mangers always have existed, and always will, so whilst they are growling over the bit of hay they cannot eat I will give "A. D." my reasons for allowing full play to the spray upon my grafted trees for the first year or two. As I do not profess great physiological learning, I do not assume even that I am right, but having had some practical experience in the renovation and conversion of old orchards, I have given to readers of *THE GARDEN* the opportunity of discussing or condemning methods which have best answered my purpose.

The trees to which my remarks specially apply may have been raised from kernels or by grafting some thirty to fifty years ago, and having made vigorous heads, their roots form a complete network beneath the turf. When headed very hard back the stored sap forces a strong growth of spray, and the small number of scions let into the large stumps may make a good start, but the shock to the system tells upon the roots—at least this is my experience, and although the trees may not show it the first year, their after progress is thin and unsatisfactory, the points of the shoots begin to perish, when, owing to paralysis of the roots, they never attain to fertility, if they do not die.

Trees, on the other hand, moderately shortened, not to a dozen, but to from thirty to fifty stumps, the thickest not larger than one's wrist, hardly feel the shock, and having an abundance of dormant buds resting under their rough bark, they make a quick start, giving almost immediate relief to the roots, which otherwise might become gorged or make a few puny fibres too late in the season to ripen. Upon each of these small stumps I generally place two grafts, in some cases only one, and although the spray, as a rule, is allowed to grow, it rarely happens that it prevents the scions from making quite as much wood as the season will ripen—a very important point in the formation of a new foundation. The trees are closely watched, and if through any unforeseen defect the scions remain sluggish, and the spray takes the lead, the robbers are shortened back, but not entirely removed until the end of the second year.

Some five years ago I commenced the conversion of an old orchard, and entertaining a very high opinion of the Blenheim Orange, a number of trees, some forty to fifty years planted, were headed back and grafted. The scions, selected from healthy two years' shoots, were let in with the saw, every bit of spray was allowed

to grow, and now the heads, 10 feet to 12 feet through, are loaded with flower-buds, from which I expect a good crop of fruit this season. I do not assert that close heading would not have answered equally well, but finding a medium course quite satisfactory, not only in this, but in many preceding operations, I have given my experience for what it is worth to those who have trees nearly half a century old to deal with.

W. C.

THINNING FLOWER-BUDS ON FRUIT TREES.

WHILST thanking "Another Fruit Grower" (p. 163) for having credited me with good intentions, I beg to say I have not overlooked the vital force and habits of many of the fruit-bearing trees met with in our gardens; neither have I been so rude as to treat readers of *THE GARDEN* as children or apprentices. In the article to which he refers my remarks were intended to draw attention to bud-thinning as a principle, leaving to those most interested the decision as to whether the reduction of the buds upon certain trees under their care might be advantageous, or *vice versa*. If anyone calling himself a practical gardener be so foolish as to thin the buds upon a vigorous young Peach tree, I hold myself blameless, as nowhere in the article have I recommended such a course of procedure, my object, on the contrary, being relief to over-budded trees, not the suppression of growth in young ones. This being so, I venture to say the introduction of vigorous young trees and root-pruning as an aid to fertility is beside the question, not that I under-value root-lifting, for I have preached and practised for years, fully convinced that this, combined with extension training, is the best mode of preventing artificially trained trees from getting out of order. But once out of bounds, unripe, and sparsely set with imperfect flowers, the principle your correspondent advocates would not result in the attraction of sap from the shoots to the fruit, for the simple reason that there would be very little fruit to require feeding; consequently, over-exuberance, quite another matter, could not be checked by over-cropping. "Root-pruning," "Another Fruit Grower" says, "is usually resorted to to check an exuberance of unfruitful wood, but if a crop of fruit equal to the exceptional vigour of the tree can be secured, it will prove a more profitable way of curbing rank growth." Just so; but my object is relief to enervated trees by thinning the flowers instead of the fruit. Your correspondent has lost the thread and is rambling on another subject. But, taking him on his own ground, how unfruitful wood can produce a restraining crop of fruit puzzles me and will puzzle many more, and unless your correspondent's practice is much better than his theory, I fear there is no immediate prospect of a solution. "Thinning the flower-buds prostrates the grower's object, for a thin set usually results in failure." This theory to me is new, and not only new, but the reverse of my experience, for not unfrequently I have seen trees literally loaded with flower-buds so completely exhausted by the production of pollen that they became quite barren, or producers of a few mediocre fruits utterly void of flavour. Trees, on the other hand, the old Noblesse Peach mentioned in my article, to wit, carrying barely a pair of flower-buds on a shoot, have set every blossom and carried them past the size of thrushes' eggs to magnificent maturity.

I do not wish to be too hard upon the young man who thinned the flower-buds on his five-year-old trees, but certainly I must blame the teacher who turned out such a raw hand as a professional. Also I must inform "Another Fruit Grower" that his bringing forward this argument does not touch the principle I advocate, for the simple reason that bud-thinning had nothing to do with the dropping of his fruit when the size of thrushes' eggs. His crop, in the first instance, might be light, but then there are ways and means of repressing leaf-growth by pinching and disbudding, and a man who thinned the buds on these vigorous young trees may have neglected this important operation; he may have kept them too wet or too dry, too hot at times or

too cold; for Peaches under glass require very nice management, and quickly resent improper treatment. The wood having become "much stronger than that generally desired in Peaches," it might be interesting to learn how these unfruitful growths are being managed this year, or, if left to Nature, the crop is heavy enough to require feeding with stimulants in accordance with "Another Fruit Grower's" suggestion.

As an extensionist, I agree with your correspondent's remarks on the management of Plum trees; but here even when left to Nature, which Peaches, selected by him for pointing his argument, are not, I venture to assert, without fear of contradiction, that the size of the fruit and the quality of the crop may be greatly improved by thinning the flower-buds.

"Another Fruit Grower" having introduced a case of mismanagement in three Peach houses as an argument against bud-thinning, with the editor's permission I will give one or two *pro contra*. When walking through one of the finest Plum orchards, near Worcester, last year, I saw scores of standard trees, "left entirely to Nature," not only propped up, but literally breaking to pieces under the weight of fruit at that time barely past the stoning. Bud-thinning, in this case, was impracticable, but no experienced person, I think, will assert that the performance of this operation would not have enhanced the value of the past crop and improved the prospect for this season.

When, many years ago, the late Mr. Flemming, of Trentham, made himself famous by the growth and exhibition of exceptionally fine Black Hamburgh Grapes, he stated that he thinned the bunches before the flowers threw off the capsules. A Gros Colman Vine under my own care one season cast quite four-fifths of its flowers, and I thought the few left would not swell to maturity. These in due course threw off the capsules, set well, and although they required very little if any thinning, they made berries $4\frac{1}{2}$ inches in circumference, and took first prize at the Crystal Palace in September.

FRUIT GROWER.

AN ACRE OF FRUIT TREES.

I SEND you the enclosed little history of my tenant and next door neighbour, old M—, who is a living proof of what can be done by never-ceasing industry combined with sobriety.

This man takes three hours to do what an able-bodied man would accomplish in an hour, but he is always at work. He planted the place with fruit on a yearly tenancy, and his landlord put the place up for sale. I heard the old fellow's story, went to see him, and bought the place, where he shall die among his fruit trees. He and his wife are curiosities, and so is the place, and I shall be happy to show my old friends and their strange domicile to you or any of your friends who may feel curious enough on the subject to undertake an hour's ride in a train.

A few months ago I purchased the cottage and an acre of land, which, unfortunately, does not join my property, for there is a public footpath between which passes immediately under my windows. This cottage and one acre of land have been occupied by M— and his ancestors for 110 years. M— is now seventy-two years of age, his wife is five years younger; they have no children, and they are both crippled. The husband from his youth has only had the full use of his left arm, the right arm, owing to a stiff elbow joint, only serving as a fulcrum. The wife has both hands afflicted with chronic eczema. For years this ancient couple have lived respectably on this bit of land. The rental of this place was £12 10s. per annum, which has been regularly paid, and the old couple have lived and dressed and paid their way honestly by growing fruit and vegetables and keeping fowls. They have saved nothing, but they owe no man a penny. The land is open to the north, north-east, and east. It is situated too low down in the valley, where we get fog and frost. It is shaded on the south by my three-storied house. So you see the aspect is not all one could wish for fruit

culture. Nevertheless, M— grows it, gets it, and sells it. The place is a jungle of Raspberries, Currants, Black Currants, Gooseberries, Apples, and Plums; there is a bit of paddock for the donkey, a vegetable garden, and a small nursery; a cart shed, a stable, a fowl-house and run, all of the most primitive description. M— has always heaps of manure, for he wastes nothing. He gathers road-scrappings, hedge trimmings, &c., which he burns in a heap; he collects everything from the fowls, and each tree, each bush is regularly manured. In his younger days M— did many things; he washed sheep, he helped on farms, &c.

J. W. S.

LATE PEARS FOR PROFIT.

THE cultivation of late varieties of Pears on board screens with a view to profit, which Mr. Coleman touches upon (p. 93), is well worth consideration. It is a system that I have frequently advised, and which, if carried out with judgment, I am satisfied will give a better return than is likely to result from many of the numerous fruit growing projects which of late have been so plentifully put forth. That not only Pears, but other fruits, including Peaches, will bear as well against a board fence as against a brick wall I have had ample proof, provided the fence is properly constructed. I have little doubt that not only would Pear growing in this way be profitable for a time, but that it would continue to give a satisfactory return, for the reason that it is less likely to be adopted to an extent that would reduce the price of the fruit that is almost certain to follow the immense supplies of late Apples that in a few years must result from the extensive orchard planting that is now going on, and that is likely to continue. Though, as already said, board screens can be constructed without any serious outlay, still they cost enough to limit the extent of such erections, especially by those who hold land on tenure, even if the tenant had the security of a twenty-one years' lease. The screens in question will last considerably beyond that length of time.

In considering the subject, the first questions that naturally arise are what would be the cost of the screens under notice, and how long would they last? Foreign timber is now very cheap. The price Mr. Coleman names is about the figure that Spruce boards can be had for in most parts of England, I think, and Spruce, when properly treated, is the article that will be found best in the end to use. Gas tar is much the best preservative for all kinds of soft wood. It keeps out the wet in a way that no kind of oil, or preparations in which oil is the principal ingredient, can equal. This I have frequently proved. Spruce boards, if thoroughly dry when they are first tarred, will be sound at the end of thirty years' exposure out of doors. The boards, posts, and rails should be used in the rough just as they come from the saw. They should not be tongued and grooved, as if this is done it creates a lodgment for moisture, which is the first thing to guard against. The boards should simply be edge to edge; all the joints ought to be covered with strips $1\frac{1}{2}$ inches wide by half an inch in thickness. These strips are essential, as I have found that if by any shrinking in the boards, or through their not being true in the edges, there are chinks through which the wind finds its way on cold nights when the trees are in bloom. The coping boards should be 7 inches wide, so as to cover the tops of the posts, and should project equally on both sides. All the timber, including the boards, posts, cross rails, and the strips, should be well coated with tar before the work is put together. This is a matter of the first importance, as when the tarring is left until the erection is finished, the parts which the tar does not reach will perish long before those where it has been applied. When the screens are up another coat of tar should be given.

Work of this kind should always be carried out in the summer when the timber is dry, as if it contains moisture when the tar is put on the moisture is sealed up so that it cannot escape, the consequence of which is that it hastens the destruction of the wood. When the work is done in summer it

gives time for the tar to get dry before the trees require to be trained against it. If the tarring is properly carried out in the first instance there is not so much gained by frequent applications afterwards as might be supposed. I have found little difference in the endurance of the wood when a coat was given once in ten years, and when it was done every two or three years. It is here where the advantage of using gas tar before other things comes in. The tar should always be hot when laid on.

There is another thing that I have noticed in connection with the presence of tar which is worth taking into account. Where a fence or a screen of the kind in question is used for Peaches aphides do not like it. Where one side of a tree was growing against a wall, and the opposite side was trained against a tarred board fence that continued from the wall, the aphides confined their attacks to the part against the wall, leaving the side on the board fence unmolested. That this was not an accident was proved by its continuance year after year. It may be well to note that it is an advantage to give the ends of the posts that go into the ground an extra coat of tar, as it is there the decay first begins. It is scarcely necessary to say that where an attempt is made to grow Pears profitably in the way under notice, the first essential is that the soil and the climate be both suited to the fruit. There will be very little difference in the cost of the work in one locality compared with another, but there is a wide difference in the prospect of the result beyond anything that can be done in the cultivation. Growing Pears for sale is a very different thing to growing them for home use. In the latter case one of the chief objects is to have them in over a long season. In the former the aim should be to have them when they are the least plentiful. Local circumstances will in some cases make it necessary to vary the varieties that it is desirable to plant, but the best and most reliable of the late sorts will succeed in most places where the soil and climate are favourable. Anyone who undertakes to grow late Pears in the manner in question will do well to confine himself to few varieties. Glou Morceau, Winter Nelis, Josephine de Malines, Bergamotte d'Esperen, and Knight's Monarch are as many as I should care to select. The last-named excellent Pear often drops its fruit before it is fit to gather. In some places this occurs to a greater extent than in others; nevertheless, I should be disposed to try it. Easter Beurré bears freely enough in most places and is a fine-looking Pear, but in half the localities in England where Pears do fairly well the fruit often fails to ripen, and even where it does ripen I have seldom found it with enough flavour to be worth eating.

Where the screens run east and west I should cover the north side with Morello Cherries; when to the opposite points of the compass, the east side would do for Sweet Cherries.

T. B.

Strawberry forcing houses.—At Gunnersbury Park, some years ago, Mr. Roberts put up a span house for Strawberries, in which the stage was of a high span character, and the plants being thus elevated near to the glass plenty of air was allowed to circulate about them. Oddly enough, I was visiting at Messrs. W. and E. Wells' market garden at Hounslow recently, in company with Mr. Roberts, when we were shown by Mr. Thompson a long span house filled with Strawberries in pots, and fitted with a stage in precisely the same way. Mr. Thompson spoke in high terms of the method, as damping was prevented, the plants got a maximum of light and air, and were got at from beneath the stage with ease and facility. As the house in this case runs north and south, both sides get about the same quantity of light and sunshine, and of course the temperature throughout is practically identical. The stage is of a movable kind, so that when Strawberry forcing is over, the house ripening two crops in succession, the stage is removed and stacked away until needed for the following year, and the house is then filled with Tomato or Cucumber plants. Sir Charles Napier is the favourite Strawberry for forcing here; it is so firm, comes so fine, sets well, and colours admirably. On the

whole, it is doubtful whether we have in cultivation any kind which possesses more acceptable all round qualities than does Sir Charles Napier. Some of the newer Strawberries, although large and richly coloured, lack that firmness of flesh which is so essential for market work. Soft, highly coloured fruits are more apt to produce mildew than are firmer ones, and mildew is a pest not easily eradicated.—A. D.

ORANGE CULTURE.

I READ "The Cultivation of Fruit Trees under Glass" (Rivers) twenty-five years or more ago, and although I was unlikely to have the chance of a house devoted entirely to the culture of Oranges under glass, I was determined to do the best I could with the glass structures I had. I ordered from Mr. Rivers three varieties, viz., the Tangierine, St. Michaels and Malta Blood. I did not succeed quite so well with the trees purchased as I did with those propagated by myself afterwards. The trees were apparently healthy enough, but I did not get them to grow so vigorously as I liked. However, they were all true to name, and I set about propagating young plants that would be grown on vigorously from the first. I tried them on the Orange and on the Lemon stock, with the result that for quick-growing, healthy, vigorous trees the last-named is decidedly the best. The stocks were strong enough the second year from the seeds, and at the time of grafting were well established in 5-inch pots. I formed beautiful standards with stems 3 feet and 4 feet high, and for that purpose the seedling Lemon trees were three years old; they ran up in the forcing house with clean single stems as freely as stout Osiers. Grafting was performed about the first week in March, or even earlier when the heat was turned on to one of the vineries and a moist atmosphere maintained. Ordinary whip-grafting was adopted. When grafted I covered them over with hand-glasses to prevent the scions from shrinking. They will be quite sure to take if they can be kept plump for two or three weeks. The standards were managed by having a stout stick put to each, and a small board in the form of a platform was placed under each graft to sustain a bell-glass fixed over each. I lost none of them, and they all formed nice little trees by the end of the season. When they come into bearing, as they will do in two years if grown on in a hothouse temperature during the summer months, a suitable position must be provided for them in some of the forcing houses. The trees do not give good results grown under the shade of Vines or, in fact, under any kind of shade. If a light span-roofed house or a half-span can be set apart entirely for their culture, they will well repay any care that may be bestowed upon them. The treatment they require is the same as that given to Pine-apples; indeed, I found they could be grown perfectly in some span-roofed houses for fruiting Pines I had charge of, the temperature of which was kept at a minimum of 55° in winter, and about 65° to 70° in summer. When the Oranges had been gathered the trees were placed for two months in a cool house in winter. Sometimes we could not do this, as the trees would have ripe fruits upon them, and small green examples as large as filberts at the same time, and in some instances flowers or flower buds also. In that case the trees were kept in the hothouse temperature all the year round. They require very different treatment from that usually given to those grown merely for greenhouse or conservatory decoration. These are frequently grown as they are imported in a poor kind of peaty soil, and, as a rule, take up far more of the gardener's time than the trees are worth to keep them free from scale. The fruit they produce is worthless. The varieties to grow are those I have named above, and they like good substantial loam to grow in. Fibrous loam of a silky texture from an upland pasture is best for them, and it should be made more open, rich, and porous by adding leaf-mould, decayed stable manure, some crushed bones and nodules of charcoal. Give the pots good drainage, and when re-potting ram the soil in firmly. It requires all the season from February to autumn and winter for

the trees to produce their blossoms and ripen the fruit. They may be started at 50° early in February, increasing the temperature to 55° in two weeks, and 60° in two more. When the blossoms open I always use a small brush to set the flowers. They sometimes set badly even with that precaution early in the year. The Tangierine variety sets its fruit most freely, and ripens it in September or October. The fruit is plump and the skin sometimes bursts with its refreshing juice. If the trees are vigorously syringed twice daily in the hot weather, the leaves will always be clean and glossy. As the fruit approaches the ripening stage discontinue syringing, and if it shows signs of bursting the skin, leave off watering at the roots. J. DOUGLAS.

WINTER MOTH IN ORCHARDS.

My attention has been drawn to "S. D.'s" (p. 162) criticisms upon my remarks respecting the liming of orchard trees for the destruction of the winter



Coreopsis aristosa. For description, see p. 202.

moth. "S. D." recommends that if the lime be slaked and mixed with water, so that the mixture could be syringed on to the trees, it would be found easier and more effectual than the plan I recommended of distributing quick, dry, powdered lime by hand amongst the branches. These statements I am entirely at variance with, as I have proved here.

In the first place, I suppose that two men provided with a couple of buckets, a long pair of steps, and a ladder, would dust over a given number of trees in about the same time as two other men would prepare and apply the liquid mixture, whilst as to efficacy, there is no comparison, for it is well known that lime in the state recommended by "S. D." has parted with much of its caustic properties and potency, the very essential matter we are so anxious to secure at the time of application. Moreover, we have a regard for the lime which falls to the ground, as being certainly better for the

land, whilst the appearance of the trees should count for something. Our orchard, pyramidal, and bush trees have at the present time the appearance of snow upon them. They may be seen a long distance off, and present a very peculiar appearance when the sun shines.

It may be well to give my plan of applying the lime, which is the same as practised in Kent years ago, although for a different object, viz., to get rid of Moss and Lichens that covered the bark of the trees.

A wagon-load of fresh lime from the kilns will, when slaked as used, dust fully a hundred good, moderately-sized trees, the time occupied being according to weather and circumstances, probably the greater part of two days. Still, damp weather being necessary, cannot be secured for long together; but given such, a man and a boy proceed to slake about a sixth of the load, and, as soon as fit, commence to pass through a fine quarter-inch sieve into wheelbarrows ready for another two men, who meanwhile have provided themselves with a pair of stout tanned gloves, a pair of buckets, steps and ladder. The lime is now hot and like quicksilver. No. 1 man commences to dust over all the lower branches and the under sides of the upper ones. No. 2 follows with the ladder and takes the upper sides, dusting all parts that have escaped No. 1. The man and boy continue to prepare the lime in advance, and the two men continue the process so long as the weather permits and trees remain just damp, not wet, till all are finished. We deal with Goose-

berry and Currant bushes in the same way, also bush Cherries, and are, consequently, less troubled with Gooseberry caterpillars and aphides on Cherries.

It is hard to destroy every egg of the winter moth, but at all events quicklivediligently and thoroughly applied is a certain destructive agent to the eggs of insects as well as Moss, Lichens, &c. Seeing the havoc that was committed last year by the winter moth, no pains should be spared to battle with the enemy, now in his weakness. Certainly applying the dusty lime by hand is rather disagreeable work for the men engaged, but unpleasant difficulties can be overcome till the advent of the "Strawsonizer." —WILLIAM CRUMP, *Madresfield Court.*

The fruit crop.—The fruit prospects for 1890 are on the whole very satisfactory, and the outlook has assumed a much more favourable aspect from the seasonable weather we experienced during February. The unprecedentedly mild January caused the buds to plump and threaten an early expansion, and the prospect would have been gloomy had not all vegetation received a sudden and fortunate check. Lying, as we do, on the south side of the Thames, with a light dry soil, a cold late winter and early spring are always preferable, as the opposite conditions, if followed by a cold April, are generally productive of disastrous results, not only to the fruit crop, but to all early vegetation. The buds, especially of Apricots, Peaches, and Nectarines, being already in an advanced stage, we may expect an early expansion with a return of mild weather, and all nets ought, therefore, to be held in readiness to be placed in position as soon as necessary. Apricots are looking well this year. There is less of the bud rotting than I have had for several seasons. Peaches and Nectarines are nearly always a good crop, and the present season promises to be no exception to the rule. The trees of Plums and dessert Cherries are also very full of buds. Apples will be a good crop, especially on bushes and young standard trees, if we can get a favourable setting time and freedom from caterpillar. With a view to ward off

the caterpillars, I am now syringing all the Apple trees with a mixture of strong soft soap water with which lime and soot in the proportion of two to one have been incorporated, sufficient to form a slight coating on the branches, but mixed in such a way as to be easily applied with the syringe. I fancy the slight coating thus formed will destroy the eggs of the moth. The annual dressing of lime and soot had not been applied to Gooseberries and Currants after pruning, and the exceptionally mild winter led me to hope the birds might leave the buds alone. The attack, however, commenced about the middle of January, necessitating the usual measures to prevent further onslaught from our feathered friends. I think, given favourable weather through March and April, we may hope for a fruitful season in 1890.—E. BURRELL, *Claremont*.

Melons for frame culture.—The old Golden Queen, if it could be had true, would yet be found one of the best for frame culture. I have known it succeed with less heat than other varieties that were tried at the same time, and in addition to possessing a good constitution, it cropped freely, and the fruits were of medium size, handsome, and fairly good in quality. Where can it be obtained true to name? Another still older favourite, Victory of Bath, I happen to possess a true stock of, and those who have once grown it in frames stick to it. I am reminded of this by a friend who occasionally has a fresh supply of seed, what he saves being unreliable; in fact, there are three Melon growers in widely separated counties who look to me for more seed whenever it is required. Victory of Bath nets indifferently and cracks badly under house culture, and in frames the majority of the fruits are smooth and by no means prepossessing in appearance, but when cut they find plenty of admirers, the very green flesh being luscious and sweet. It is a sure bearer. The same growers just alluded to also strongly recommend Blenheim Orange as a good scarlet flesh companion for Victory of Bath, and on the whole it is doubtful if a better Melon than this will ever be introduced. Grown in houses it is apt to become too vigorous to be fruitful at the outset, but under frame culture it is productive enough, the fruit being of medium size, handsomely netted, solid, and of very fine quality. The old Scarlet Gem also succeeds admirably in frames, the fruit in this case being somewhat small, but very heavy. Cantaloupe Melons find no favour in this country. They are a comparatively hardy race, growing, cropping, and ripening their large fruit without much assistance in the way of bottom-heat. I have obtained several forms of this popular French variety, but am afraid the trial of these will not bring to light anything that will surpass say Monroe's Little Heath. The latter caused quite a sensation for a short time, but although the plants grew freely and produced numerous extra fine fruit, nobody could be found to eat them. Unless I am much mistaken, Little Heath was only another name for a Cantaloupe Melon. Plenty of both bottom and top heat will always be needed in this country to produce Melons that will suit the British taste.—W. I.

SHORT NOTES.—FRUIT.

Strawberry Edouard Lefort.—This is described as an exceptional variety in the *Revue Horticole*. It is robust, very vigorous, and remarkably productive, a seedling from General Chauzy, which it resembles somewhat in general character. The fruits are deep red, the flesh firm, even when fully ripe, of a beautiful red colour, juicy, sweet and agreeably perfumed. This Strawberry has obtained handsome awards. Thus at the Universal Exhibition it was accorded a first prize, also at the National Horticultural Society of France.

Shading Gros Colman.—Mr. Riddell's cure for the preservation of the foliage of this Vine is neither new nor is it always effectual. He recommends damping down in hot weather and an unusual lateral growth, conditions which have always been regularly attended to here. I will adopt in the future the plan I began last year with such marked results. The ripe wood, plump eyes, and natural yellow

leaves justify the course of treatment adopted. I shall be glad to comply with Mr. Riddell's request in regard to how the Vines behave in the future.—T. STRATTON.

CULTURE OF THE PEACH ON OPEN WALLS.

ALTHOUGH the Peach, probably a native of China, was introduced into England some 200 years ago, never, perhaps, has it been better grown than in our own time. In the south of France, Italy, America, and Australia it is cultivated as a standard, but our own country being much colder, it requires very careful root management in special borders and skilful training against south and west walls. Indeed, like most fruits and plants which require a great deal of care, the Peach has been so well handled by the British horticulturist, that fruit equal to the finest in the whole world now enriches our desserts from the end of April until the end of October. For some months past the Peach has been pretty freely discussed in the pages of THE GARDEN, and having myself been fairly successful as a grower of trees trained upon a trellis under glass, as a grower of orchard house or pot trees, as well as of trained trees upon open walls, having no commercial end to serve, I can do full justice to either of the three systems without knocking the others down. Cheap glass and timber all gardeners covet, and when they have put up houses by the score, unless their climate is very bad, they cannot rest until they have mastered the open-air culture of the Peach. Their efforts no doubt are attended by varying success, but so long as they stride their own hobby-horses and do not strive to win by fouling their neighbours, no great harm follows, as the masses of consumers do not suffer. Our Peach nomenclature is wretchedly bad, and sooner or later must be taken in hand by private individuals if public bodies shirk the task; but beyond great disappointment and inconvenience, obtaining and growing a tree under a false name has nothing to do with culture. Therefore I shall proceed to divide my subject into sections for the convenience of the editor, who may publish them separately or together as best suits his space.

The manufacture of Peach trees may safely be left to the trade, who have brought propagation to the highest state of perfection, and to the same body may be left the selection of stocks. Indeed, so little do gardeners trouble themselves about stocks, that nine-tenths of the best growers of fruit do not specify the particular Plums upon which the varieties they require must have been worked. The cheap man sows Plum stones, good, bad, and indifferent, pell mell, when budding upon them becomes a random shot. They may suit the varieties worked upon them, but more likely they will not. All good tradesmen take a different course, for they propagate from stools of less than half-a-dozen sorts, and these they divide, as all Peaches and Nectarines do not alike thrive well upon one particular Plum. Indeed, so fastidious are some of our best Peaches that the buds positively refuse to take, say, on the Brompton or Mussel; and when this happens we may trust the nurseryman as to the repetition of an experiment which must end in his own loss. When turning over some old letters the other day I came upon one from the head of one of the best London firms, in which he says, "We use the Mussel for most kinds, but find some succeed better on the Brompton. Amongst these are your famous A Bec, also Bellegarde, Belle Beance, Chancellor, Grosse Mignonne, Malta, Royal Kensington, Royal Charlotte, and Stirling Castle Peaches, Balgowan, Imperatrice and Victoria Nectarines. The following do best on the Mussel Plum: Barrington, Late Admirable, Noblesse, Royal George, and Violette Hâtive Peaches; Elruge, Hunt's Tawny, Pitmaston Orange, Red Roman, and Violette Hâtive Nectarines." Some of these varieties have been superseded, but this is not the point. I make the quotation to show the amateur and others that they should not hamper or tempt the nurseryman by asking for such and such trees on any particular stock, but that they should go to the best nurseries, where they must pay a good price, leave the matter to the master, or trust to their own judgment in the selection.

Many years have passed since I left off selecting my own Peach trees, and I venture to say I have very few bad ones—none, in fact; but those who can and would enjoy a visit should choose the month of October, just when the trees are finishing their growth. Now for the points. In selecting, choose trees with from six to a dozen evenly balanced, fairly strong, well-ripened shoots, giving preference to even numbers, as vertical leaders, objectionable in stone fruit trees, can then be avoided. Pay particular attention to the union, which must be clean, sound, neat, and not inclined to swell faster than the stock, which must be bright, healthy, and free from blemishes, which may result in gumming. If dwarfs are preferred, the lowest shoot should be a foot from the ground, but quarter or half-standards worked twice are hardier and better adapted for open walls. Ascertain if annual lifting is rigidly carried out, and on no account accept trees with gross, imperfectly ripened shoots. Lose no time in getting them home; then, as few people go into Peach culture without giving the matter due consideration, place them against vacant or temporary walls, which may be made of Spruce boards, and whilst they are making the best progress, root and branch, take time to prepare the permanent borders not only properly, but during fine, hot summer weather. Steady warmth being the great factor which must be secured, it is hardly necessary for me to say borders that are excavated, concreted, and made up again when all the materials are hot and dry have many advantages over those which are formed when the subsoil is cold and wet, and the compost is wet enough to become adhesive and pasty.

FORMATION OF THE BORDER.

The width of a border is regulated by the height of the wall, the depth by altitude, the nature of the soil of the district, whether hot and light, or wet and heavy, for much as the Peach enjoys moisture, nay, water *ad lib.*, when growing, it abominates cold, stagnant water in winter. In the first case, the borders may be 2 feet 6 inches deep; in the second, 2 feet will be ample, and then even one half should be above the surrounding level. Having fixed upon the surface line, an area, say, 6 feet in width and deep enough to allow for 9 inches of drainage beneath the compost should be taken out, all suitable soil being retained, that which is unsuitable being wheeled away. A narrow trench running longitudinally along the front must then be opened for the reception of 4-inch drain pipes, and these laid with their crowns a couple of inches below the level of the bottom, the time will have arrived for deciding whether the sloping bottom must be concreted before the drainage is introduced. A few years ago the mania for concrete led many cultivators into unnecessary expense, not a few believing that this floor of lime and gravel was intended to prevent the roots from striking into the subsoil. In days prior to the system of root-lifting and relaying near the surface, the roots may have got down into this unwholesome region; but successful growers of the present day never allow them to get into the drainage, and if questioned as to the use of concrete, they will say, to prevent cold water from rising out of a low, bad subsoil. This being so, each individual must decide for himself as to whether his borders require this preparation or not. In any case, unless the bottom is sand or gravel, 6 inches to 9 inches of good, clean drainage must be placed evenly over the bottom and well rammed or beaten with stone hammers to prevent the finest particles of soil from getting into it. The materials which may be used are numerous, but still with an eye to warmth, the grower should give preference to absorbents like broken brick, old rough lime rubble, or sandstone. In cold, heavy localities an excellent bottom may be made of burnt clay which may be screened, the roughest going for drainage, the finest for working in with heavy loam in the formation of the compost. So far the work has been mechanical, but now comes the question of suitable materials, and their preparation for forming the

BORDER.

In a short article on culture under difficulties, I stated the other day that old turf might be taken

from a field, replaced with rich garden soil, and sown with lawn Grass seeds, when a few weeks would restore the spot to a condition far beyond its original quality. The Peach, it is true, will grow in almost any good soil that is not wet, and fruit in any soil not too light, but that which suits it best is a sound calcareous loam, acceptable to cultivators of Strawberries and Roses. If it can be taken with the Grass, so much the better, as thin turves can then be laid grass side downwards on the drainage, and the piecemeal system being best, these also can be used for building up the front of the border, a regular run of 3 feet in width being quite ample until the young trees require lifting. If plenty of this loam can be obtained when dry and stacked to pulverise, the addition of one load of old lime rubble and one of burnt clay to eight of the staple, will make a compost quite rich enough without the aid of bones or animal manure of any kind. The great secret of success, indeed, rests in the use of a sound, sustaining compost, poor rather than rich, in which the roots must forage for a living, and from which the strongest growths will not be thicker than a pencil, nor more than 2 feet to 3 feet in length, in any one season. When thoroughly mixed in fine dry weather, the compost should be wheeled in, well worked over with steel forks, and left 9 inches higher than the intended level to settle. Borders may be made as late as October, but this being the best month for planting, especially when the trees are on the premises, I give preference to August or September, a period alike favourable to steady subsidence and gentle fermentation. When this condition is secured, all trees bought in the autumn previous, although in full leaf, may be lifted and transferred not only in safety, but with the greatest certainty of immediate root action. Before lifting is commenced, the border, on a dry day, must be made quite firm by even treading and the addition of more compost where necessary, for it must be borne in mind that this first moiety will form what is termed the wall-path; therefore it must take an even gradient, otherwise some trees will be too deep, others too shallow, when the work is finished. Then, having decided upon the

DISTANCE APART,

stations for permanent trees must be set out equidistant, but varying in proportion to the height of the wall and the future mode of training. The fan system is best, and dwarfs or quarter standards having been procured, as previously suggested, upon a wall 10 feet or 12 feet in height, 20 feet from stem to stem will not be excessive. Indeed, in good Peach soils and fair average situations extension-trained trees will overlap before they reach the coping, as we have here trees over 30 feet across the breast and still extending. This matter of distance, however, at the outset is of no great moment, as all well-managed trees will be root-lifted once or twice before they settle into full bearing, and nothing is easier or more beneficial than lifting, changing the position, and relaying the roots within a few inches of the surface of the border. Another advantage is gained by giving plenty of room, and that is the space for the introduction of supernumeraries, which can be transferred to other walls or turned into cash when no longer wanted. Cordon Plums, Pears, and Apricots may be used for filling up the open spaces, and nothing, I venture to say, will pay better than choice Pears, but unless the situation is extra good, I do not recommend cordon Peach trees. These questions settled by the owner, the next point is the important operation of

PLANTING.

I once heard a nurseryman say, plant trees as deeply as they have been planted in the nursery; but this rule of thumb system will not do here, as the Peach above all other fruit trees must not be overdone with heavy soil about the collar. From 3 inches to 4 inches of soil placed over the roots at the outset is ample; therefore, allowing for further settling and keeping them within the influence of solar heat, each tree, in the first instance, may be placed with its highest roots quite level with the surface. The trees I am treating of having

made wigs of roots, there will be very little cutting, but any showing a tendency to grossness must be shortened back and mutilated fibres tipped before they are planted. Then, having spread them evenly over the surface, a few inches of the dry friable compost must be cast over them, a little water being used to settle it home in preference to treading. The trees, too, being still in leaf, premature settling to rest may be prevented by an occasional dewing over with the syringe on fine afternoons for the first week or two. From this time until the following spring, no more water should be given artificially, but the roots being so near the surface, warmth and moisture should be kept in by a light covering of fresh stable litter. After the trees are planted and mulched, the shoots should be made secure by the introduction of a few nails in parallel lines, to which long strips of matting can be attached; but on no account must shreds or distinct ties be used until the time arrives for training. The objection to these is obvious, for if the shoots be confined by shreds or ties, the subsiding border strangles the roots, as the trees cannot follow or settle with them.

PRUNING AND TRAINING.

Years ago the restrictive trainer cut his newly-planted trees back to give them a start, then, having introduced large quantities of animal manure, they started away with a rush, making gross shoots which never ripened. A few still follow this course and perform the principal part of their pruning and shortening back towards the end of the winter. When I was a boy a long cycle of good years favoured cutting away two-thirds of each shoot, but seasons have changed, temporarily, I believe, and although for the time being neither so regular, so decided, nor so good, they have forced the majority of growers into the general adoption of the extension system, which enables them to fill their walls quickly with trees free from knife blemishes, and to produce the finest of fruit in very large quantities. I do not wish to foster this by giving any other system a back-handed blow, for I have tried both, and am ready to try or modify them again, provided I keep my walls covered and get plenty of good fruit from trees which increase in fertility as they increase in size. The only charge the restrictive grower brings against the extension tree is a paucity of bearing wood in the centre; but this is groundless, as my trees present one even spread of bearing shoots and foliage. No one, I suppose, would be so unwise as to decline shortening where shortening is absolutely necessary to the formation of several shoots in the centre or the repression of robbers at the extremities; but beyond these operations, which should be performed with the finger and thumb, the knife may be kept in the sheath until the time arrives for dressing up the branches prior to spring training.

Returning to our autumn-planted trees, with from six to twelve shoots of equal strength, or nearly so, those showing a tendency to grossness must be tipped, and possibly one or two badly placed may be cut away entirely. This constitutes the knife work the first season. The trees in March are tied or nailed in, the closer to the wall the better, and fruit being out of the question, they will require no further attention until the buds commence pushing freely. If the spring is dry a thorough watering will greatly assist the break, and a dash with soap-suds will check aphids, a most important matter, as we cannot afford to lose the first shoot and wait for a second. When in free growth, mindful of the fact that each leaf will measure 6 inches in length, and the foliage from one shoot must not shade the shoot below, the foundation of the future tree must be formed by incessant manipulation known to the craft as

DISBUDDING,

really and truly a course of summer pruning. But the trees being young and barely established, the shoots must get well advanced before their lungs are checked by this process. This remark applies to old trees as well as young ones, as many a crop of fruit and shoots is checked and spoiled by sudden

exposure to morning frosts often so late as the middle of April. Early in May is a good time to commence, and then disbudding must be performed piecemeal, first the foreright shoots, then those which emanate from the lower sides, and, last of all, a small percentage on the upper sides when those intended for laying in have been decided upon. In my own management I leave growing shoots about 12 inches apart, pinch the others intervening, especially if the trees are in a fruiting condition, remove them bodily when danger of spring frosts has passed away, and further reduce the others when the time arrives for training. All leaders, as a matter of course, are allowed to extend, but the extreme points are taken out with the thumb-nail, also laterals when they show the slightest tendency to become robbers. By the middle of June the experienced grower will see at a glance where he has left more shoots than will be wanted for giving fruit the following season, and if he does not take them away at once, he will do so by degrees, otherwise his wood will not be hard, brown, and thoroughly ripe by October. If kept clean and closely trained, the trees by this time will be 6 ft. to 9 ft. across the breast, and all manure or liquid having been kept away from the roots, the foliage will be ripening and triple buds abundant. If litter or other non-conducting material has been spread over the wall path it must be removed, as roots as well as shoots must have all the solar heat that can be given to them. At this stage, too, the question of lifting and relaying the roots close to the surface must be decided upon. In nine cases out of ten this process will be necessary, and, considering how quickly the work may be performed, this keystone of future success must not be neglected. If a slight addition to the 3-foot border is necessary, the old turf wall may be forked down and incorporated with the new, increasing it to 4 feet, but not one particle of manure must be put into the compost.

(To be continued.)

W. C.

THE WEARING OUT OF VARIETIES.

I WAS much interested in the remarks of "E. H., at p. 154, under the above heading, and there can be no question that a large proportion of varieties wear out if they are grown on for years in any one garden, or, in other words, in the same soil and climate; but if a variety is widely distributed, I do not think it will ever wear out if ordinary means are adopted to keep it true. Of course, in the case of plants such as the Cabbage and Cucumber tribe, the chances of cross-fertilisation are apt to destroy the identity of any particular variation, but this only means evolution, and often new life or added vigour, rather than wearing out. If we look at the lists of fruits or vegetables of half a century or more ago we find names now obsolete; but that, of course, often means that their names have been changed, and not necessarily that the kinds themselves have died out. Any varieties really worth keeping, such as Ashleaf Potato, Ne Plus Ultra Pea, Jargonelle Pear, Black Hamburgh or Muscat of Alexandria Grapes, Cox's Orange or Blenheim Pippin Apples, &c., will never wear out, because they are too widely grown, and care is taken where necessary to prevent evolution by the most careful selection in the garden. Besides, these standard kinds are too well and too widely known for them ever to be obscured by new names, although a glance at their synonyms will show that attempts to re-name them have not been wanting. Speaking of the wearing out of Ribston Pippin Apple, I believe it is a fact that a sucker of the original seedling or own-rooted tree is still alive, so that it is a by no means good example of wearing out, but rather the reverse. Garden varieties may be superseded by better varieties, or varieties more suited to the tastes of the time, and then they may be thrown out of cultivation or discarded in favour of newer sorts; but this, of course, is not wearing out in its true biological sense. Even varieties naturally delicate and unsatisfactory in many gardens do phenomenally well in restricted areas. I believe in the case of fruit trees grafting on unsuitable stocks often induces premature decrepitude; but

as a broad rule I do not believe in the wearing out of varieties really worth keeping.

F. W. BURBIDGE.

GRASS WALKS IN GARDENS.

REMEMBERING that we have enjoyed the delight incidental to firmly-made clean-shaven lawns for hundreds of years, that we have walked over them constantly at all times and seasons, that we have wheeled heavy barrows over them, including water-barrows, and that we have found, especially since the introduction of mowing machines, the keeping of Grass lawns the cheapest and simplest of all ordinary garden work, it does seem rather odd to find the value of turf questioned when employed to form garden walks. But we need not confine ourselves to inferences drawn from lawns; we have several large kitchen gardens in the kingdom in which turf forms the sole surface of the walks, and these bear far more practical testimony to the value of turf than ordinary lawns. Some time since I alluded elsewhere to the remarkable turf walks which are found in the very fine kitchen garden at Hackwood Park. These include a very broad walk some 16 feet wide all down the centre, a length perhaps of 200 yards, and as it is bordered on either side by masses of hardy and other flowers intermixed, this walk presents in the summer the gayest and most pleasing vista I have ever seen in a kitchen garden. It is true the kitchen garden walk with its parterre borders on either side has long been a wonderfully pleasing feature at Heckfield, but it loses in length and breadth greatly when compared with the boldness and beautiful verdant floor of the broad walk at Hackwood. Then there runs all round the large quarters of this latter garden, and intersects them at two points besides the ends, a further green walk of some 8 feet wide, so that with a broad bold garden enclosed with a high wall, the Grass walks are proportionately broad also. As walks for locomotion and furnishing perfect comfort in such locomotion, no other kind of path could excel this turf in any way. It is at all times perfectly even, firm without being inelastic, and always tidy; as to ease of labour in keeping tidy, the mowing machine has settled that matter quickly. The large horse mower is run over the whole of the walks weekly in a surprisingly short time, and the edges need about a day's labour for a man once a fortnight. There is no need for rolling or weeding or mending, as is the case with gravel walks, and the constant use of the heavy mower by its pressure destroys all slugs or other pernicious insects, whilst the shortness of the Grass gives no cover for them. If there are in the minds of readers lingering doubts as to the adaptability of turf for kitchen garden walks, they should visit Hackwood and hear what Mr. Bowerman, the gardener, has to say about it. The natural soil at Hackwood is very stiff and cold. It is true some grand crops of vegetables are grown on it, but, all the same, it is a treacherous soil to work and gives considerable trouble, and yet it is a clay basis, as it were, on which these turf walks are placed. I have no doubt but that in laying them down some chalk or burnt clay or other porous material was laid beneath, but if so, then it does but serve to show that some pains in making is amply repaid by the quality and endurance of the walks for generations afterwards. I do not know how long these green walks have been laid. Perhaps Mr. Bowerman can tell, but, judging by what I have seen of them, I should think they have worn out gravel walks many times over. Being so porous, the rain soon passes off and leaves the turf walks firm and pleasant to walk upon. There is much that is illusory with regard to the contingent harm done to turf in wheeling barrows upon it. No gardener but has had experience of wheeling casually upon lawns and found no harm resulting, whilst if some extra wheeling had to be performed, planks are laid down to protect the turf. Any thoughtful man would take as much care of the gravel of his kitchen garden walks when soil or manure had to be run over them, except it were in frosty weather. What protection is given to the gravel can be given to the turf. It is so given at Hackwood, whilst there is ample

provision for access through the garden walls by means of doors, and therefore it is needful to wheel over the turf but short distances. There is absolutely no danger that turf walks will generate weeds, as seeding is quite out of the question. Not the least excellence is found in the dispensing with all edgings, living or dead.

A. D.

GARDEN FLORA.

PLATE 742.

THE BEST ANNUAL COREOPSIS.

(WITH A COLOURED PLATE OF *C. TINCTORIA* VAR. *)

THE cultivation of this large and popular family of Composites, containing many really beautiful perennial as well as annual species, has been



Coreopsis auriculata.

increased very much during late years. Most or all of the annual kinds are now classed as hardy, and require only to be sown in the open border or bed where the plants are intended to bloom during the summer and autumn months. By making successional sowings, the first of which may be done in autumn for early summer, a continuance of flower may be had until the plants are destroyed by the early autumn frosts. This great advantage of sowing the seed in the open brings these highly delightful and exceedingly ornamental flowers within the reach of everyone owning a garden. Over most of the other Compositeæ these annual forms of *Coreopsis* have a great many advantages, their hardi-

* Drawn for THE GARDEN by H. G. MOON, September 18, 1889, at Gravetye Manor. Lithographed and printed by Guillaume Severeys.

ness, the beautiful effects that may be obtained by a careful mixing or blending of the various colours, and also their usefulness as cut flowers. To succeed well and make the most of the plants, they should be grown in a rich soil, and if moist rather than dry, especially for the early-sown seed, so much the better. In warm sunny positions and in light sandy soil they are always dwarfer and the flowers smaller, but it does not affect the flowering qualities.

The following are among the best :—

C. ATKINSONIANA.—This species is, we believe, the only one found west of the Rocky Mountains, and in some of its forms more nearly resembles the well-known *C. tinctoria* than any other of the annual kinds. It is one of those plants that do uncommonly well in almost any soil or position, and as its native habitat on river banks would suggest, it does best in a damp soil, though we have seen it in great beauty on a dry, sandy one, where it is much dwarfer. It lasts a very long time in bloom, and, like *C. cardaminifolia*, may be used with great advantage among summer bedding subjects. Seeds may be sown in autumn, and successional sowings, which keep the display up until late autumn, may be made in March, April, and May. It grows in poor soils from 1½ feet to 2 feet high, and in rich, damp soil from 3 feet to 4 feet. The lobes of the leaves are narrow-linear, sometimes very long, with sharp points. The flowers, which are produced in great profusion, are rarely each less than 1½ inches to 2 inches in diameter, deep golden yellow with a dark velvety purple blotch near the base of each ray. River banks in Oregon, Washington, and East to Dakota, and, we are told, first collected by Douglas.

C. ABISTOSA.—This (see engraving, p. 199) is also an annual, and although comparatively rare in gardens, it is amongst the most handsome and free-flowering of the genus. It grows from 1 foot to 3 feet in height, is much branched and carries a large flattish head of clear golden yellow flowers, each over 2 inches in diameter. The blooms are produced on rather longish stalks, and are each surrounded by an involucre of from eight to ten bract leaves. The leaves are divided, the divisions narrow and pointed. It is a very desirable plant for beds and borders and most useful for supplying cut flowers. It has a free habit, the flowers lasting a considerable time both on the plant and in a cut state. It is said to hybridise with the *Bidens*, and bi-generic hybrids are not uncommon in a wild state, but we have never seen any of them in cultivation. Swamps in Michigan, Iowa, Missouri, &c. It is said to be variable in size of flowers. It may be sown in autumn and again in spring to give a succession of bloom.

C. AUREA.—This is a fine species with a neat, compact habit, giving a profusion of large, golden yellow flowers, larger even than those of the rare *C. grandiflora*, which we are glad to find has at last been introduced by W. Thompson, of Ipswich. *C. aurea* ranges in height from 1 foot to 3 feet, rarely, however, attaining the latter figure, even in rich garden soil. The leaves are usually divided into five to seven divisions, the leaflets sharply toothed or serrated. The habit is compact, stems much branched, the flowers golden yellow, the ray broad and entire. Native of wet ground—Virginia to Florida. A handsome species and well worth including in a collection.

C. CARDAMINIFOLIA.—This is a charming species, as much on account of its dwarf, compact habit as for its free-flowering nature. It is dwarfer than *C. aurea* and more suitable in every way for small borders and near the front of large ones. It grows from 1 foot to 2 feet in height, the lobes of the lower leaves being oval or lanceolate, and often very narrow and linear, those on the upper part of the stem being always finely cut. The flowers of a soft yellow tint, and varying from 1 inch to 2 inches in diameter, according to soil and position, are produced in such abundance as to almost hide the leaves. We have found this species an excellent one for supplying cut flowers for table, and it is so easily raised from seed in the ordinary way recom-



COREOPSIS TINCTORIA (DARK VARIETY.)

mended for hardy annuals that it may be grown with advantage for that purpose. It is a native of low grounds in West Louisiana and Texas, flowering towards the latter end of summer between the early kinds and the perennial species in autumn.

C. CORONATA.—This pretty species belongs to the same section as *C. grandiflora*, lanceolata, and



Coreopsis cardaminifolia.

the handsome *C. auriculata*. It is one of the most characteristic and distinct of the annual kinds, and invaluable as a mixed border subject. Its flowers are produced with unusual freedom, remain a considerable time in beauty, and prove of great service in supplying cut flowers. Its compact habit and dwarfness render it very effective in masses, and as it is very hardy the seeds may be sown on the most exposed positions. In height it rarely exceeds 1 foot to 2 feet, often quite hairy, and in other individuals quite glabrous, the leaves and stem being shining green. The lower or radical leaves are from three to five-divided, the upper narrow and usually entire. The bright yellow flowers vary from 2 inches to 3 inches in diameter, the outer edges of the rays being deeply notched, and usually with a few brown-purple spots towards the base. It flowers during the late summer and autumn. A native of E. Texas.

C. DRUMMONDI.—This is so distinct from all its associates as to warrant a place in even small col-



Coreopsis Drummondii.

lections. It makes a very handsome border plant, its compact, much-branched, and profuse flowering habit rendering it quite indispensable. It is also largely used for greenhouse decoration. It is one of the dwarfiest of the genus, rarely attaining more than 2 feet in height. The flowers, often borne in pairs on long slender stems, are each over 2 inches in diameter, of a rich golden yellow, with small purple-brown blotches at the base of the rays. A

native of Texas, where it is found in sandy soil, first collected by Drummond, and is the *C. diversifolia* of the *Botanical Magazine*, t. 3474. It is also figured in Sweet's *Fl. Gard.*, t. 315.

C. MARITIMA, which together with *Douglasi*, *Stillmani*, *gigantea*, and others, form the genus *Leptosyne* in Gray's "Flora," have, in the new order of things, been included with the Tickseeds. None of the species can be compared with the other forms of *Coreopsis* for beauty, and can only be recommended where variety rather than beauty is desired.

C. TINCTORIA has proved in the hands of the florist to be an extremely variable species; indeed, if we mistake not, by far the most varied and popular of this extensive family. The numerous forms, many of which are very beautiful and graceful, which have cropped up within the last few years are a wonderful advance on the old garden type, and tend in a measure to show what can be done



Coreopsis lanceolata.

even in so short a time by careful and intelligent selection. This improvement of popular garden flowers by selection is both an interesting and a beneficial work, and it is to be wondered why amateurs generally do not give a helping hand with it. *C. tinctoria* as a summer annual has few equals, presenting us with an unusual variety both in habit, height, and flower marking. It is classed amongst the hardy annuals, and may be sown in the open air in its permanent quarters in early April, and, with the exception of occasional waterings during a drought, requires no attention whatever of a special nature. The seeds, however, with this, as with all annuals, should be sown sparingly and thinned out to 6 inches or 9 inches apart, when the seedlings are ready to handle. Besides being a most useful plant for beds and mixed borders of all kinds, it may be used with great advantage grouped in beds of evergreen shrubs. Here its beauty and graceful habit will be seen at their

best. In such positions, where the plants get kindly shelter from winds in spring and heavy rains in summer, they last longer than in the exposed flower border. *C. t. var. atro-sanguinea*, figured in the *Botanical Magazine*, t. 3511, and which differs little from the form figured in the accompanying coloured plate, has made a distinct race of its own, the dark purple self forms, the type as figured above, being among the best twelve hardy annuals which gained the prize at the September meeting of the Glasgow Horticultural Society, 1835. It has a fine sturdy habit and is a most profuse bloomer. *Marmorata*, marbled yellow and brown, is also very handsome; *nigra speciosa*, dark brown self, very fine; *nana*, a splendid dwarf form, not, however, constant. A host of other varieties, all of which are named and described in seed lists, gives sufficient scope even for large selections, a catalogue before us now having no less than twenty-seven distinct forms of *C. tinctoria*, which, of course, includes bicolor of the *Botanical Magazine*, t. 70. The forms of this species are easily distinguished from all others by their finely-divided leaves, the divisions narrow and thread-like, resembling Fennel as much as anything. The flowers, as noted above, are very variable, yellow, orange-yellow, crimson-brown, purple, in various shades and forms, making up the army of varieties.

C. TRICHOSPERMA is a tall and, in our opinion, ugly species, with small yellow flowers, not showy enough for the mixed border. D.

THE WEEK'S WORK.

FRUIT HOUSES.

PEACHES.—Disbudding and thinning in early houses will now require daily attention, the secret of success in the performance of these operations consisting in a gradual reduction of shoots and fruit without checking the circulation of the sap. In my own practice I take first the foreright shoots, especially near the extremities, then those on the lower side of the fruiting wood, and, last of all, a portion from the upper sides, pinching to two or three leaves where promising fruits require encouragement. Shortening back where the shoots have been laid in full length at this time, too, is commenced, as I always give preference to fruits produced by the lowest parts, which are best ripened. As disbudding is proceeded with, all inferior and badly placed fruits are rubbed off, doubles and trebles are reduced to one at each node, and the set being good enough and to spare, those pointing to the sun are left for future operations, a Peach to every square foot of foliage forming a heavy crop for healthy trees to carry to a good finish.

Succession houses containing trees now in full flower must have an abundance of front air and a moderate outlet along the top, with steady warmth on the pipes to keep it in motion and prevent sudden depressions. Here we set open all our front ventilators when, on fine mornings, the temperature begins to rise from the night mean of 50°, keep the house full of fresh air, and regulate the temperature through the day by increasing or reducing the vents at the apex. We do not fertilise with the syringe, but damp the walls and clean horse litter with which the borders are covered, and pass the brush over the flowers when pollen is ripe and plentiful. Towards evening we reduce the ventilation and fire heat, discontinue damping, and allow the trees to rest in a temperature varying from 45° to 50°, our sole guide being outside conditions. Slow work, some may say, but, nevertheless, sure, as the treatment ensures bold, perfectly fertilised fruits and stout, short-jointed shoots capable of holding and maturing flower-buds where weak elongated twigs cast them.

LATE HOUSES.—The trees in these being unusually forward, all the air possible must be given until the flowers are ready to open. This stage reached, fumigate twice in the course of a week, and give the trees a good syringing on fine mornings. Retarding at an end, 40° to 45° at night and

50° to 60° by day must be maintained by careful, but liberal ventilation. As late Peaches invariably set well, artificial fertilisation will now be of little consequence, but the operation being so simple, the flowers may be brushed over on fine days, and further setting may be facilitated by rubbing off all the pendent flower-buds before they open.

WATERING.—Although I have asserted that the great bugbear—bud-dropping—is not always the outcome of drought, there exists no shadow of doubt the crops in hundreds of instances would be better than they are were the trees more liberally supplied with water. It is not a good plan to water when the trees are in flower, but at all other times they should have heavy supplies, especially when the fruit is swelling, and again after the crop is gathered.

FIGS.—If all has gone well, the fruit on pot trees will now be forward enough for thinning, an operation the neglect of which not unfrequently produces its own Nemesis. Although judiciously thinned, and the points of the strongest shoots from time to time have been pinched, the fruit at this stage will stand still, and neither heat nor moisture will make any perceptible impression. Good work within, nevertheless, will be going on, and once the flowering stage is past, the most forward Figs will make up for lost time by swelling to maturity. The syringe throughout the flowering stage must be regularly plied, tepid liquid in plenty must be given to the roots, and the temperature ranging from 65° at night to 75° by day, and 80° with sun and air, must be kept as steady as possible. As days increase in length and the sun gains power, the early afternoon bath should be thorough, when from solar influences the temperature may run to 85° or 90°.

SUCCESSIONS.—Trees growing in inside borders resting upon good drainage, like Peaches, will revel in copious supplies of tepid water, also in good syringing. Ventilate moderately through the early part of fine days, and when the fruit buds begin to burst, close about 2 p.m. with sun-heat and moisture. If the trees have been heavily root-pruned and look weak, mulch well; but otherwise, defer feeding for the present, the worst of two evils being grossness at the outset.

HARDY FRUITS.

A SPELL of dry frosty weather with the night temperature ranging a few degrees below the freezing point has proved a godsend to the grower of hardy fruits, for not only has it checked the flow of sap before the buds became too forward, but it has enabled him to get out manure so much needed for mulching and top-dressing. Late pruning, training, staking, and cleansing, too, have been carried to a close with the greatest comfort, the only trees now remaining unfinished being Figs and Peaches. My own Peaches at the present time (Valentine's Day) are tied out some 6 inches from the walls, and in this position they will remain until the flower-buds show colour. When this stage is reached retarding will be at an end, the time having arrived for training and preparations for protecting from morning frosts through March and April. The poles and broad copings of wood or glass also may be placed against Apricots and early Pears, but on no account must the nets be applied until the flowers begin to open.

If planting is still in arrear, trees laid in by the heels should be carefully transferred to their permanent quarters when the weather is mild, and the soil being dry, a little water will settle it home about the tender rootlets now too far advanced to bear immediate treading or ramming. The water should be applied to a thin stratum of soil placed amongst and over the roots, and when this has settled the remainder of the compost may be put in and mulched with short manure or fresh stable litter. Autumn-planted Strawberries should be made very firm by careful treading when the weather is dry, and old beds may be cleared of weeds and runners preparatory to the final dressing with rich compost, including stiff loam and rotten manure. The old leaves, which have stood well, should not be disturbed, as they shelter and feed

the crowns and aid the formation of new surface roots when the compost is worked in amongst them. If slugs and snails are likely to be troublesome, a dusting with soot before the crowns burst will render their favourite shelter untenable.

W. C.

PLANT HOUSES.

STOVE.—**IXORAS.**—Where Ixoras are grown in as high a temperature as they like they may be repotted at any time of the year. But when there is not enough heat to keep the growth moving through the winter, it is best to defer potting until the present month. When Ixoras are properly treated they grow very fast alike in the tops and the roots, necessitating a corresponding amount of pot room, especially whilst the plants are young. If allowed to get pot-bound before they have attained specimen size, the wood becomes hard and stunted to an extent that prevents their moving freely afterwards. Young examples in free growth that are now in 8-inch or 10-inch pots may be moved to others 6 inches larger. They should have good peat, somewhat light in texture and containing plenty of fibre, a moderate amount of sand must be added, but no manure nor leaf-mould, as it is better to give assistance of this kind in liquid form. This should be regularly applied as soon as the roots have begun to run freely in the new soil. Use the peat in a more lumpy state than is usual with things of a harder nature that are grown in peat. When light soil such as advised is used, it is necessary to make the soil quite solid. The plants should have a night temperature of 70°, with a rise in the daytime proportionate to the state of the weather.

DIPLADENIAS.—Where the potting of these plants was not carried out in the autumn, it should now be done. There are no hard-wooded subjects grown in pots that are so impatient of any excess of moisture at the roots as Dipladenias. If the soil is in a condition to hold much water, it is impossible to keep the roots from perishing, however carefully the watering-pot is used; consequently most of the old material should be got away at the time of potting. In doing this care must be taken to break the roots as little as possible, as if there is much loss in this way it will check the growth to an extent that will delay the flowering. Peat such as that advised for Ixoras is the best for Dipladenias; it should also be used in a lumpy state, and have one-sixth of sand added to it. This will not be too much if the peat is of the description recommended, as it will contain little or no sand. Pot firmly and give no water for ten days or a fortnight after potting. Train the shoots close under the glass. Little or no shade should be used for Dipladenias, Ixoras, Allamandas, and Bougainvilleas, unless the glass contains lenses that burn the leaves, in which case they should be smeared over with a little white lead well thinned with oil.

GARDENIAS.—Where there is not the means of giving Gardenias a liberal amount of heat in winter, there is not much chance of having many flowers during the two first months of the year. But now, when the sun has got enough power to increase the temperature of the house considerably, the buds will move apace. More water may be given, but do not syringe overhead more than once a day, for though there will be less tendency in the buds to drop now than in the dead of winter, still, if too much moisture lodges about them they will suffer.

CUTTING-STRIKING.—Young Gardenias are preferable to old stock, and as the plants can be grown large enough for general use in one year, there is nothing gained by keeping them until they get old. Good-sized branches, consisting of half-a-dozen shoots each, will strike as readily as ordinary small shoots. Large cuttings of this description should be put into 6-inch pots, drained, and three parts filled with a mixture of sifted peat and sand in equal proportions, the top all sand. Confined in a striking frame with a brisk heat, roots will soon be formed. As soon as the plants are fairly established move them into pots two sizes larger. Where

peat of good quality is not plentiful, loam will answer.

ALLAMANDAS.—Plants that were potted at the beginning of the year will have begun to move freely. Keep the young shoots in an erect position until they show flower. If any attempt is made to bend them down in training them round the trellis, or whatever is used for support, they will not continue to extend, but will keep on breaking back as often as the shoots are bent. This necessarily delays the blooming and reduces the quantity of flowers which the plants are capable of producing in the season. Where the potting has been deferred no time should be lost in getting it completed. In the case of full-sized specimens that are already in pots as large as it is advisable to give them, three-fourths of the old soil should be discarded, and the roots that have got down into the drainage material should be cut away; but beyond this there should be no more breakage than is unavoidable. Allamandas are gross-feeding subjects that require a large amount of nutriment to support the growth that is made during the course of the season. They should have rich soil in addition to continuous assistance with manure water, which ought to be applied regularly when the roots have got fairly hold of the new soil. Loam that contains a good portion of vegetable matter, with one-sixth of rotten manure and a good sprinkling of sand, is the best material for all the kinds. In potting it is scarcely possible to make the soil too solid. The more freely the potting lath is used, the better the plants do. Eighteen-inch pots are large enough for full-sized specimens. When the plants are grown as climbers and have not to fill a large space, it is better to grow them in pots; when planted out and the roots are unconfined they make such an amount of top growth that it is difficult to keep them within reasonable bounds. Where only one kind is grown I should advise A. Chelsoni; it is not so coarse a grower as A. Hendersoni, which is the sort most often met with, and is quite as free a bloomer, of a much finer colour, and a better shaped flower, and when required for cutting the blooms are more suitable for the purpose. Before being potted large plants should be cut well back, leaving not more than a few inches of last summer's wood. Small examples that are wanted to grow larger should have more of last season's wood retained. Where large plants have most of the old soil removed in the way recommended, it is better to pot them as soon as they are cut back; if the work is deferred until the plants have broken into growth many of the young shoots through their brittle nature get broken off.

SARRACENIAS.—These plants should be repotted once a year, as if allowed to remain a second season the material is in danger of getting sour and unfit for the roots to remain in, the quantity of water they require causing this. All the kinds, except the varieties of S. Drummondii, should be potted early in the year. Good Orchid peat with most of the earthy matter shaken out and chopped Sphagnum in equal parts, with a moderate quantity of charcoal or potsherds broken moderately small and a liberal addition of sand, is the best compost for Sarracénias. If ordinary pots are used they may be filled to half their depth with drainage, as the plants do not push their roots nearly so deep as most things. Press the material moderately firm in the pots, but not so as to break the roots. Water freely as soon as the potting is completed.

T. B.

KITCHEN GARDEN.

EARLY PEAS.—Those raised under glass for transplanting to sheltered spots or open quarters must not be coddled in any way, the aim rather being to keep them as hardy and sturdy as possible. They ought to be finally planted out before they are more than 4 inches high, advantage being taken of a few warm days, the ground also being in a favourable state for doing this work. It is advisable to surround the roots with fresh loamy compost if the ordinary soil is either stiff, lumpy, or somewhat wet, and shelter of some kind must at once be afforded. First, however, dust plenty of

ashes or soot and lime about these comparatively tender plants, or otherwise the slugs will clear them off wholesale. After well moulding them up support the plants with spray of some kind, half dead Spruce Fir answering well for the purpose, this also protecting, without unduly shading the rows. There is no reason why the taller stakes should not also be given at once, and all that further remains to be done is to keep off birds and slugs. Where the early Peas sown in the open have come up unevenly, or perhaps have been eaten by slugs or birds, the rows, unless very thin, may be most easily made good by sowing more seed either in small pots, turves, troughs, or boxes, placing these in gentle heat, and finally hardening off the seedlings and planting them out where needed.

SUCCESSIONAL PEAS.—The closest succession can best be obtained by sowing another row or rows of William I. directly those already got in are coming through the ground. Unless this is done there may be a slight break in the supply, through either Telegraph, Telephone, Essex Rival, Dickson's Favourite, Advancer, or whatever second early variety that may be preferred not podding quite so quickly as desired. There is always a risk in sowing wrinkled seeded or Marrow Peas too early, the seed often rotting in cold wet ground. It is wise, therefore, to either delay sowing till the ground can be got into a fit condition, or else to cover the seeds with lighter drier soil. The choicer, or any presumably early wrinkled varieties can be transplanted quite as well as the first early or round-seeded forms, and in many cases may well therefore be raised under glass and somewhat similarly treated. It may not be a fair test, but it is better than running the risk of losing the greater portion of a small and expensive packet of seeds.

ENEMIES TO PEAS.—In all probability there are more enemies to Peas than to any other kind of vegetable. The seed is preyed upon by mice, slugs gnaw through the young stems, birds feed on the tops directly they are above ground, and in many gardens eat the greater portion of the crops, while mildew, thrips, and other enemies have also to be reckoned with. A good open position is perhaps one of the best preventives of mildew and insect pests, but this will not keep off the other enemies. Field mice when once well established in a garden are very difficult to exterminate, and can hardly be kept from newly sown Peas. We have tried covering with chopped Furze, soaking the seed a short time in petroleum, sprinkling gas tar along the rows, and well coating the seed with red lead, the last-named being the nearest approach to a perfect remedy and the only plan now resorted to. The seed is first well moistened, then rolled or shaken up in dry red lead till thoroughly coated with it. This does not injure it in any way. Trapping mice is a slow process, the better plan being to keep a good cat constantly in the garden. Frequently dusting over the young plants with soot and lime, this being done early in the morning, will usually keep off slugs, but birds are not wholly deterred by it. Wire guards are the best protection against the latter, but if not very voracious they may be kept off by passing a few lines of black thread over and about the rows.

PARSNIPS.—Some time in the month of February is usually considered the proper time to sow Parsnip seed, but of late years it has frequently been proved that very little, if anything is gained by sowing thus early, a more serviceable crop of roots being most surely obtained if the seed is kept out of the ground till the end of March or early part of April. Extra large roots are the most liable to be spoilt by canker, or whatever term may be given the disease that affects the crown of Parsnips, and in every case medium-sized to small roots are much the best for the kitchen. Let the seed be sown when it will, it is of the greatest importance that there should be no solid manure of any kind mixed with the top spit, this inevitably causing all roots that come into contact with it to fork badly. If the ground was well manured for a preceding crop there ought to be no need to add any for Parsnips,

but if extra large, straight roots are required, then should the site be double dug, solid manure being mixed with the bottom spit only. Parsnips, as a rule, are allowed far too much room, this being another cause of both coarseness and canker. The drills may be drawn 1 inch deep and 15 inches apart, the seed being either sown thinly and evenly or in small groups of three or four seeds at every 9 inches. It should be covered with a little fine soil, and if need be the seedlings must be dusted over with soot and lime occasionally to protect from insect pests. Those who require long and rather large roots for exhibition in August or September are quite justified in sowing the seed as soon as the ground can be got into a fine condition to a good depth, and they ought also to allow rather more space each way.

HORSE RADISH.—There is a constant demand for Horse Radish, and it is also a profitable crop to market growers. Many over-worked gardeners cannot well devote much time to its cultivation, a small patch of ground in some out-of-the-way spot being simply given up to Horse Radish, this growing wild. The stems thus obtained are small, tough, and unsatisfactory, and altogether inferior to those resulting from good cultivation. For a fresh crop the ground should be trenched, manure being freely forked into the bottom spit only, forking being caused if it is added to the top spit. A portion of an old bed ought to be broken up in order to procure an abundance of crowns and roots for re-planting. The tops to a length of about 2 inches, with crowns attached, may be cut from all stout pieces, the remainder being stored in sand or moist soil for future use. For these short lengths form holes 12 inches apart each way and 12 inches deep with a dibber, dropping a single piece into each. Shoots will quickly find their way to the surface, all that portion underground eventually thickening to a great size, and by next winter will be ready for lifting. Long, straight, young roots, with or without a crown attached, are also suitable for planting. All fibres should be rubbed off these with the aid of coarse cloth or canvas, and the young roots dibbled in to their full length. These will also form stout, straight stems quickly.

W. I.

FLOWER GARDEN.

LILIUM CANDIDUM.

I DO not know what may be the condition of this Lily generally, but some clumps with me are now pushing up with unusual strength, and should the season prove propitious, will undoubtedly bloom well. What seems strange is, that I had quite given these Lilies up for lost. They were so badly affected by disease two years running, that early last summer not a vestige of foliage or stem remained to them, and I naturally concluded that the bulbs were decayed. But the recuperative powers of the old white Lily appear to be as remarkable as its uncertainty in blooming. I doubt if any other Lily could suffer in the way this one does and the bulbs retain their vitality. Last season, several writers in THE GARDEN complained that they had lost their bulbs, but I fancy that in most instances they will be found to be in a sound condition. There can be no doubt that this Lily is the victim of our uncertain and overmoist climate, for I have repeatedly noticed that the failures are in converse proportion to the amount of rain that falls during the late spring and early summer months. Not that occasional heavy rains are hurtful, for all Lilies enjoy moisture at the roots when growing, but it is the continuance of moist weather that keeps the soil in a too saturated condition, the atmosphere at the same time favouring fungoid growth. I have frequently remarked that it is in such periods of over-damp weather that the white Lily collapses. How to prevent this is a problem not easily solved, for we cannot hinder hardy flowers from feeling the influence of unfavourable weather, except by keeping them under glass. An active condition of the roots is, however, one great safeguard against adverse climatal conditions, and

it is a fact that in some soils the white Lily grows vigorously, whilst in others it dies out persistently. The aim, therefore, of all who grow it should be to provide for it the kind of soil it best likes, and then there will be a greater chance of the plants coming through periods of unfavourable weather. One thing in connection with this Lily I am not quite sure of, and that is whether it is benefited or otherwise by exposure to sunshine. We know that Lilies generally like partial shade during the hottest portion of the day, but the white Lily is so different in its growth to all others that it might be supposed to differ from them in this respect also. It goes to rest just as the majority of the family is coming into bloom, and I am inclined to think that the big succulent bulbs are all the better for a good roasting. The influence of a period of exposure to the full sun just as the stems die down may probably have a maturing effect and cause them to start more strongly. A knowledge of the exact conditions in which the old white Lily is found would be helpful in forming definite conclusions on this point. I have never been able to compare the difference in the growth of plants in partial shade with that of those in the full sun, but some readers of THE GARDEN may have done so, and their experience would help to decide what may be one important detail in the culture of this Lily. Of one thing I feel convinced, and that is the less disturbance the better. That transplanting can be done without injury if the right time is chosen I have no doubt, but it is safer to leave the bulbs undisturbed, and I believe that the best results will be found to have been obtained when a few bulbs have gradually grown into large clumps. In cottage gardens the white Lily is more often seen in good condition than in those of greater pretensions, and cottagers grow most of their flowers on the let-alone principle. Thus one frequently sees therein such masses of Pinks, old-fashioned Primroses, Alyssums, Daisies, and big clumps of the white Lily as are more rarely to be found in gardens where herbaceous borders are often re-arranged and a regular system of lifting and division carried out.

One of the grandest sights in the way of Lily bloom I ever saw was in Hampton Court Palace Gardens. A bed there contained about fifty clumps, averaging, as far as I can remember, four stems to the clump. There was not a bad plant amongst them, the foliage being perfect right down to the ground, and they were in the full sun. This is the way to grow *Lilium candidum*, and, in fact, all Lilies; indeed all bulbous-rooted flowers are seen to the greatest advantage in masses. I cannot say how long these Lilies had been planted, but they had the appearance of not having been disturbed for some time. It is noteworthy that the soil is light and very gritty, not what one would consider favourable to the vigorous growth of hardy flowers, but just of the kind in which tender roots are least likely to suffer in a time of heavy rains. Moreover, the drainage should be perfect, for the level of the Thames is many feet below the gardens, so that probably the roots go down to a considerable depth, which ensures the plants against the effects of very hot weather at blooming time, whilst they are guarded from the evil consequences of stagnant moisture around the bulbs and roots. If I were to make a bed specially for this Lily, I should mix with the good loam a liberal amount of coarse sand, mortar rubbish, and broken brick rubble, in which the roots might be relied on to retain their activity, even in a time of excessive moisture. Another important point is the depth at which the bulbs are planted. If they are benefited by heat when at rest it is evident that they should be near the surface, so as to feel the benefit of the sun's rays. This is a matter on which Lily growers are by no means agreed, even in the case of *L. auratum*, for some advocate planting the bulbs 6 inches deep, while others claim that shallow planting is the more natural, seeing that in their native haunts the bulbs are generally found near the surface.

J. C. B.

Arum italicum.—The Wake Robin is one of the first wild plants to appear, but *A. italicum* is

always before it, and often the leaves are fully developed before *A. maculatum* appears above ground. The spathe of the latter is light green stained with purple, while that of *A. italicum* is pale yellow. The markings on the foliage are clearest when the plants are grown in poor soil. A mass of it here in a rich Vine border has leaves four times the usual size, and its silvery veins run out faintly over the surface, so different is it that it would hardly be recognised. Amongst the numerous variegations of *A. maculatum* which I have at various times found there is one reticulated very like *A. italicum*, but it has in addition the purple blotches of the Wake Robin. I have it still somewhere in my garden, but for the moment I cannot alight on it. — J. M., *Charmouth, Dorset.*

FLOWER GARDEN NOTES.

In going through the flower garden to take notes on the requirements of the current season, it is a good plan to start with the largest of the beds, and always make sure there is plenty of material to furnish them properly. Large beds (I am writing of circular ones, 15 feet in diameter, oval 24 feet by 15 feet, and oblong 20 feet by 10 feet) require much material if the planter confines himself exclusively to the dwarfier and more compact of the bedding plants, and it is as well, therefore, to make provision for something stronger and more vigorous in habit with which they may be partially filled. It is this description of bed which is adapted to the partial use of some of the Coniferae, and these may be annually chosen from any that have grown too large for the winter decoration of pans and vases. Dahlias, of which two of the best bedders are Fire King and Bridal Bouquet, are also useful, and large beds that are already occupied by some ten or twelve Coniferae may respectively have a similar number of the scarlet or white Dahlia, and be finished with such things as the fine-leaved Marguerite, Lady Plymouth, Amaranth, or Lucius Pelargonium, as the contrast is required. If foliage is to predominate in another bed partially filled with Coniferae, blocks of the white sweet-scented Tobacco may be planted between the shrubs, and the finishing touch given with Dell's Crimson Beet. The Fuchsia is also well adapted for large beds; indeed, it is only in this case and when isolated on Grass that it can be seen to perfection, half its beauty being hidden when other things are huddled close to it. If it is decided to employ it in large beds, a carpet of some kind that will keep dwarf and form a pleasing contrast to the respective varieties of the Fuchsia, at the same time allowing the perfect development of the latter, should be provided. For dark-coloured Fuchsias I have not found anything more suitable than the old Pheasant-eyed Pink, the soft glaucous foliage of which is an admirable foil to the brilliant colour of the Fuchsia. *Veronica incana* is also adapted for a similar purpose if the flowers are removed. For light coloured Fuchsias of the Rose of Castile and Mme. Cornélien type, probably the best thing is the very dwarf blue *Ageratum*. *Alternanthera* are effective for a similar purpose, but they are not within the reach of all, and the quantity required for large beds would practically prevent their employment, although it may be mentioned that in the case of the Fuchsia beds not much groundwork or carpet would be required. A clear space of 1 foot between the base of each Fuchsia is all that would be necessary. One large bed may have a dozen plants of *Grevillea robusta* or *Melanthus major*, and be filled in with seedling *Verbenas*, and yet another a groundwork of old plants of *R. V. Raspail Pelargonium*, hardened off after a winter's service, interspersed with *Eucalyptus globulus*. This makes a fine bold bed, as this useful double-flowered *Pelargonium* will throw some fine trusses when planted out. Tuberous *Begonias* are very fine, and when grown in masses in large beds they may have a narrow carpet of some dwarf plant that will form a pleasing contrast to their several colours and be relieved by some feathery foliage as recommended for *Verbenas*. The striped Maize is sometimes used for the purpose, but it always seems to me too stiff and formal. I much prefer something in the way of *Acacia lophantha* or the

Grevillea. A pleasing bed may be made by planting blocks of *Centaurea candidissima* and filling in with the dark *Heliotrope*, the latter to be kept partially pegged. These two answer well even for beds of extra size, as if given a fairly good soil they grow very vigorously. If the bands of *Heliotrope* will admit of centre plants, they may have four or five bulbs of *Hyacinthus candicans*, the foliage of which will be a pleasing break to the bed, even when the flower-spike is gone. Beds are sometimes formed round old tree stumps, and when of considerable size, there is nothing better for clothing bed and stump than the old Canary Creeper. One planting will be sufficient to permanently establish this *Tropaeolum*, and the self-sown seedlings are stronger and far more lasting than those transferred from pots. If a few Pea sticks are laid carelessly on the bed on which the Creeper can ramble at will, bed and tree stump will be a pyramidal mass of yellow quite early in the summer.

The above are a few ideas for the planting of large beds, which, having already tried, I can thoroughly recommend. E. BURRELL.
Claremont.

ANNUALS FOR SUMMER BEDDING.

IN many gardens more use is made now of annuals than used to be the case fifteen or twenty years ago, and the variety which they impart was in many places sorely needed. It saves room in winter, when a few thousand plants of the required stock for the summer garden can be raised from seeds sown in February or March. Then, again, how valuable many of these annuals are for cutting to fill vases in the rooms, or to make one of those old-fashioned nosegays flavoured with Sweet Brier, Lad's-love, Lavender, Honeysuckle, or whatever one's fancy might crave in the way of garniture, and for massing in the flower bed where it is necessary to have distinct plants in each group. We should not have to seek far through a seed list without finding a dozen at least of suitable subjects. East Lothian and German Stocks, *Victoria*, *Truffaut's*, and other *Asters*, double *Zinnias*, Chinese *Pinks*, *Petunias*, *Phlox Drummondii*, *Verbenas*, *LOBELIAS* (both the dwarf and the scarlet fulgens), *Pentstemons*, and *Antirrhinums* may be classed as annuals for the present, as if placed in heat in spring they will flower the same season. Even *Hollyhocks* so treated will flower towards the end of summer and remain with us till late in autumn. Not all, perhaps, but still a large percentage will blossom the same year if helped on in heat now. The Balsam of the greenhouse is a poor thing as compared with the Balsam of the open border when planted in good soil and well nourished with moisture in which a little stimulant has been dissolved. The double-flowered annual *Gaillardia Lorenziana* is a charming thing in a mass, and how very effective the *Portulacas* are in a sunny situation. I saw a band a foot wide along the front of a border of mixed flowers last summer, and I thought I had never seen anything more effective. Light, well-drained soil suits them best. The *Salpiglossis* is not commonly used as a bedding plant, but it is very charming when well done; also the German *Scabious*, the *Jacotæas*, better known in the old days as *Senecios*, charming beds of which we used to have quite thirty years ago. The French and African *Marigolds* made showy beds, but I do not care for them, but I have had very pretty masses of *Calliopsis tinctoria*. I used to sow it in heat in spring, prick it into boxes, pinch it well back and force it to assume a bushy habit. Plant thinly in the beds, pinch and peg down till the soil is all covered, and then let the flowers come away as they please, and by picking off the seeds the plants will bloom well into the autumn. Then, again, where can be found a more charming plant for a mass than *Mignonette*? It lacks colour, I fancy I hear someone say. Well, use it as a groundwork and drop in any colour you please, and it will associate with any of the primary colours. No garden is complete without the perfume of *Mignonette* floating about on the atmosphere in the gloaming or early in the morning, the

pleasantest times for garden visiting, to my thinking. Some years ago I had a very pretty bed formed of *Alonsoa Warscewiczii* (what a name!) with a little pegging and pinching. At the beginning it was very effective and lasted well. Those who like a walk in the garden in the evening should sow a few patches of the Night-scented Stock, thin it out to 3 inches apart, and just scatter a little fine, rich compost among the plants. Old hotbed manure, broken up fine and placed among the plants as a mulch, will be a great help. The blooming period of such plants as *Nemophilas*, scarlet *Flax*, *Godetias*, and other showy annuals may be much prolonged by the mulch of manure, especially if the season should be dry. *Love-in-a-mist* (*Nigella hispanica*) is a very pretty blue or purple-flowered hardy annual. It is not adapted for a bed, but it is charming in a broad mass in the front of the border, and is sure to attract attention. Then there are the *Chrysanthemums* in great variety. The *Lupines* are very showy where a wide stretch of poor soil has to be filled in cheaply. Dwarf *Tom Thumb Nasturtiums* are a tower of strength to those whose means are limited, and are well suited to the town gardener, who for a few pence may have a gay garden. The Canary Creeper is not often used as a bed plant, but with a little attention in training, it would present a novel appearance. As soon as the plants begin to trail bend a few wires over the bed and tie the leaders to them. When the wires are all more or less occupied, let the shoots have freedom. E. H.

Narcissus viridiflorus.—I have read a letter from Mr. W. E. Nicholson, of Lewes, in your issue of the 8th inst., in which he asks for information respecting the cultivation of *Narcissus viridiflorus*. As it grows well and flowers regularly with me, perhaps my experience may be of some use to your readers, although they may have to make a few alterations on account of the difference in climate between Portugal and England. When I received the bulbs from Gibraltar and Morocco, I observed that the soil clinging to the roots was a reddish clay, similar to what I have seen in Southern Portugal, and which is generally found associated with limestone. I therefore made a compost of stiff red clay off a limestone formation, mixed with about one-third of ordinary garden soil and a little coarse sand, planting the bulbs deeply in a 10-inch or 12-inch pot with good drainage, twelve in each pot. During the summer the pots are kept in the driest and sunniest spot, so that the soil becomes perfectly dried up and hard. In October the plants are placed in a clear light situation, where they receive the heavy autumnal rains. They soon start into growth, and flower in December or January. We have occasional frosts, the thermometer falling sometimes to 28° Fahr., and the leaves get burnt at the tips. This cultivation is all out of doors. For cultivation in England, I would suggest that the same soil should be used, and the pots kept on a dry shelf in the greenhouse as near the light as possible, and without any water from June till the end of September, then well soaked with water and flowered in a frame. When the leaves begin to wither the pots can be returned to the dry shelf. I grow *Narcissus serotinus* in the same way, but it appears to suffer more from cold and does not flower regularly. I have now in full flower in the garden *N. cyclamineus*, *pallidus præcox*, *maximus*, *bicolor Camoens*, *Pseudo-Narcissus* of various kinds, and many varieties of *Tazetta*, some of which flower as early as November.—ALFRED W. TAIT, F.L.S.

Plants for a stony soil.—What plants would thrive in a very stony or shingly soil, mixed with a little peat? The aspect is south-west and the lie of the ground is very steep. The place suggests rockeries, but probably that would entail much added soil. —J. I. R.

Chain pumps in gardens.—I daresay that some of your readers have been bothered as I have been in getting cesspools or manure tanks emptied to the bottom. A short time back I was in the garden of an experienced friend, when he showed me a chain pump he had bought at the auxiliary stores, and had found to answer its purpose per-

fectly. I bought one for Oakwood garden. My people there at first sight seemed not much taken with it, but now that it is in operation, they speak highly of it. It is simple in construction and seems to pump everything up. It was new to me, so, perhaps, may be so to others. I suppose it can be had from any horticultural implement seller. The rats and mice ate our flowers in the wild garden; we had therefore to wage war against them, and since October 9 have caught 66 rats and 321 mice.—GEORGE F. WILSON.

THE PAST CARNATION SEASON.

FOLLOWING the abnormally late season of 1888, the one just past is remarkable in its turn as having been one of the earliest in the experience of growers. In 1888 the bloom in the south was at its height from about the 7th to the 10th of August, while in the past season the parallel period was from the 17th to the 20th of July, a difference of quite three weeks. The early flowering of the past season was due, firstly, and perhaps mainly to the absence of the usual spring frosts. The plants free from the customary check grew apace, and began to spindle unusually early, and the warm weather in May and June may be held accountable for the rest. The show of the National Carnation Society, held on the 23rd of July, was the largest, and on the whole the finest ever held by that body. Though the date through the unusual earliness of the season was some days past the point at which the bizzarres and flakes could have been shown in the first bloom of their perfection, it was still possible, thanks to the inherent lasting power of the Carnation bloom, to present them in very fine form indeed. The Picotees, naturally a few days later in flower than the Carnations, were fitted with the date, while selfs, fancies, and yellow grounds were shown in the highest quality and in unexampled profusion. The same remark applies to the show of the Carnation and Picotee Union at Oxford—the display of yellow ground flowers being even larger and finer than that in London. Of the class Carnations (flakes and bizzarres) the most notable feature was the excellence of the purple flakes, which probably have never been seen more richly marked than during the past season. The two new varieties of Mr. Dodwell's—Gordon Lewis and Oscar Wilfred, both seedlings from his fine flower George Melville, are valuable additions to this very short class, and like their parent will be heard more of as they come to be more extensively cultivated. Both are vigorous growers. Among scarlet bizzarres, Robert Houlgrave has now fully confirmed its title to be the champion flower of its class. Of the newer scarlet bizzarres, Alfred (Dodwell) is the best, and will no doubt take rank with the finest productions of its veteran raiser. Picotees were in fine character, though there was a tendency generally observable to less heavy marking than usual, a feature lending the utmost refinement to flowers like Mary and Nellie, while perhaps in the later blooms of Mrs. Payne subtracting something from her usual glory. Among the selfs, Governor was paler than its wont, losing, as it developed, the beautiful flesh tint as yet so rare and so desirable among Carnations. Florizel was the finest among the dark crimsons, Purple Emperor and Black Knight among the purples, while Joe Willett was the best of the scarlets. Among the shades of pink, Gladys was shown at Oxford in beautiful form. Taking her all in all, Gladys, at her best, is perhaps the queen of the whole self tribe. Germania was well shown both in London and Oxford, going first in its class and gaining the award of premier self at the latter exhibition. This variety seems to be rather later in blooming than most of its class, which alone would give it an advantage in so early a season as the last; but whether in form, colour or size, Germania must be conceded its place now as the finest of all the yellow selfs. Yellow ground Carnations were shown last season in such richness and profusion that one is at a loss to single out varieties for special commendation, yet Rachel as indicating the future yellow ground Carnation, Agnes Chambers the Picotee, and Dodwell's No. 167 as representing the fancies, seem to stand out

with a brilliance especially their own. Stock of almost all varieties has been less abundant than usual, and instances have been frequent of no increase on the plants. The layers, however, rooted freely and early, and if less plentiful than in some other seasons, the young stock is vigorous and sound, and promises well for next season.—M. ROWAN, in the "Annual Report of the Carnation and Picotee Union."

STOVE AND GREENHOUSE.

CINERARIAS OF TO-DAY.

It was in 1777 that the type of the florist's Cineraria of to-day was first introduced from the Canary Islands by Mr. Masson, and to M. L'Heritier is due the honour of first describing and illustrating this graceful species. The florist made a marked and quick change. The petals under his hand became broader, denser, and fuller, with a symmetry that

its progeny, a lovely flower, capable of making a cloud of delicate colour in spring, is suffering unmerited neglect. The beautiful sprays of bloom may be cut for the vase or bowl to arrange with Fern fronds, and a dainty decoration they make, lasting for several days. Several years ago Messrs. Cannell and Sons exhibited sprays of *C. cruenta*, which were much noticed at the time, and each year since they have continued to bring it before the public. It is not the true *cruenta*, but probably an improved seedling, as the flowers are larger, brighter, though showing the same important characteristics. The illustration is of *C. c. Webberiana*, described as a garden hybrid, the flowers bright blue-purple, and with a great resemblance to those of *cruenta*, more closely resembling the improved form of Messrs. Cannell. It was raised in the spring of 1841 by Mr. Smithers, gardener to Mr. R. Williams, and has bright green leaves and boldly coloured flowers—a form that would give delight in these days, when as much or more is thought of single than double flowers.



Cineraria Webberiana.

pleases, even infatuates, a certain section of flower lovers; the colours increased in richness and variety, until we have an extensive range from the purest white to the deepest maroon and purple, almost black in its intense depth of shade. Amongst the earliest types of the great race that was to follow were such hybrids as *Waterhouseana*, *Hendersoni*, &c., vastly different, it is true, to the flowers that now adorn the greenhouse, but foreshadowing the richer things to come. The type, *C. cruenta*, should commend itself to all who love free and elegant flowers. The plant grows quite 5 feet in height, branches out gracefully, and is smothered with soft, purplish coloured flowers, that have a lightness and beauty we wish for in the greenhouse and conservatory. There was a large group of it in the greenhouse at Kew last year, and we hope it will be repeated in the coming season to show visitors that in passing by the type in the eagerness to acquire

The single varieties of Cineraria are never likely to suffer from the double types, which have always remained in the background. In the single flowers there is a rich range of colours, distributed in rings and delightfully shaded, sometimes pure self and of lustrous tint. When Messrs. Cannell raised March Past about ten years ago, and which was certificated by the Royal Horticultural Society on April 26, 1880, a strong impetus was given to the flower, and in the beautiful strain at Swanley now approaching fullest beauty there is the March Past character strongly represented, a fulness of form, width of petal, substance, and regular and circular outline that constitute the great excellence of the florists' Cineraria of to-day; there is also a dwarf compact habit, breadth of foliage, and noble mass of flowers that have raised the Cineraria as an exhibition specimen to the highest fame. Mr. James and other growers have assisted by their persevering and successful efforts to extend the series of colours, fill out the flower, widen the petals, and create a rich fulness of form. March Past was a great step onwards, and still retains its place in collections in spite of the many additions since made. The colour is rich velvety maroon inclined to purple, set off by a white central ring. Those pure white with a violet mass of stamens in the centre are beautiful flowers for the greenhouse, as with all the self decided colours, unspoilt by the infusion of foreign shades. To give notes on the culture of the single Cineraria is unnecessary here; they have oft been given in the pages of THE GARDEN, but we may refer to the double kinds, which some fail to show well.

The first double Cineraria was, we believe, Mrs. Thomas Lloyd, which was raised by Mr. Greenfield, The Priory, Warwick, and shown by him and certificated at the March meeting of the Royal Horticultural Society in 1880. We must confess to have somewhat of an aversion to the double Cinerarias, but they please many and are showy when in full perfection. Several varieties that have a great improvement on their predecessors were raised recently by Messrs. Cannell, such as Faust, Aspasia, Advance, Mrs. Midson, Gem, all fully double, and giving bright hopes for the future of this section. The colours are increasing in variety, violet-blue, rose, purple-blue, white, tipped lilac, and ma-

genta, all effective and decided. As some growers have experienced a difficulty in the culture of the double *Cineraria*, it may be well to give the details of Messrs. Cannell's treatment. The plants can be easily raised from seed, like the single varieties, but the finest named kinds should be propagated from side shoots, which it is easy to strike in a shady situation. This is wise treatment, as they vary from seed even more than the double types. One great point is, as soon as they have done flowering, to fumigate thoroughly, and to place the plants afterwards in a quite shady place out of doors. Thus treated, clean, healthy shoots will start, and from these the stock may be easily increased from year to year.

DIPLADENIAS.

I WAS pleased to see attention called to these in *THE GARDEN*, Feb. 22, as the freedom with which they flower when in a healthy state, the length of time during which each individual flower will remain in good condition, and the prolonged season of blooming in a continuous manner from each truss fully entitle them to a position amongst even the most limited collection of stove-flowering plants. There is also a rich diversity of colour in the different varieties in cultivation. The only possible reason for not growing them is that of the trouble caused by the mealy bug, which finds such a congenial home among their foliage and leaf stalks. This should, however, be dispensed with, as it is a poor excuse to urge against their culture. The flowers themselves are most valuable for arranging in vases. They have good lasting properties, such as are not possessed by many flowers that are grown in high temperatures. The best kind of arrangements for which they are adapted are those that are wide and shallow. I select for this purpose glass dishes that are at times also used for dessert, but of sufficient depth to hold a fair amount of water without incurring any danger of its being spilled in removal. Upon a carpeting of light and varied foliage to suit the taste (I use *Asparagus plumosus nanus*, *Adiantum cuneatum*, *Davallia bullata*, points of *Tradescantia* shoots and those of *Panicum variegatum*, and leaves of *Caladium argyrites*), each flower may be lightly laid with at least an inch of the footstalk in the water. When required for decoration the flowers should be cut whilst they are still fresh, in fact as soon as they have fully developed their colours. Those that are on the point of dropping from the footstalk are not so desirable; they will droop more speedily. Each flower should be taken with all the stem possible close home to the spike; never take the latter till the last flower has opened, when the most has to be made of each one.

CULTIVATION.

Having succeeded in growing the *Dipladenias* in a most satisfactory manner, I cannot do better than give my mode of procedure. It must be borne in mind that the genus is one which is possessed of large, fleshy or tuberous roots which have to be maintained in a healthy condition to obtain a corresponding state of things in leaf and flower. Anything, therefore, approaching to sourness of the soil, with more retention of moisture, must be prejudicial to their well-being, and ultimately result in their decay. Look well, therefore, to this point and always water with caution, especially when there is any doubt as to the condition of the soil. More water is, of course, needed when the plants have a considerable amount of growth going on; whilst, on the other hand, as soon as there are signs of a cessation of the same, and even before the plants have nearly done flowering, there must be a gradual withholding of water, the large tuberous roots being capable of supplying the plants with a good amount of nourishment at this stage. During the resting period hardly any water will be needed, the vitality of the plant being well sustained from the same source. Early in the year, in fact soon after the turn of the days, there will be signs of starting into fresh growth. It is well, therefore, to do all necessary pruning as soon as the plants are

out of flower in the autumn. In the case of well-established specimens, fresh potting every year is not essential provided it is always, when done, done well, and every care is taken, as previously alluded to in watering. With such plants once in two years is sufficient, whilst with those in smaller pots that promise to make good specimens, a shift into a size larger will be advisable. When the extreme limit of size has been reached a reduction of the old ball must be made (this can be done all the better if the plant be watered previously). In doing this care must be taken not to injure the large roots, removing only sufficient of the old soil to give the plant a fair amount of the new. Provide a good amount of drainage and see that it, and the pots also, are sweet and clean. In potting use a rammer and press down the soil as firmly as possible, just as in the case of a hard-wooded *Heath* or *New Holland* plant. As a safeguard against an excess of water being applied afterwards it is better to fill the pot up with soil, allowing but little margin for watering. I have, in fact, grown them well with the soil quite level with the rim of the pot, this being caused by the expansion of the large roots forcing the soil upwards. The soil best adapted for the *Dipladenias* is good, sound, firm peat with plenty of fibre in it; that which will grow a good *Erica* will suit them well. I should not have any objection to a little loam when first-rate, but hardly sufficient should be used to be discernible in the soil. Good sharp sand is necessary and ought to be added freely. A few pieces of charcoal are very useful, especially when the peat is not of the best quality.

Dipladenias enjoy a fair amount of shade during bright sunshine in warm weather. I much prefer to train the growths upon wires about 1 foot from the glass rather than upon trellises; the wood gets better ripened and in the arrangement of the house no more room is taken up than that occupied by the pot. My plants have been grown in this manner for thirteen years, and were never healthier than during the past two seasons. I thought at one time that *Dipladenias* were somewhat short-lived, but experience has proved that they may be kept in good condition for many years. Mine have never during the past twelve years been affected with the bug in the least; no leaves were, therefore, damaged by hunting for that insect, with a consequent bleeding or loss of sap. Scale and thrips with red spider are troublesome; the first named can be kept in check, if not quite removed, by careful sponging and painting the worst parts with an insecticide of moderate strength by means of a camel's-hair brush, and the two latter made very uncomfortable by repeated syringing with water taken from a tank in which a bag of soot has been kept.

In training the growths it is better never to allow them to entwine themselves around one another so as to cause any injury afterwards when parted, neither should they be trained too closely together, so as not to allow room for proper leaf development. At the time of pruning the weakest wood should be removed to allow more room for that of greater vigour.

PROPAGATION.

This is best performed in the spring months. Those shoots should be selected which are of rather close growth, each cutting being taken with a heel. Such cuttings can generally be relied upon to strike without any extra trouble. A rather close, but not stuffy atmosphere suits them best. Aim at a medium condition of moisture in the soil, guarding against either extreme. The soil for striking should be nearly half composed of sand. Each cutting should be inserted firmly in a small pot; no future injury need then be apprehended when the first shift is given, which should be once during the first season.

D. boliviensis was not included in the list given by "G." at p. 185. It is a distinct species of very free growth, a most prolific blooming variety and of long duration in flower. It will commence to unfold its flowers in June or even sooner and continue in constant succession to November. This variety can be grown in 5° less heat than the other varie-

ties enumerated in the list. Its pure white flowers with golden throats are quite distinct from anything else. J. H.

The Zephyr Flower (*Zephyranthes carinata*).—This beautiful bulbous plant, alluded to in *THE GARDEN*, February 15, 1890 (p. 154), does well here (not far from London) planted out in a cold frame and protected by means of covering during severe weather. In common with many seedling *Amaryllids* that are supposed to require artificial heat, they get no further protection than the covering previously mentioned. The frame was thoroughly prepared for their reception by removing the soil to the depth of a yard, then a layer of brick rubbish 1 foot deep having been placed in the bottom, the remainder was filled up with good sandy loam, enriched with a little well-decayed manure, into which the bulbs were planted. In this way the *Zephyranthes* have done well and flower year after year. During the winter season no water whatever is supplied them, as the soil always retains a certain amount of moisture, and air is given when a favourable opportunity occurs, in order as far as possible to prevent decay. The frame faces the south and the plants contained therein are fully exposed to the sun at all seasons.—T.

Bauera rubioides.—This is far less showy than many of the so-called hard-wooded or *New Holland* plants, yet in its continuous blooming qualities it is surpassed by none, for even a small specimen in a 6-inch pot will often keep up a succession of flowers from the early part of February till midsummer. Besides, this *Bauera* is much less exacting in its cultural requirements than many of the hard-wooded greenhouse plants. It forms a small, much-branched bush, whose slender shoots are clothed with narrow leaves and studded with saucer-shaped blossoms about three-quarters of an inch in diameter, and of a pleasing shade of mauve-pink. Propagation is done by cuttings of the young shoots put in during the spring and covered with a bell-glass. They strike well in sandy peat, but on potting off the young plants a little loam may be mixed with the soil, and afterwards a compost consisting of equal parts of peat and loam, with a liberal admixture of sand, will suit them perfectly. This *Bauera* was introduced towards the latter part of the last century, but, like many other subjects at one time popular, it is now rarely seen.—T.

Daphne indica.—This beautiful greenhouse plant with its pleasant perfume deserves better treatment than it often gets. It is rare to find it in a really flourishing condition, yet when under good conditions, it is a plant which makes considerable growth. I have frequently heard it stated that only grafted plants will flourish, but this is undoubtedly a mistake, for I have known several instances where plants propagated from cuttings have succeeded remarkably well, while, on the other hand, grafted plants form ugly protuberances at the point of union with scion and stock. I have lately seen some such examples in different nurseries, the plants being positively unsightly, the only redeeming point being the powerful perfume of the flowers. Plants may be propagated from cuttings during the spring. The cuttings should be taken when the new growths are nearly ripened; if taken off at the point where the growth started from, it will be all the better. They should be put in singly in small pots, using sand and peat in equal parts; this should be pressed firmly about the cuttings. The close propagating pit where there is a brisk bottom-heat is the best position for rooting the cuttings, and they must not be allowed to get withered either before or after they are put in, or they will be very slow to root and will not start into growth freely afterwards. I believe that failure in striking the plants results from the cuttings having been withered. It is remarkable that even when withered they will make roots, but they do not start into growth. Young plants may be grown on the first season in a moderate stove temperature, and layered plants will make more growth if given a little extra warmth

while they are active, but they must be well exposed later on for the wood to get well ripened and the buds to set. The plants should be potted in good fibrous loam, leaf-mould, and peat, with good drainage. Watering must be carefully attended to, especially while the plants are dormant, so that the soil does not get sour. Red spider is sometimes very destructive, and while the plants are making growth green fly will be troublesome, but it is not difficult to keep either of these pests in check.—F. H.

TREE, OR MOUTAN PÆONIES.

A LARGE amount of money must be paid year after year to the Belgians and Dutch for various bulbs, Azaleas, Lily of the Valley, Spireas, and many other things, while every season there is a continued increase in the importations from Japan. We now receive enormous quantities of Lilies, large weighty masses of Iris Kämpferi, an occasional batch of Japanese Acers, while recently a large consignment of Tree, or Moutan Pæonies was received and disposed of at the London auction rooms. It is probable that the prices then realised will lead to far larger importations, as the plants being confined to a single shoot and tied up in bundles do not occupy much space in transit. They were all grafted plants, and the stock employed appeared to be roots of the common section. It seems somewhat singular that this beautiful section of Pæonies should suffer more from frost in the southern half of England than in many districts of Scotland, the reason being that they are so apt to start into growth early in the year before the late spring frosts are over, and consequently the young leaves and flower-buds suffer. In many of the more northern districts the growth is retarded till all danger from frosts is over. They are in other respects perfectly hardy. From this it will be seen that warm, low-lying spots are by no means the most suitable for them, as so situated they start into growth sooner than where more exposed. They should if possible be so placed that the early morning sun does not shine full upon them, as when frozen, exposure to the sun's rays is fatal to the young leaves. The same results may be often seen in the case of some Coniferæ (especially a few of the Silver Firs), which on the side exposed to the sun will have their shoots totally destroyed, but where shaded till the frost had passed off they were quite uninjured. A good deal may be done for the Pæonies by a little protection in the spring, but care must be taken not to use it earlier than is absolutely necessary, as if employed too soon growth is encouraged, and the risk is consequently as great, if not greater than if no covering at all was used. The soil best suited for these Pæonies is a good deep loam, which should be enriched with manure. The planting must be thoroughly well carried out, as all the Pæonies of this section are very impatient of being disturbed at the roots, and if possible everything should be properly prepared for them previous to planting. Another point in favour of these Pæonies is that they can be easily forced into bloom during the earlier months of the year. For forcing, the plants should be carefully lifted in the autumn, and when potted placed in a cold frame till the early part of February, when they may be taken into the greenhouse, where the buds will soon burst, and as that takes place a little additional heat may be given, say a maximum temperature of 60° to 65° with sun heat. In common with most other subjects so forced, the plants may be syringed should the weather be bright, but if it is done when dull and heavy the young leaves are somewhat apt to suffer from mildew. The plants must at no time be allowed to want for water at the roots when forced. With the protection of a cold frame the flowers will open satisfactorily, and as they are equally valuable for the greenhouse at that time as when forced, a succession may be kept up for a considerable period. After flowering they should be planted out under favourable conditions and allowed a season to recoup, as it is useless to expect a satisfactory display of bloom if forced year after year. In this country, as in Japan, Moutan Pæonies are

increased by grafting a shoot on to a portion of a root, mostly one of the herbaceous section. The operation is generally carried out during August, wedge-grafting being the method commonly employed. By using deep pots the point of union can be covered with the soil, and this greatly assists the graft. Where plants exist large enough for the purpose, layering can also be resorted to for their increase. H. P.

SOUVENIR DE LA MALMAISON CARNATION.

THERE is something rather remarkable and quite exceptional in a season which brings the winter Aconite and the Crocus into bloom together, and we shall probably have to suffer for the unusual precocity of hardy flowers in a spell of severe weather later on. The influence of so much stimulating weather at a time when hardy and cool house plants should be resting has made its mark on Carnations in frames, which, in spite of all the exposure possible to the free air, are unmistakably showing signs of forestalling their usual time of activity. The red Souvenir will frequently push up a small percentage of flower-stems in advance of the right time, but this year the percentage is much higher than usual—at least it is so with me. These precocious blooms are never of good quality, because the plants are not sufficiently rooted to well nourish the buds, and in a general way I find it best to cut them off, as then the flow of sap is thrown into the side shoots, which, when the plants are as strong as they should be, are capable of giving bloom. In the case of late-layered plants, however, there is frequently only one shoot, and it is rather a puzzle to know what to do with plants that start so prematurely. If the bloom bud is cut away the chances are that the side growths that come later on will not be strong enough to give good flowers, and if this main shoot is allowed to extend before the plants can get well established in the new compost there must be the same want of quality. Perhaps some of the readers of THE GARDEN who may have been troubled in this way would give their experience. In a general way I shift my plants in February, but this year they have been already a month in their blooming pots. I thought that probably the little check incurred in repotting might in a measure stop the production of flower shoots for the time.

I consider it of great importance in the culture of this fine Carnation to get the plants into their flowering pots as soon as possible after January is well in. The immense size of the blooms renders it indispensable that the plants should be in a root-bound condition by the time the buds are formed, otherwise the flowers are loose, poor in colour, and deficient in size. If potting is deferred until the middle of March, roots can scarcely be made in sufficient quantity to ensure the desired points of excellence. It is, however, important to remember that early shifting can only be practised when the layers have been potted up soon enough in autumn to allow of the pots getting full of roots by the end of December. If the layers are strong they will fill 2½-inch pots with roots by that time. Great care should be used in the choice of soil, which should consist of mellow loam, with some leaf-soil and a share of white sand, adding this more or less liberally according as the loam is heavy or otherwise. A little manure may be used, but this must not be in a crude condition. I keep a special store for this and similar purposes. It consists of old hotbed manure that has been turned about for two or three years, and is then put under cover. This, used very moderately, will not make the compost sour, and is, of course, beneficial to the growth of the plants. J. C. B.

Azaleas from cuttings.—Nearly all the varieties of Azalea indica may be established from cuttings. The plants which have been forced for early bloom will give plenty of nice cuttings. The cuttings, which may be taken while the young shoots are quite soft, should be cut off nearly close to the older wood. The cutting pots should have plenty of drainage, be filled firmly with peat and sand in equal portions, and surfaced over with

clean sand. The cuttings should only be put in deep enough to keep them firm. They may be rooted in the ordinary propagating pit or on a hot-bed. Bottom-heat with a cool surface is desirable, especially during the time the cuttings are callusing. Like most hard-wooded plants, Azaleas take some time to form roots, and do not make much growth the first season, the cuttings should be potted off singly as soon as sufficiently rooted, and if well attended to they will make some growth the first season, and the following season, with good treatment, nice plants may be had. Young plants of Azaleas may be planted out in pits, but there is not much advantage in this mode of treatment, for when in pots they are more under control and can be ripened off better, while the bloom-buds set more regularly.—F. H.

PERNETTYAS IN THE CONSERVATORY.

THESE are very useful plants for the embellishment of cool houses during the winter months. Pernettyas are beautiful when in bloom, their pretty bell-shaped flowers being always admired, and when used for decorating rooms or cool plant houses, when covered with their fruit or berries they are very attractive. We have had them in the conservatory for the past four months, and they are as beautiful as when first introduced, the berries being plump and the colour all that can be desired. The dwarf-growing varieties in 6 inch and 8-inch pots are very effective when mixed with winter-flowering plants. I feel sure that Pernettyas will become favourites, as they require little attention through the winter months, and are not so subject to insect pests as are other plants. Pernettyas require plenty of water, and to keep them fresh we occasionally, on bright mornings, give them a slight damp over with the syringe, but only when the plants are likely to get thoroughly dry before closing time. There are some very beautiful varieties among the dwarf kinds, and the colours are very varied, from white to crimson and pink and red in different shades. We grow a few of each of the following kinds in the above sized pot: *P. atrosanguinea*, *P. coccinea*, *P. rosea*, *P. macrocarpa*, *P. rubra*, *alba*, *lilacina*, and *elegans*, giving the plants good peat with a small quantity of loam for larger plants, as I find with the addition of some loam that the berries are larger, though not so numerous. The plants when getting too large or overgrown for this sized pot are easily divided. Pernettyas can be readily increased by division of the roots, and soon form compact masses if carefully attended to through the summer months. If once neglected, the crop of berries will not be so good; therefore, due attention should be paid to watering when in bloom and while the berries are forming. They are readily increased by sowing the berries, but, of course, take a much longer period to make plants, and do not always come true from seed. When the plants are past their best we remove them to a cold frame on a sheltered border, and when hardened off a little, plunge them in the pots in cocoa fibre or leaf soil in an open place. Any dividing or potting is done at the time the plants are commencing to grow. They are then kept close for a time till new roots are made, and then transferred to their summer quarters. They will also do well planted out in a compost of leaf soil, peat, and sand. The plants should be carefully lifted about the end of September or early in October, potted up carefully, placed in a cold frame, and damped over frequently. About the end of October they may be removed to the conservatory, where they will last in good condition for about six months.

Syon House, Brentford.

GEORGE WYTHES.

Rhododendron grande.—This beautiful species, which to many perhaps is better known as *R. argenteum*, is now flowering in the temperate house at Kew. It was found by Sir Joseph Hooker during his famous Himalayan travels on the summits of mountains 8000 feet to 10,000 feet in elevation. It is said there to form a tree 30 feet high, the specimens at Kew being nearly half that size. The

flower-trusses are about 9 inches in diameter, composed of about twenty closely-packed blooms, these being campanulate and upwards of 3 inches across. The corolla is rosy pink on first opening, changing afterwards to pure white; at the base it is stained with deep purplish crimson. The anthers are of a pretty brownish red colour. In regard to its foliage this is the most striking of all the Rhododendrons. The leaves are lance-shaped, and some of the largest measure 16 inches in length, by about one-fourth as much in width at the middle. Their semi-verticillate arrangement gives to the plant quite an Aralia-like appearance when seen from a distance. The specific name *argenteum* is founded on the smooth silvery under-surface of the leaves. —B.

AN IRISH NURSERY GARDEN.



DAISY HILL NURSERY,
near Newry, co. Down,
one of the most in-
teresting places of the

kind I know, is favoured by good friable soil and a by no means ungenial climate. It is quite an unpretentious plot of land, of several acres in extent, lying alongside the public road, and quite near to the busy little town. The spot was carefully selected by Mr. Smith, the proprietor, some years ago, when commencing business on his own account, and so far it has more than fulfilled his most sanguine expectations, suiting, as it does, a very wide range of cultivated plants.

The great family of Iris is truly a happy family as seen here, all the kinds, bulbous, Japanese, rhizomatous, and other species being equally at home in the deep, rich, gritty soil. Iris cristata is so free and luxuriant as to be used as an edging, and forms a mat of its leaf-tipped rhizomes and slender roots. The gorgeous Bog Iris of Japan (*I. Kämpferi* vars.) also grows and blooms well here, along with the so-called German or evergreen rhizomatous kinds, amongst which are some very choice varieties. Of the more recent novelties, *I. Rosenbachiana*, *I. Bakeriana*, *I. Bornmülleri* (= *I. Danfordiae*), *I. reticulata* var. *cyanea*, and many others have flowered freely and seem quite happy. Iris bracteata has also done well, and the richly-coloured *I. reticulata* major is a gem not often seen even in the most select collections of these flowers. The other day *Crocus Imperati alba*, with a spotless snow-white and shapely flower, was in bloom, and with it another rarity, viz., *Anemone blanda alba*, one of the most chaste and lovely of all the Windflowers of Greece. All the Snowdrops have been, and are still, in beauty, such as *Galanthus Elwesii*, *G. plicatus*, *G. Imperati*, and, finest of all, the great *G. plicatus maximus*, with floral segments nearly 2 inches long, in all truth a giant Crimean Snowdrop, which must be seen to be duly appreciated and admired. Another late form of the common Snowdrop is only just pushing its buds through the soil. This is *G. nivalis festalis*,

well worth a place as affording a succession of its pearly flowers after most other Snowdrops have faded and gone.

There are many specialities here, including unique collections of large-leaved Saxifragas or Magaseas, Bamboos, Kniphofias (better known, perhaps, as Tritomas or Torch Lilies), Funkias, Willows, aquatic plants, and hardy fine-foliaged plants. The seedling Megaseas are very attractive and variable in size of leaf stature, colour of leaf and flower, and in time of blooming. Some are but little larger than Cyclamen coum, while others emulate Rhubarb leaves in their luxuriance. As grouped in permanent beds or along with Yuccas, &c., they are very useful in the open-air garden. Saxifraga peltata also grows here in quantity, as does its first cousin, the great-leaved Rodgersia (*R. podophylla* of Japan), perhaps the finest of all hardy foliaged plants now grown in our gardens. Among the graceful hardy Bamboos are *B. Metake*, *Ragamouski*, *aurea*, *Henonis*, *nigra*, *nana*, *Marliacea*, *Simonsi*, *viminalis*, *Mazelli*; but finest of all perhaps is the new *B. palmata*, which produces leaves 1 foot long by 3 inches in breadth, on reed-like stems 3 feet to 5 feet high. But few hardy foliage plants are so graceful and characteristic as these, as suitably grouped in rich moist soils and in sheltered localities.

The best and highest coloured Willows are also very striking, their slender wands of blood-red, gold, or amber, yellow, black, purple, or green and grey being most beautiful, and the wonder is that such varieties are not more often used for winter colour effects, as grouped beside lakes and streams, where but few other things would grow. Other plants grown here suitable for shallow pond margins are Nymphaeas of various sorts, including the rosy yellow and the choicest of hybrid kinds. A very distinct and valuable free-growing aquatic plant is the great Arrow-head of China and Japan, where its farinaceous tubers are largely used as food by the natives. *Sagittaria japonica* fl.-pl. is a still more showy kind with double flowers borne aloft like white rosettes on stout stems which grow 1 foot or 2 feet above the water.

All the hardy insect-eating Droseras, Sarracenias, Darlingtonias, &c., are also at home here, together with choice hardy Orchids, and Trilliums, and many other varieties not usually to be found in ordinary nurseries. In a cold house, for example, the rare *Shortia galacifolia* of N. America and Japan is just coming into bloom, and seemingly is quite as happy in the moist Irish climate as are its first cousins, the mountain Pyrolas, or the exquisitely filmy *Hymenophyllums* and Killarney Ferns.

The herbaceous Lobelias do well at Newry, and the finest one I have ever yet seen is one Mr. Smith calls Firefly, which produces its vivid crimson-scarlet flowers on stout, erect stems 3 feet to 5 feet in height. Tritomas are grown in quantity, some sixty or more kinds, including all the new hybrids and seedlings, being included, and as a foil to these in autumn are several distinct and little-known forms of the Pampas Grass, both tall and short, silvery white or grey, or of delicate rosy shades. The extreme beauty and variety of these seedling variations of *Gynierium argenteum* must be seen to be believed. Last, but by no means the least handsome when well established, is the golden variegated Pampas Grass, the arching leaves of which are margined or striped with gold.

Another feature here is the department devoted to popular garden flowers, such as Pansies, Violas, or tufted Pansies, Primroses, and Polyanthus, both double and single flowering, including those gems the crimson Pompadour

and the nearly black Rex Theodore. Double Rockets are also largely grown, Mr. Smith boasting of no less than six distinct kinds, all succeeding vigorously; indeed, both Rockets and double Primulas, Pansies, and similar subjects seem to prefer the cool, moist, equable climate of Ireland or Scotland to the more intense heat and drought of the average English summers.

Amongst other rarities we may mention *Magnolia hypoleuca*, a handsome species; *Cotoneaster lanata*, dwarf, with woolly leaves; several new Crape Myrtles, or *Lagerstroemias*, including white and deep crimson varieties; the new Rhododendron Vaseyi of North America is an addition worth noting, as also *Baccharis patagonica*, with dark crenate leaves and spikes of white flowers. *Cytisus purpureus albus* and *C. p. incarnatus* are distinct varieties of an old friend, as also are the white and black-fruited forms of the common Barberry (*Berberis vulgaris*). One could go on enumerating a good many other rare and choice kinds of Rhododendron, *Vaccinium*, *Andromeda*, *Kalmia*, *Viburnum*, *Populus*, &c., but have only space and time to say a few words as to the single-flowered and old-fashioned garden Roses which Mr. Smith has collected and increased. There are here thirty distinct single garden Roses, and many of our great grandmothers' pets also, such as the exquisite Rose Celeste, the rose, crimson, white, and yellow Cabbage Roses, *De Meaux*, both rose and white forms, and most of the dainty and free old China Roses, now unfortunately too rarely seen. Here at Daisy Hill are Roses from nearly all parts of the world—Europe, America, India, China, and Japan, and many of the sorts here collected are quite as valuable for their ornate character when laden with their hips of all sizes, shapes, and hues as when laden with bud and blossom. The Japanese *R. rugosa* in its white and rosy crimson forms is very fine; there is the great fruited *Rosa pomifera* major of Parkinson, and last, but by no means least, the dainty little Burnet Rose (*R. spinosissima*) from the rocky cliffs of Howth Head or the sandy shores of Wales. This last is one of the most exquisite of all our native species, having soft creamy white or yellowish flowers the size of a Buttercup nestling among its finely-cut Burnet-like leafage, while in the autumn its little cupped blossoms may be seen side by side with its quaint little urn-like fruits of quite a glossy purple-black hue.

The genial proprietor of Daisy Hill not only cultivates plants well, however, but has a singular genius in the making and planting of beautiful rock gardens in a natural and effective manner. There are several such gardens to be seen in the vicinity of Newry, notably that at Dromolane House, the property of Mr. Cashel Hoey, whose late brother was very fond of his garden, and enjoyed nothing so well as his collections of birds and flowers. The artistic and well-placed alpine or rock garden at Narrow-water Park was also designed and planted by Mr. Smith amongst others near Newry, and more recently he has been engaged on an alpine garden and rockery with Water Lily pools at St. Anne's, Clontarf, near Dublin, which is a great success and has given much pleasure to all who have enjoyed the privilege of seeing it at its best. One of the prettiest garden pictures I ever saw was a rock-fringed pool therein last July. *Nymphaea odorata rosea*, bearing three lovely rich-tinted flowers, half filled a clear pool amongst the great double Arrow-head and flowering Rush, the rocky margin being enriched with *Sarracenias*, Grass of Parnassus, Butterworts, &c., all in great beauty.

I have often been to Newry, which lies in a happy valley open to Carlingford Bay and the sea, and always enjoy a peep at Daisy Hill and its plant treasures. There are also one or two good private gardens in the locality, so that a day at Newry may be spent with pleasure and profit by those fond alike of choice garden vegetation and mountain or coast scenery. Rostrevor, the Brighton of the north of Ireland, is only five or six miles away, and is much frequented as a watering place by tourists and visitors from Belfast, Dublin, &c., during the warmer months of the year, and I am glad to know that many of those who are interested in gardening visit Daisy Hill.

F. W. BURBIDGE.

WOMEN AND GARDENING.

MR. MORGAN BROWN, who puts a question on this subject (*THE GARDEN*, Feb. 15, p. 167), would not probably entertain a very high opinion of the uses in gardening to which women are put, so far as cultivation is concerned, were he to visit our market gardens. Women are more or less employed in rough occupations all the winter. In wet weather they are perhaps sorting Potatoes, or trimming and sorting bush fruit cuttings, preparing pegs for layering, mending sacks, and performing various other rough menial labour. Outdoors they are pulling Turnips, gathering Brussels Sprouts, also Spinach, pulling and bunching Onions, gathering Violets, cutting early Wallflower blooms, cleansing and preparing Celery—indeed performing almost any kind of coarse labour that it is essential should be done cheaply. Female labour is paid for during the winter months at prices ranging from one-third to two-fifths of what is paid to men, the hours being rather shorter, as, except when there is a pressure of work, their labour rarely begins before 8 o'clock in the morning. Some large gardeners have as many as fifty women employed at once. In this district, before the population had become so much greater, it was the practice of some market gardeners to have women from Shropshire, and a very clean, well-conducted body of women they were. These, however, came only for the fruit season, a period of perhaps three months, and then returned home. They knew little of the hard exposure their resident sisters had to endure in ordinary garden or field labour during the winter months. It would seem in this district as if nearly all the wives and daughters of the working people turned out to field or garden work during the summer months. The busiest season begins with the gathering of Violets and the cutting of Wallflowers in March and April. Very soon after this the gathering of green Gooseberries and picking of Peas begin. Then also come the Strawberries, the Raspberries, the Currants, and the ripe Gooseberries, then Runner Beans and various other crops. All of these are paid for per dozen bunches, or pounds, or bushel, so that for a few months women can earn more money than their husbands. They have to make long days to do so, and often turn out gathering Strawberries or Peas at 3 o'clock in the morning. Naturally all through this busy time the morale of the household suffers terribly, and not one family in twenty is, for all this hard work, one penny the richer at the end of the season. Women also gather fruit from the lower branches of Plums, Pears, and Apples, or from dwarf trees, but the labour is by either sex almost always too roughly and recklessly done. The fault, however, chiefly lies with the employers, who fail to insist, in their anxiety to get work done quickly and cheaply, on greater care being bestowed. We have in this country so dense a population, men not being here, as on the Continent, drafted into the army in large numbers, that there seems to be in the market section of fruit and vegetable culture little opening for women to attain to higher status.

Nothing seems to interfere between women and garden labour so much as their clothing, which is as unfitted as well can be for ground work. A more pitiable object than a poor woman, drenched, dirty,

and dragged after a day's work in the field in bad weather, can hardly be conceived. In spite of these drawbacks, however, it would be absurd to say that women do not like the work. Really they do not seem happy out of it. There is an element in the summer-time of freedom and easiness in the life which attracts girls from domestic service, and when they have got well under the influence of the field attraction they find it hard to get out of it. If ever in this country we adopt higher forms of horticulture of a market aspect, such as the production of flowers, salads, forced vegetables, fruits, &c., to try and compete with foreign growers, female labour of a higher order may find an opening in market gardens. Of course, even now we see women employed in flower-gumming, bouquet-making, or similar work, but then the numbers are comparatively few. Mr. Walker, of Ham, finds good class female help valuable during the Narcissus season, but that is of short duration. We have not merely to solve the problem as to how female labour in market gardening may be most suitably and beneficially employed, but also how it may be done without injuring male employment.

A. DEAN.

ORCHIDS.

MILTONIA CUNEATA.

THIS beautiful Brazilian plant was first introduced and flowered by Messrs. Rollisson and Son, of Tooting, nearly fifty years ago. It has always been considered one of the gems of the genus, and it certainly has been one of the rarest in cultivation. A beautiful specimen is now flowering in Sir Trevor Lawrence's collection at Burford Lodge, Dorking, and is well deserving special recognition. I well remember some years ago visiting a gentleman living on Hampstead Heath, but who resided in Brazil every winter. He used to bring home numbers of Orchids every journey and amongst them always *Miltonia cuneata*. He said this grew in abundance on his estate, and through these importations the plant became more common in collections.

It is a handsome and somewhat robust-growing plant, and now is its usual time of flowering; the scape is erect, bearing several flowers usually from five to eight, sepals and petals deep chocolate tipped with yellowish green. The lip is large, wedge-shaped, white tinged with pink. The flowers last a long time in good condition. It requires to be grown in the Cattleya or intermediate house. The pots should be well drained and the soil should consist of fibrous peat, from which all the fine particles have been shaken, and Sphagnum Moss, all of which should be made firm about the roots. During the growing season a liberal supply of water is necessary, and even in winter the plant must not be dried off. It requires shade, for unless this is attended to its leaves are very liable to become yellowish and give the plant a sickly and unhealthy appearance.

W. H. GOWER.

Ceologyne cristata.—This species, with the variety alba (Chatsworth variety), Lemoniana, and the form named maxima, are now in great beauty in Mr. Tautz's garden, where nearly 900 flowers are to be seen. The plants are in hanging baskets and in pots, those in the former thriving splendidly. I do not think I have ever seen this species doing better or looking so well as under this basket treatment; certainly the variety maxima and that known as the Chatsworth form are specially good, as the sepals and petals are broader and not curled so much as those of the old type. Lemoniana is distinguished by its pale lemon-yellow blotch on the lip, whilst in the variety alba there is no yellow at all. From a beautiful figure of *C. cristata maxima*, given in *THE GARDEN*, Feb. 26,

1887 (p. 190), some idea may be obtained of the display a number of blooms make when seen together.—W. H. G.

Paphinia Bandi.—"J. R. T." sends me a flower of this species for a name. It appears to me to be very near *P. cristata* as a species, but it is distinguished by its deep vinous purple hue, through which run many longitudinal streaks of creamy white. These plants are now included in the genus *Lycaste* by Bentham, but I do not think many Orchid growers will adopt his views in this respect. They are mostly found in Demerara and other parts of British Guiana. Trinidad and New Granada each give us one species. Under cultivation *Paphinias* enjoy strong heat and moisture.—G

Virulent disease of Orchids.—Mr. Morri exhibited at a recent meeting of the scientific committee several specimens of a *Cattleya* attacked by a fungoid disease of apparently a very virulent character. From a specimen received about a fortnight ago, Mr. Massee, at Kew, had infected two or three healthy plants, and in three days the whole of the pseudo-bulbs had become diseased. Specimens of similarly affected plants were sent by Mr. James Douglas, from a gardener who was anxious to know if there was any remedy, as he feared his collection was in danger of being destroyed. The committee was of opinion that the disease, whatever the cause, was of a very virulent character. It was not the ordinary "spot" so well known to Orchid growers. The specimens were referred to Professor Marshall Ward, who had already given some attention to the subject.

Dendrobium nobile nobiliss.—This excellent form is now flowering amongst many others in Sir Trevor Lawrence's collection at Burford Lodge. This plant has been established some time, and has now recovered from the weakening effects of over-propagation. Those, therefore, possessing this variety may confidently expect that as their plants become better established the flowers will increase in size and substance and depth of colour. I am in receipt of flowers of *D. nobile nobiliss* from Mr. Cypher and several others. All these appeared to be true to name; they have the colour, but lack the size and substance which blooms of old-established plants show. The plant at Burford Lodge is bearing thirty-one flowers, the sepals and petals being of great breadth and substance, the whole forming a charming picture. The flowers have been open for nearly three weeks. This plant was figured in the "*Orchid Album*," t. 214, about four years ago, and since then it has become stronger and produces larger flowers.—W. H. G.

Dendrobium æmulum.—Like many Australian Dendrobies, this is one that does not adapt itself readily to our artificial conditions, and although it has occasionally been introduced it is but little known. That it is worthy of care, however, is shown by several plants which were imported to Kew a year or two ago, and which are now in bloom. The stems are about the thickness and length of a lead pencil, and are surmounted by two leaves, from between which the raceme is produced. This consists of six to eight flowers, which are fragrant and pure white except on the sides of the lip, which are striped with purple. The segments are narrow, a little over an inch long. Judging by a figure given in the *Botanical Magazine*, t. 2906, the species is evidently a variable one, for the plant there portrayed has short and comparatively stout pseudo-bulbs, and the flowers, although similar in general structure, are neither of the size nor purity of those on the plants under notice.

SHORT NOTES.—ORCHIDS.

Trichopilia sanguinolenta.—This is a charming variety now in bloom in the Orchid house at Kew. The sepals and petals are about equal in size and not attractively coloured, but the lip is large, pure white, striped with lake-crimson on the upper part. It is quite a gem in its way.

Cymbidium eburneum.—A magnificent example of this species we lately saw promises to be remarkably fine shortly; it is just opening the first of its blooms, and when all are expanded it will have about thirty flowers in all. This is the result of cool treat-

ment. Under the old-fashioned *regime*, when the plants used to be grown only in the hottest corner that could be found, such a sight was never seen.

Dendrobium Wardianum giganteum.—This variety is now very gay in Mr. Marks' garden at Beckenham, the flowers being large and of good colour. Strength and vigour do not always produce depth of colour in the flowers, or this variety from Burnah should be much superior to the Assam form, which, however, is not the case. This form has been introduced largely by Mr. Low, of Clapton.

White Lælias.—I have recently seen several forms of the old *Lælia anceps* in magnificent condition, all being together in one place. The gardener is of my opinion, that is, when the plants become thoroughly established we may expect to see them cultivated as often as the typical plant. Our estimate of these plants has been formed too hurriedly. The following seven varieties seen together enabled me to form a better and juster opinion of them than when seen apart. The following are the names of the kinds recently seen together: *Sanderiana*, *Williamsi*, *Stella*, *Percivaliana*, *Hilliana*, *alba*, and *Dawsoni*. Of these, the last named and the three first are decidedly the best. *Dawsoni* is the finest variety I know, but it is very closely run by a beautiful form which I noted in the autumn flowering with Mr. Sander, of St. Albans, and which he called *Ballantiniana*. It has large pure white flowers, the front lobe being broadly tipped with rich magenta, and the side lobes streaked with lines of rich purple, the crests being prominent and deep yellow. *Sanderiana* is a large flower, pure white, saving the inside of the side lobes of the lip. *Williamsi* comes also into this category, having only the inside of the lip streaked with purple. The most distinct form that I know is *L. anceps Veitchi*, which I have not seen anywhere this season.—W.

RAINFALL, 1889.

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which '01 or more fell.
Inches.	Depth.	Date.	
January ...	0.92	.85	12
February ...	1.91	.50	13
March ...	2.65	1.57	7
April ...	4.27	.89	9
May ...	2.61	.68	25
June ...	0.70	.50	2
July ...	3.17	1.50	13
August ...	2.79	.83	2
September...	0.22	.10	20
October ...	2.66	.55	19
November ...	1.81	.66	21
December ...	1.81	.43	7
	25.52		132

—J. F. WILKINSON, *Highlands, Gloucester.*

Seed-sowing.—Cold, dull weather with snow happily intervened in time to prevent the sowing of seeds largely in the open ground. Last year January proved tempting and favoured early gardening; again, as last year, February has demonstrated its uncertainty by showing how cold and gloomy it can be without being severe. So far, work in the matter of digging has gone on with wonderful smoothness during the month; there has hardly been a day's hindrance, and yet it has been far too cold and gloomy on the whole to encourage anyone to commit small seeds to the soil. So much the better for the seed and gardeners. We have rarely had soil in better working condition than it is at present for the time of year, and therefore there has been, apart from the cold temperature, plenty of encouragement for sowing. So far, however, this work seems to have been limited to hard Peas and Broad Beans, and some Radishes, Lettuces, and other hardy seeds on warm borders or where protected by litter from birds. Soil may be ever so dry and friable, and seeds ever so good, but no robust growth can be looked for whilst the temperature is low, nights frosty, and the sun quite shut out from sight by dense clouds or mists. If

the soil can be got forward by manuring and digging, sowing may be done readily enough next month provided much rain does not fall. There is all the more need for patience and care in seed sowing, as the past two years have, on the whole, not been favourable to seed production, and imperfectly ripened seeds which may die in February may germinate if sown a few weeks later.—A. D.

NOTES OF THE WEEK.

Brambles in fruit.—"R. S." sends us from Barmouth, N. Wales, Brambles in full fruit.

The ugly old entrance to *Père-la-Chaise* with its regiment of tombstones behind, is the central cut in *Garden and Forest*. Poor nutriment for gardeners.—I.

The double Snowdrop now to be seen in many gardens around London is a type of a beautiful flower spoilt by doubling. It is the charming single *Snowdrop* truly burlesqued. In all good gardens every bulb should be destroyed or "rogued" out, as is done with bad seedlings in strains of annual and other flowers.

Saxifraga imbricata, a species from the higher Himalayas, has at last flowered and disappointed us. As a plant for the rock garden it may prove useful, but the flowers, which are only sparingly produced, are of a dingy white, and not large enough to make the tuft attractive. It is perfectly hardy, and grows freely in a chalky soil.—K.

Bulbocodium vernum, with a few bulbs in a patch, is poor, but when seen in large quantities with the flowers freely produced it is useful for the spring border. It flowers a fortnight later than the form known as *ruthenicum* or *versicolor*, and is not so robust, whilst the flowers are slightly paler. It is, however, a good spring bulb, and stands severe weather better than most flowers.

A fine Cœlogyne cristata.—I send you a photograph of a plant of *Cœlogyne cristata*, which is bearing thirty-seven spikes of its lovely flowers; nearly every spike has five flowers. The plant itself measures 30 inches across, and has been grown from a small piece in a 4½-inch pot within the last three years. I send you a couple of spikes cut from the plant.—J. F. WILKINSON, *Highlands.*

Korolkowia Sewerzowi var. bicolor, distributed not long since as *Korolkowia discolor*, is now in flower, and although dingy in appearance, one cannot help being attracted by the bright glaucous leaves so characteristic of the Oriental *Fritillaries*. It is not fitted for cultivation in the ordinary border, and should be lifted and stored when the leaves begin to dry off.—K.

Primula floribunda, in full bloom at the present time, proves a most useful plant for greenhouse decoration. It has been tried outside in many parts of England and has failed, while even in cold frames it rarely stands well. As a greenhouse plant, however, it will be found most useful, the improvement made both in the size and deeper colour of its flowers being additional recommendations. It ripens seed freely.—K.

Selaginella Douglasi is a hardy species rarely seen in gardens now-a-days, although a beautiful and most useful subject for the rockery in winter. It is evergreen, and just now the fruiting branches, in huge bunches so characteristic of this species, form a pretty contrast to the pale green leaves of the sterile ones. It is a native of North America, and proves perfectly hardy in our climate.

Acacia pulchella is one of the prettiest indoor *Acacias*, and was introduced as far back as 1803 from New Holland. It is comparatively dwarf, growing between 2 feet and 3 feet in height and making a beautiful pot plant. The dense head of small dark green leaves spreads out freely, and is very showy at this season when brightened by the many small globular balls of rich yellow flowers. Those who have greenhouses should make a note of this *Acacia*.

Seedling Rhododendron.—We send you specimen of a *Rhododendron* seedling, which is the earliest of the whites, being in flower now in the open ground.—J. CHEAL & SONS, *Crawley.*

*** A pretty flower, pure white spotted with deep crimson on the inner face of the upper segments, the centre of a brighter shade. It is a delicately beautiful variety.—Ed.

Eriostemon cuspidatum.—This hard-wooded plant is worth another note to impress upon those who have not grown it the value of well-flowered bushes in

the greenhouse in early spring. There are large and small plants at Kew, but in whatever stage, *E. cuspidatum* always has attractions of no common kind. The plants are vigorous, and have small deep green leaves, the white starry flowers clustering thickly at the end of every shoot. It continues some time in beauty.

Xylobium Colleyi is a singular Orchid from Trinidad, and purely a botanical curiosity, as the flowers have no beauty. They are produced three together on a very short stem that comes from the base of the pseudo-bulb, and almost, if not quite rest on the soil, reminding one strongly of those of the *Aspidistra* both in the way of production and colour. This is brown spotted with a deeper shade, the lip shining as if varnished and almost black. The leaves are bold, light green, and quite the finest part of the plant.

The varieties of the early *Squill* (*Scilla bifolia*) are very interesting just now in the rockery, and although I grow most of the forms, I think none of them are so beautiful as that known as *S. taurica*. It is, doubtless, only a form of *S. bifolia*, but it seems to be freer, the colour more intense, and the flowers much larger. It may be grown on the rockery, and if in a warm spot it will bloom quite as early as the type, and only a week or so after the form known as *præcox*. The varieties *rosea*, *carnea*, *alba*, &c., are all interesting and useful.—K.

Three good winter-flowering shrubs are *Azara Gilliesi*, with large, Holly-like leaves, pendent branches, and abundance of golden catkins, which are each about 2 inches long; this covers a large wall space in the gardens of *Dromolane House*. In the same garden *Azara microphylla* is a tree 12 feet high, and now a mass of pale golden sheen on the undersides of the branches. *Hammamelis arborea* is about 8 feet high, and has been a most brilliant object for a long time. Amongst the many rare trees and shrubs with which these gardens abound these are conspicuous just now.—T. SMITH, *Newry.*

Saxifraga Molyi has at last opened its flowers, and proves to be, as far as I can judge, *S. luteo-purpurea*. It is reported that M. Moly, after whom it is named, raised it in his garden from an artificial cross between *S. aretioides* and *S. sancta*. There must, however, be some mistake, as the plant in every way resembles *luteo-purpurea*, which is a natural cross between *aretioides* and *media*. I do not dispute that M. Moly raised the plant called *S. Molyi* in his garden, but the cross must have been exactly the same as that performed by Nature a century ago or more. Be this as it may, the plant under the older name of *luteo-purpurea* is one of the most useful spring *Saxifrages* we possess. It is certainly freer and more easily grown than any in the group to which it belongs, the large loose bunches of lemon-yellow flowers literally covering the compact tufts of glaucous-green leaves.—K.

The *Cyrtanthuses* are an interesting class of bulbs from the Cape of Good Hope, and comprise about fifteen species. Two very handsome kinds are now in bloom in the Cape house at Kew, one, named *C. lutescens*, having rich yellow flowers, which are long and tubular, as is characteristic of the race. This was introduced in 1836, thirty-two years before *C. McKeni*, which is also flowering freely in the same house. The flowers are of similar character, but white and sweet scented. These two kinds are worth good culture in the greenhouse, and will succeed well in a strong loam mixed with leaf soil and sand, not forgetting to well drain the pots. Plenty of water is required in the growing season.

Saxifraga Boydi is quite new to gardens. It was raised at Cherrytrees, Kelso, by the gentleman whose name it bears from seeds saved from *S. Burseriana*, from which it differs in having many creamy flowers to a stem instead of only one, the stem and calyx being thickly studded with glandular hairs. These latter characters suggest another parentage, and the only reasonable supposition is that the seeds were saved from a late-flowering *S. Burseriana* which had been crossed with *S. aretioides*, as both in the flowers, leaves, and habit we have indications that *aretioides* had something

to do with it. Should it prove as free and as easily managed as *S. Burseriana*, it will be a most desirable rock plant. Another form, with white flowers approaching more closely those of *Burseriana*, has been raised by the same gentleman, and from the small state in which it flowers it will no doubt be largely grown.—K.

The Skunk Cabbage (*Symplocarpus foetidus*), belonging to the Arum family, is well worthy of a place in the garden if only for its fine and luxuriant foliage. The blooms, which are produced now, are bronzy purple marbled with green, and not without beauty, especially at a time when so few flowers are to be had in the open air. It is a native of North America and quite hardy, requiring a somewhat shady spot in a moist peaty soil. It is, however, most useful on account of its handsome pale green leaves, which have a fine sub-tropical appearance during the summer and autumn months. It is now in flower at Kew in the open air.

Tecophylæa cyanocrocus.—This charming flower is blooming in a frame at Kew placed against the economic house. This spring-flowering Chilean bulb was introduced about 1866, and bulbs were distributed from Kew, but produced no flowers. In 1872 it bloomed with Messrs. Haage and Schmidt at Erfurt, but by reason of too much warmth having been given the flowers were small. Bulbs are fairly plentiful, and this lovely Chilean Crocus can no longer be regarded as a rarity, though we can well afford to see more of the Crocus-like flowers that rival *Gentiana verna* in their intense depth of blue. A coloured plate appeared in THE GARDEN, July 16, 1881, and had been made from plants in pots; but in a frame, as at Kew, the flowers are larger. There is a variety with a white throat named *Leichtlini*, and both it and the type have the fragrance of Violets. In warm districts, or along the south of England, these charming bulbous flowers should bloom freely out of doors.

Sweet-scented shrubs.—The pleasant and suggestive paragraph on sweet-scented shrubs in THE GARDEN of Feb. 22 set me thinking on a few not mentioned therein, and which I hope may be thought worth noticing. *Colletia horrida* has flowers giving a pleasant almond-like perfume in autumn. The cream-coloured blossoms of *Elæagnus* (? *hortensis*, with pale red berries spotted with a dark tint) have a delicate and somewhat uncommon scent, and are produced profusely. The Allspice (*Calycanthus*) is very pleasant. *Cerasus Mahaleb*, called the Perfumed Cherry. Then Rosemary bushes, though ordinarily only seen in a kitchen garden, make a very charming undergrowth in a shrubbery. I first noticed them in an old garden in Italy, said to be on the site of one of Pliny's, where they formed interesting groups under the *Arbutus* and *Ilex* of which it was modestly composed. *Ribes* and *Bay* are almost too well known to name, and Spanish Broom (*Spartium junceum*) appears to me to be noticeable for its agreeable smell.—M. R.

Seedling Lachenalias.—I send you a few blooms of seedling *Lachenalias* which both in habit and appearance are, I think, an improvement on the old form of quadricolor. No. 1 is *superba*, crossed with *Nelsoni*. It is very early. No. 2, three varieties of *Nelsoni* crossed with *superba*. No. 3, a small spike of *aurea* crossed by *superba*. Some of my seedlings and others are now past, the earliest being *rubida*, next *superba*, followed in about a fortnight by *Nelsoni*, *aurea*, *luteola*, *tigrina*, and then by *pustulata*, *orchioidea*, *glauca*, *orthopetala*, and *contaminata*. I should strongly advise *Lachenalia* growers to give a trial to wire baskets lined with Sphagnum Moss, the bulbs being so placed as to send out their stems in all directions. The basket should then be filled up with a compost of broken turf, cow manure, and sharp sand—bulbs being also planted on the top and covered with Sphagnum and a few pebbles. I have three such examples now in full bloom, bearing from forty to fifty spikes each, and their appearance is splendid. I dip them in a tank once or twice a week, and occasionally give them a dose of manure water. One of the baskets is none the worse for having re-

mained undisturbed for three years.—THEODORE H. MARSH, *Cawston Rectory*.

* * An interesting series of crosses, the spikes strong, and the flowers quaintly and finely coloured, especially those from the cross between *Nelsoni* and *superba*, in which the corolla is tipped with bright magenta, and the buds are rich crimson. This is a very lovely hybrid, and worth preserving. The note from the sender of these charming flowers points out the beauty of the *Lachenalia* when grown in wire baskets—good advice, as this is one of the best ways to enjoy the flowers.—ED.

Daphne Blagayana.—This is a comparatively new and rare plant, and one of the most beautiful and graceful of spring flowers. It is apt, however, like the *Fremontia* and the *Mutisia*, to die off almost at a moment's notice. We know of a fine stock of this *Daphne* that had taken years to work up entirely lost in a very short time, although every care was taken to guard against injury. The secret is that *Daphne Blagayana* is a short-lived plant, and that propagation by grafting should be carried on periodically. For grafting, either *D. Mezereum* or *D. Laureola* may be used; it may, however, be increased by layering the trailing branches, but this is a slow process. *D. Blagayana* is well worth the trouble anyone may take with it, an ample reward being obtained in the numerous bunches of deliciously scented creamy white flowers. It was discovered about 1837 in Carniola in clefts of rocks, fully exposed to the southern sun, but while requiring a sunny position its roots must be cool and moist, a combination very difficult to attain in artificial structures.—K.

BRITISH FRUIT GROWERS' ASSOCIATION.

A MEETING of the general committee was held in the Horticultural Club room, Hotel Windsor, Victoria Street, S.W., on Wednesday, February 19, at 4 p.m., Mr. T. Francis Rivers in the chair, and there was a good attendance of members. After the honorary secretary had read the minutes of the previous meeting, thirteen members were elected, and some additions were made to the executive committee. The place of meeting for the committee during the year next came under consideration, and in accordance with a resolution passed on a previous occasion the Rev. H. H. D'Ombra had been written to with the object of making some arrangements for holding the meetings at the Horticultural Club. A reply was now read in which it was stated that "the committee gladly accedes to the proposal."

Letters were read from Mr. J. Storey, Town Clerk, Leicester; Mr. J. Burn, Abbey Park, Leicester; Mr. Henshaw Russell, Crystal Palace; Mr. E. Carpenter, Brighton; and Mr. W. Holmes, Hackney, with regard to the conferences of 1890, and after some discussion it was resolved that the association should hold the following meetings to deal with the subjects named: Friday, June 27, Royal Aquarium, Westminster, Strawberries and bush fruits; Tuesday, August 5, Leicester, general fruit culture for profit; Friday, September 5, Crystal Palace, Plums and stone fruits; Thursday, September 11, Brighton, general fruit culture, Grapes and Tomatoes; Wednesday, October 15, Royal Aquarium, Apples. Offers of papers upon several subjects had already been received from members and friends of the association, but the full programme will be announced later on.

It was resolved that the general and executive committee meetings be held in the Horticultural Club room at 5 p.m. on Thursdays, March 6, April 3, May 1, June 5, July 24, August 21, October 2, November 27, and December 18.

Communications were read from provincial societies with regard to providing lectures at their meetings, and the secretary was directed to communicate with several experienced fruit growers on the subject.

Mr. T. W. Beach, Brentford, exhibited a sample lamp which he had employed for suspending amongst his fruit trees to catch the winter moth and other pests. It was an ordinary petroleum lamp, furnished with an extremely wide shade, the under surface of which is white, and covered

with a mixture of grease and tar. The moths fly to the light, and coming in contact with the shade are held securely by the adhesive mixture. A lamp of a similar kind has been tried on Lord Sudeley's estate with much success, and attention has been called to the subject in some provincial papers. Mr. Beach submitted a number of letters and cuttings dealing with the matter, and was accorded a vote of thanks for his communication. Mr. T. F. Rivers referred to the loss the association and the fruit interest had sustained by the death of Mr. Wildsmith, and it was resolved that a letter of condolence be sent to Mrs. Wildsmith.

National Chrysanthemum Society Centenary Festival.—His Grace the Duke of Westminster has sent a donation of £5 to the special prize fund, and given permission for his name to be announced as a patron of the same. The publication of the fact that the committee would place at the disposal of every society affiliated to it a special centenary medal free of cost is having the effect of inducing horticultural societies to become allied to the National. Since the last meeting of the committee applications to affiliate have been received from the Bacup, Batley, Market Harborough, and Hartlepool Societies.

The Wildsmith memorial.—At a recent meeting of the Reading Gardeners' Society it was agreed that a fund should be raised, which shall serve as a memorial to the memory of the late Mr. W. Wildsmith, by placing a child on the Gardeners' Orphan Fund. A sub-committee of the society, with Mr. T. Turton, Maiden Erleigh Gardens, as secretary, was then formed, and Mr. W. I. Palmer, of Reading, consented to act as chairman; Mr. R. Sutton as the Reading treasurer, and Mr. H. J. Veitch as the London treasurer. The committee have issued an earnest appeal for subscriptions to the object in view, and have specially been induced to do so because it is now known that Mr. Wildsmith had promised a poor Hampshire widow, who is burdened with a family of children, that he would spare no effort to secure the election of one of these orphans to the Gardeners' Orphan Fund. The committee are exceedingly anxious that the needful amount—about £130—should be raised as quickly as possible, so that the announcement of the placing of the memorial child on the fund may be made prior to or at least coincident with the annual Orphan Fund election, which takes place in July. Subscriptions may be sent to either the treasurer or the secretary.

Todea superba.—Perhaps it might interest some of the readers of THE GARDEN to know that I have grown *Todea superba* and *T. pellucida* out of doors here for several years. They are perfectly hardy here.—T. M. BULKELEY OWEN, *Tedsmore Hall, Shropshire*.

Chinese Sacred Lily.—Can you tell me how to treat the bulbs of the Joss-flower or Chinese Sacred Lily after flowering?—T. R.

Back wall of Melon pit.—I should be glad if some practical gardener would tell me if there is any useful method of utilising a back wall of a Melon pit. I am building an unheated pit for Melons, 15 feet long, 10 feet wide and 8 feet high at the back. There will be a front pit (5 feet deep) of manure and leaves, retained by brick wall, a 3-foot path and 2-foot border at back. Can I grow Plums satisfactorily on it, or what would be the best way to utilise it?—R. G. G.

Death of Maurice Young.—We regret to hear of the death of Maurice Young, of Milford, which occurred at his residence, Sherwood, Woking, on Feb. 24, at the age of 56.

BOOKS RECEIVED.

"Orchids: their Culture and Management." Parts 8 and 9. L. Upcott Gill, 170, Strand, W.C.

"Heating by Hot Water." By Walter Jones, with over fifty illustrations. Crosby, Lockwood and Son, 7, Stationers' Hall Court, Ludgate Hill.

Names of plants.—*M. M.*—*Rhododendron* is *R. Countess of Haddington*. The *Begonia* is *B. fuchsoides*.—*W. Alison*.—Flowers too shrivelled to identify.—*C. L. W.*—Please send specimens of leaves.

Name of fruit.—*F. C. B.*—King of the Pippins.

WOODS AND FORESTS.

MANAGEMENT OF DEER FORESTS.

In a former paper upon this subject I briefly glanced at the advantages of shelter for the red deer during winter, and as I have had some inquiries regarding the cost of establishing tree shelter in such places, the following additional hints may be useful to those who contemplate carrying out such improvements. In the formation of hard-wooded plantations in the low country, where pits had to be dug for most of the plants, I have found the cost to range from £8 to £10 per acre, but in planting heather ground in the deer forest the case is quite different, as the hardy Pine, which is the principal plant used, can be planted in a very satisfactory manner by the cross notch system at a cost ranging from 30s. to 40s. per acre. As this includes the cost of fencing, provided the site of the plantation is of a pretty large size and the material for the fences convenient to the spot where it is wanted, the expense can be no great barrier. It should be explained that the larger the area to be enclosed the less will be the proportional cost for fencing per acre. When planting exposed ground I have always found the best results on places where the Heather was from 6 inches to about 8 inches long, such being very beneficial in sheltering the plants and promoting their growth at the outset. Old, thick Heather or surface scrub of any considerable length, on the other hand, is apt to retain too much moisture on the surface, thus causing many of the young plants to damp off and perish before their roots take to the soil. To obviate this, it is a good plan to have all rank Heather burned a few years before planting is commenced. The burning can be done at any time during early spring when the heath is dry and in proper condition. The burning of the Heather should never be done after the 11th of April without an order from the sheriff. The reason of this restriction is to prevent the nests of grouse being destroyed, as the birds often begin to nest in open weather about the time specified.

The best sort of a fence is a stone wall, or what in Scotland is called a dry-stone dyke, built without mortar, as it not only makes a very efficient fence, but likewise affords considerable shelter to the plants until they become established and inured to the climate of the locality. After the plantation is thoroughly established and the tops of the trees out of the reach of the deer, these dykes should be thrown down to afford ingress and egress to the animals. In places where stones are scarce turf sods are sometimes used for the erection of fences, and when properly built they answer very well, but either stones or turf are preferable to wire fencing, which affords no shelter and causes a deal of labour and expense in its erection and removal when it is no longer wanted, besides being objectionable in other ways. The hardy Highland Pine should be the principal plant used, and the best plants are two-year-old seedlings, one year transplanted. Transplanting not only promotes the formation of fibrous roots, but also hardens the wood of the stem, so that it is less apt to shrink during a spell of hard frost. Black game sometimes do considerable damage to the plants by picking out the terminal buds of the branches and leaders, and thus causing the trees to become mere bushes. When such is the case the cultivator should use the pruning knife in such a way as to promote

the growth of the most central branch for a leader.

J. B. WEBSTER.

PICEA BREWERIANA.

PICEA BREWERIANA is the most local of all the Spruces, and, perhaps, from its peculiar habit of growth, one of the most remarkable of them all. It was not noticed until 1884, when Mr. Thomas J. Howell, of Arthur, Oregon, found it on the north slope of the Siskiyou Mountains, near the head waters of the Illinois river, in the extreme northern part of California. It was seen later by Mr. T. S. Brandegee (who obtained a trunk of this tree for the Jesup collection in the American Museum of Natural History in this city), a little to the south of Howell's locality, on one of the small north forks of the Klamath. These are the only stations known for this remarkable tree, and there are hardly a hundred fully grown individuals in them both, although it will be found, doubtless, on some of the adjacent ridges or mountain ranges; for all that part of California lying west of Mount Shasta, one of the most broken and rugged parts of the State, is still very imperfectly known, and its botany is practically unexplored. Mr. Brandegee found the few trees which he saw widely scattered over an area of several hundred acres, growing with the Douglas Fir, the Sugar Pine, the White Fir (*Abies concolor*) and a few small specimens of Lawson's Cypress, which previous to that time was not known, except in the single locality discovered by Jeffrey on the head waters of the Sacramento below Mount Shasta and on the Oregon coast. Picea Breweriana differs from the other American Spruces by its blunt, round leaves and by its larger cones, whose thin, entire scales resemble somewhat those of the White Spruce; they are much larger, however, and sometimes almost as large as those of the Norway Spruce, which this tree resembles, too, in the form of the leaves and in its long pendulous branchlets. These long branches are the marked and striking feature of this tree. They are 6 feet or 8 feet long sometimes, thin and flexible as a whip-lash, and "give to the trees," to use Mr. Brandegee's expression, "the appearance of Weeping Willows." The cones, instead of appearing near the top of the trees as they do in the other American Spruces, are produced from the lower branches also, as in the Norway Spruce, and hang down from the ends of the long pendulous branchlets. The largest tree measured by Mr. Brandegee was 90 feet high, with a trunk diameter of 30 inches.

Neither Howell, nor Brandegee, nor Lemmor, the only botanists who have ever seen, apparently, Picea Breweriana, visited the trees at seasons of the year when seeds were ripe, and this species has not been introduced yet into cultivation. Picea Breweriana, if it is fair to judge from the habit in cultivation of several other California trees which grow naturally only in small numbers and in very narrow areas—*Cupressus macrocarpa*, *Pinus insignis*, *Pinus Torreyana*, *Chamaecyparis Lawsoniana*—may be expected to adapt itself to conditions very dissimilar to those in which it is found on the Siskiyou Mountains and to thrive outside the limits of its present restricted range. If this expectation is confirmed, and Picea Breweriana assumes in cultivation anything like its normal habit of growth, it will certainly prove one of the most striking and attractive American Conifers, and a garden ornament of first-rate value.

The specific name adopted by Mr. Watson for this tree commemorates the services, in California, of Professor William H. Brewer, of Yale College, who, more than any man in his generation, has brought to light by explorations in the forest the characters and distribution of the Pacific coast Conifers.—*Garden and Forest*.

Picea pectinata.—With the view of supplementing the notes of Mr. Webster on the Silver Fir in your issue of the 15th ult. (p. 159), there is one very important characteristic of this useful and ornamental tree which he omitted to mention, namely, its comparative hardness and ability to resist the exigencies of the weather in exposed situations. This is a fact either not generally

known or too often lost sight of in the formation of mixed plantations on exposed ground. I know of several situations in North Wales where the Silver Fir does remarkably well at an elevation of from 900 feet to 1000 feet. With regard to the Silver Firs in Poulton's Park, referred to by Mr. Webster, I have measured the "twins" and find the taller is 138 feet and the shorter 133 feet. As far as I can ascertain these were planted seventy years ago. I wish particularly to state, however, that I have a doubt whether these are pectinata or Nordmanniana, and I should be extremely glad if Mr. W. or any other correspondent would kindly furnish me with such particulars as would enable me to discriminate between the two at sixty to seventy years' growth.—M., *Poulton's Park*.

The Silver Lime (*Tilia argentea*).—This handsome Lime stands out conspicuous from all the rest on account of its noble growth and silvery undersurfaces of the leaves, features which render it so distinct from all other kinds. Its greatest merit, however, is that of the foliage remaining in perfection long after that of the common Lime has fallen; it is, therefore, highly valuable on this account alone. It is somewhat remarkable that such a fine tree as this should have been overlooked for such a long time, for it is a very old introduction. I see no reason why the Silver Lime should not make a serviceable tree for streets and avenues, where its silvery foliage and bold habit of growth would be shown off to advantage.—G.

A remarkable Walnut tree.—The portrait of a remarkable Walnut tree found growing by Professor Rothrock at Lower Brandon, on the Lower James River, in Virginia, is published in the January issue of *Forest Leaves*. Professor Rothrock describes it as "a gigantic spreading tree, which towers higher and spreads over a wider area than any of its associates. This is always plainly visible, but particularly so when winter has stripped the leaves and allowed the branches to stand out on the background of a cold sky." No one knows when the tree was planted, and nothing is known of its origin. The remarkable thing about it is, that in bark and in foliage this tree is almost identical with common forms of the so-called English Walnut (*Juglans regia*), while the nuts, which have a thick, rough, and deeply furrowed endocarp or shell, and thick cell-walls, are not distinguishable from some forms of the nut of the Black Walnut; and the tree thus presents every appearance of being a hybrid between the American and the Old World Walnuts. The Walnut trees cut last year on the grounds of the late Ben Perley Poor, near Newburyport, Massachusetts, had the same peculiarities as the James River tree, and one of the stories told about the Newburyport Walnut was that it came originally from Virginia. There is another specimen of the same tree growing in the grounds of the Episcopal School of Harvard University, in Cambridge, of whose origin no one knows anything. The presence of American blood in these trees is shown not only in the nut, but in the fact that the Newburyport tree and the Cambridge tree are both perfectly hardy, and have grown to a large size, while the English Walnut in Massachusetts is precariously hardy, and, when it grows at all, never attains to any great size.

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No. 955. SATURDAY, March 8, 1890. Vol. XXXVII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

NOTES FROM SMYRNA.

SINCE my letter of last May, which you very kindly gave a place to in THE GARDEN, I have been prevented by business occupations from giving your readers any more descriptions of plant-life in this region. Now, however, that our slack season gives me more leisure, and our exceptionally early spring with its balmy weather is causing all the bulbs in my garden to push up their flowers, it might perhaps be of interest to some of your readers to hear the results of my plantations.

Possibly some amongst them who take an interest in bulbous plants may remember that I referred last year to my hopes that the Taurus and Ante Taurus Mountains would prove a rich field for the plant-collector, especially in the Scilla line. These hopes, I am glad to say, are not proving groundless. Two of the Scillas I referred to last year are, as far as I can judge, turning out trump cards. The one I then named Ante taurica, to distinguish it from the other varieties found in this neighbourhood, is really very fine. Putting its deep blue flowers alongside those of the first Chionodoxa sardensis of the season, I find that they do not compare unfavourably either in size or colour. If you add to these qualifications its commencing to flower in December, it would not be unreasonable to think that it has a future before it when acclimatised in England. I must say, however, that the flowers do not stand out so gracefully above the deep green leaves as is the case with the Chionodoxas. I am sure it will find many warm advocates amongst the many friends to whom I have sent bulbs for trial. One question alone remains to be answered—Is it Scilla bifolia taurica or not? Messrs. Barr and Ware must answer for me.

The next Scilla from the same mountains I will call, till better named, Ante taurica minor. The flowers are practically of the same size and colour as the above-mentioned, but fewer and more gracefully set on the stem. The bulb is about half the size, and sheathed, like the Hyacinth, in metallic-coloured leaves, a peculiarity which I have, so far, been unable to observe in any other Scilla. It flowers about a fortnight earlier than the Ante taurica. Another Scilla from the same province now turns out to be a very early blue Grape Hyacinth.

The Scilla which I named temporarily trifolia has proved rather disappointing to me, and leaves me in doubt as to its being a Scilla at all. Friends, no doubt, will pronounce on it shortly, but it brings home to me the fact that there are disappointments for the amateur flower-collector even in almost unexplored countries like this.

The genus which of all has afforded me the

most pleasurable excitement is the Fritillaria, not so much owing to the beauty of its flowers as to the fact that the botanical works I possess make no mention of any varieties as coming from this neighbourhood. Great was my satisfaction, therefore, on finding on the heights above Smyrna the yellow armena. Following up my researches, I was rewarded last spring with a green variety of armena on the Mahmoud Dagh, a red one on the Mourad Dagh, and another red but larger form from the Ante Taurus. From the last range of mountains came also Fritillaria aurea and æmopetalis, as classified by Mr. Baker, of Kew.

The yellow armena is well known in England. The green is larger in growth and interesting, if not beautiful. The red from the Mourad Dagh is handsome and worth cultivating. The same in colour from the Ante Taurus is larger, but perhaps not so graceful as the one from the Mourad Dagh. The Fritillaria aurea has fine bright yellow flowers with brown spots, and of about the same size as those of F. Meleagris. F. æmopetalis I am unable to describe, as it has not flowered as yet, and the dried specimens forwarded me by my collectors are scarcely good guides.

After so many finds I do not think you will consider me too sanguine if I have hopes of more varieties turning up this spring. In fact, judging by my past experience, I am led to believe that each mountain range in this much varied climate has a flora of its own, and of which no one has given, or will be able to give, a complete description until a better government gives perfect security of life to would-be explorers.

Smyrna.

EDWARD WHITTALL.

WINTER FLOWERS IN PARIS.

It is winter; night is approaching, and it is raining. The roadway is muddy and the carriages splash as they pass; the sidewalks of the streets are changed into dark-coloured, shining streams; the melted snow, which falls persistently, wets and chills one's fingers. Muddy-footed and mud-splashed, one feels in a shocking humour, and hurries along the boulevards; everything looks dull and ugly, and one expects to arrive at home in a very peevish state of mind. All at once, however, a scene of enchantment meets the view, which calms and charms one, on coming upon a flower shop where the gas has just been lighted.

Almost always these flower shop windows stand back somewhat from the front behind a verandah or kind of porch, which affords a shelter from sun and rain, and where one can walk about and view at one's ease the entrancing sight which is presented by the display in the shop window of a Parisian flower merchant. The base or lower part of the arrangement is always composed of evergreen room plants, such as Araucarias, Ficuses, Chamaerops, Phoenix, rare and delicate Ferns, toy trees, stiff miniatures of the giants of the forest, velvety leaf-stalks, thick leaves of succulent plants, Palm branches, some flat and broad at the extremity of inflected stems, others long and graceful, slender and curving downwards, as if beneath the weight of an invisible bird. Lance-shaped, or pointed like flexible knives, these leaves

under the gas-light assume unwonted metallic reflections, a fictitious theatrical lustre, and a wonderful artificial charm, and their dark green colour, like the wall of a circus, as it were, encloses, frames, and sets off the luminous amphitheatre of the flowers. At first one is dazzled and sees only the general effect produced by a harmonious chaos of colours. Afterwards the eye discriminates and takes in the details.

Those sheaves of glistening yellow, pink, and red colours, which flash suspended in the air and appear as if about to fall to the earth like the stars of a rocket, are bouquets of Roses projecting from the rim of a vase. There are also clusters of a silvery hue, and others slightly shaded, borne on the extremities of slender branches; and there are small white bells arranged in groups around short green stems—these are Lilacs and Lilies of the Valley. The flower-balls of the Mimosa, abundantly numerous and charming, and ready to quiver at the slightest breath, stand out in light relief from the carpet of Violets. Haughty and proudly pale, the Camellias and Gardenias look like duchesses, lofty and cold; beside them are golden-flowered Jonquils, pink and blue Hyacinths, soft-tinted Azaleas, simple-looking Guelder Roses, with their bowing air, bold-toned Tulips, yellow and red like a Spanish Flag. All the flowers of the season are grouped together harmoniously, and are brilliantly lighted up by lamps with powerful reflectors, which are placed out of sight.

In their baskets, plain or gilded, adorned with broad and splendid ribands, selected and tied by fairy fingers, cut flowers or living plants, the aristocracy of their kind, raised in hot-houses at great expense and with an untold amount of attentive care, these delicate creatures in gala attire hold a royal court here in the shop-window, for in the midst of them is seated their queen, her very magnificent majesty, the Orchid. On her throne of Bamboo tastefully garlanded with a lace-work of Asparagus, strange, mysterious, and rich as an eastern monarch, this exotic sovereign, this floral Sardanapalus, of almost distracting splendour, displays herself with an inexpressible air of pride, extends her delicately slender limbs, and exhibits her exceedingly beautiful flowers.

Entering the shop, one finds the interior equally charming. The atmosphere is pervaded by an indefinable and not very powerful perfume, a mixture of various scents forming an agreeable and penetrating aroma. Everything here is plain, everything else being sacrificed in order the better to set off the attractions of the plants.

On the walls there are no ornaments, except the indispensable vases or baskets, small back-baskets, tulip-shaped baskets, broad, chubby, round-handled baskets, small portable chairs, miniature wheelbarrows, gilt cornucopias, broad-leaved hats on stands, a whole arsenal, which lately appeared very much mixed up, but of which the details have now gradually revealed themselves, the rough basket ornamented with splendid ribands coming last into view. They want nothing more than these materials to create marvels of art, veritable little masterpieces, in which they display the faultless good taste of a Parisian lady and the science of an accomplished artist in colours. I feel for these flower girls the respectful admiration with which I regard all true artists, for they are quite on a level with our best painters. The least skilful of these shop girls can compose, for weddings, marvellous symphonies in white, such as Raphael might dream of. But it is not every-

one who wishes that can become a skilful composer of bouquets; certain conditions are indispensable. In the first place the *bouquetiste* must be a Parisian, and must never leave Paris, a fortnight's absence in the provinces being sufficient to vitiate the taste. Secondly, this business must be followed exclusively in consequence of the individual not being able to endure the idea of following any other.

There is no other business which is more exclusively Parisian than the flower business. Almost all these fine flowers even at this season are raised around Paris. Some people erroneously think they are sent from Nice, but they are all produced in the outskirts of Paris; the Orchids at Châtillon, in the valley of Aunay at St. Ouen; the Roses at Montrouge or Fontenay; the Violets at Bagneux; the Hyacinths at Boulogne-sur-Seine; the Lilacs at Neuilly. The Mimosa and the common Tea Roses come from the south of France in large quantities, but these are destined to fill the baskets of the street flower-sellers rather than to find a place in the shop windows of the high-class flower dealers. The flowers that sell at a high price are raised at Paris and made into bouquets at Paris, and except a few consignments to foreigners who go in for this business deeply, they are all used up at Paris. These flower shops on the boulevards of which I have just spoken are patronised almost exclusively by the upper classes. The well-to-do middle class people make their purchases on Tuesdays and Fridays in the market of the Madeleine; those of slenderer means resort on Wednesdays and Saturdays to the Quai-aux-Fleurs under the walls of the new Hotel-Dieu; while the daughters of the working class, who inhabit the Faubourg-du-Temple, the poor little errand boys of the Quartier Turbigo, and the bareheaded, loud-voiced girls of Belleville and Menilmontant are happy on Mondays and Thursdays, when for two or three sous they purchase a Wallflower plant for the window, or a pale Rose to adorn their chignon from the flower-sellers at Château-d'Eau.—*Figaro*.

TREES AND SHRUBS.

VARIETIES OF THE SPRUCE FIR.

(*ABIES EXCELSA*.)

OF no other Conifer are there so many distinct varieties, exhibiting so wide a divergence from the normal form, as in the common Spruce Fir, for while the type forms a handsome pyramidal specimen, sometimes over 100 feet high, there are some so dwarf that a plant many years old might be covered with a bushel basket. These miniature varieties form quite a group by themselves, and include among their number some of the very best pigmy Conifers. One of the dwarfiest of all is Gregoryana, which forms a low dense tuft, thickly clothed with deep green leaves. In Clanbrasiliana the branches are horizontally arranged, and the whole plant forms a somewhat roundish bush with a flattened top. It is not quite so dwarf as some of the others, being at times met with more than a yard high. This variety originated on the estate of Lord Clanbrasil at Moira, near Belfast; hence its name of Clanbrasiliana. Of this last there is a form (*stricta*) in which the branches are ascending, and from this circumstance it is one of the most distinct of the dwarf varieties of the Spruce. One variety (*pygmæa*) is of a bluntly conical habit with dense sturdy branches and short leaves. Altogether it is one of the best of these dwarf kinds, the last of which I will mention being *pumila glauca*, remarkable for its glaucous foliage, which stamps it as quite distinct from

any of the others. There are many more names to be met with in different catalogues such as *brevifolia*, *parviformis*, *mucronata*, and *Remonti*, but as there is not a wide difference between any of them, those previously mentioned may be regarded as, under ordinary conditions, amply sufficient. Of weeping forms of the Spruce there are *pendula*, in which the shoots are somewhat drooping, and *inverta*, a far more weeping variety than the other. This variety originated, I believe, in the gardens of Kinlet House, Shropshire, and was distributed by Messrs. R. Smith & Co., of Worcester. In this not only the minor shoots, but also the main branches droop almost close to the trunk, and on that account it is a very remarkable Conifer, as distinct indeed from its fellows as Messrs. Little and Ballantyne's variety of the Weeping Wellingtonia is from the ordinary pendulous form. Besides its drooping character, the last-mentioned variety of the Spruce (*inverta*) has somewhat larger and brighter leaves than the type. In the Golden Spruce (*aurea*) the leaves are more or less of a golden hue, according to the soil or situation in which the specimen is placed, while another form is *Finedonensis*, which when first distributed was regarded as something very promising, but now-a-days it is seldom seen. In this the young shoots are when first formed of a pale yellow, which gradually changes to a bronzy-brown, and then after a time it assumes the normal colour of the species. To be seen at its best, this needs to be planted in a sunny spot, as where wholly or partially shaded, the yellow colour of the young shoots is less pronounced than where differently situated, and consequently the contrast in colour between the old and young leaves is much less pronounced in a plant grown in a shady position. The last to be noted is *horizontalis* or *monstrosa*, a remarkably singular variety, that forms a stout leading shoot, and a few long straggling branches almost destitute of laterals. Both the leading shoot and the branches are thickly covered with short bristly leaves. Its ornamental qualities are by no means high, but still it has a singularly grotesque appearance. The fact of there being so many varieties of this Spruce is perhaps to a certain extent to be accounted for from the fact of such immense numbers being raised from seeds every year, and in the nursery beds it is often possible to pick out many distinct and curious forms. On the other hand, the Austrian Pine (*Pinus austriaca*) and the allied *P. Laricio* vary but little from each other, even when thousands are raised from seed. T.

Sweet-scented shrubs.—I forgot *Salix pentandra* in my little list of scented things, both its foliage and catkins being sweet-smelling.—M. R.

***Pyrus japonica* not flowering.**—Can you tell me why *Pyrus japonica* never flowers here? I have several plants on different aspects. All are now coming into full leaf, and look the picture of health. They are treated like their neighbours, the Roses, in having a good mulching of manure.—L., Surrey.

***Cassiope tetragona*.**—One of the brightest tufts of green in the garden is furnished by a mass of this little Ericaceous shrub, which at all seasons preserves the richness of its colouring. It is a low-growing member of the Heath family, with the leaves closely packed together in four rows; hence its specific name of *tetragona*. The small drooping bell-shaped blossoms appear in the spring and early summer. It is just the thing for a cool, moist spot on the rockwork, where in peat soil it will succeed perfectly, but where hot and dry the foliage loses its rich tint. This shrub is a native of Lapland, and therefore our winters have no effect upon it. *C. tetragona* is sometimes known under the name of *Andromeda tetragona*. A second species, *C. fastigiata*, which was illustrated by a

coloured plate in THE GARDEN, Sept. 15, 1885, is distinguished from the last by its more erect habit as well as by other features, but it is rather more difficult to cultivate than the common kind, though the requirements of each are much the same. *C. fastigiata* is a native of the Himalayas, where, according to Sir Joseph Hooker, it is widely distributed.—H. P.

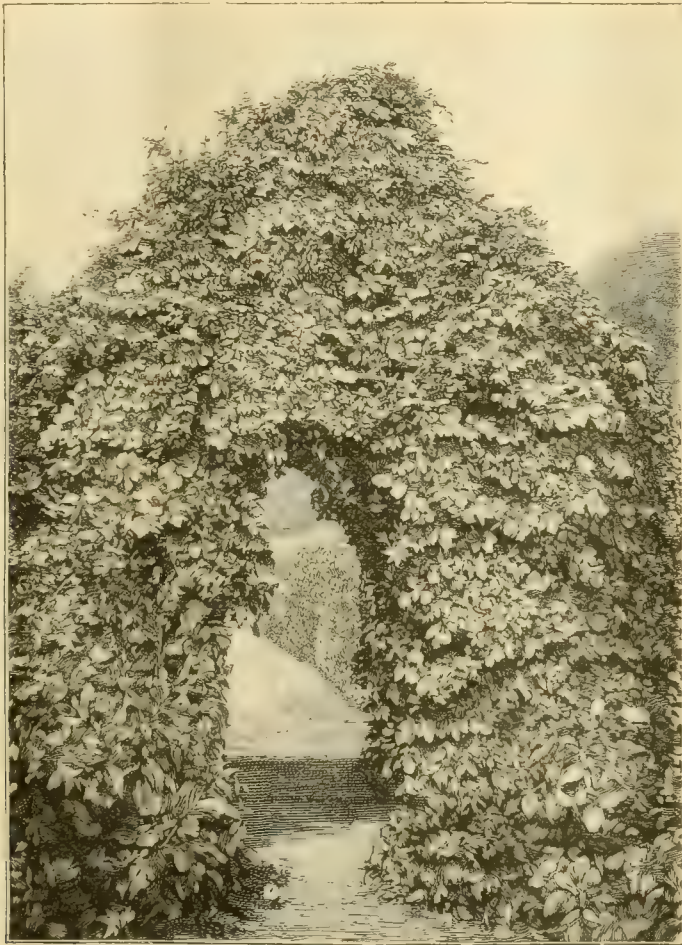
***Podocarpus alpinus*.**—This is one of the hardest of the extensive genus to which it belongs, and has now stood a great many winters around London without injury. This *Podocarpus* is of a somewhat singular spreading habit of growth, and unless the main stem is supported in an erect manner it forms a low bush, with widely extending branches and pendulous branchlets, furnished with small Yew-like leaves of a dark green colour. In this way it is a very distinct low-growing Evergreen, while the main stem being secured to a stake gives it a totally different appearance. It is a native of the mountains of Tasmania and Victoria, and is found at high elevations thereon. A second species of *Podocarpus*, hardy in most districts of England, is *P. chilinus*, a robust, but not a particularly fast growing Conifer, with numerous branches clothed with dark green leaves about 4 inches in length. When in a thriving condition it forms a very handsome specimen, quite distinct from any species of *Cephalotaxus* which it most resembles. The above are the two hardest members of the genus, though a very desirable shrub or low tree perfectly hardy in this country, is sometimes included with the *Podocarpus* under the name of *Pandinus*. I allude to *Prumnopitys elegans*, a native of the Andes of Chili. It forms here a dense, somewhat conical shaped specimen, with numerous branches freely furnished with minor twigs, which are clothed with leaves not unlike those of the common Yew, but of a bright green tint and somewhat glaucous beneath. This *Prumnopitys* makes a pretty little lawn shrub, and when planted in limited spaces can be readily kept to a certain size, as it bears pruning well. It can be readily propagated by means of cuttings put in during the autumn months. Notwithstanding the fact that the *Prumnopitys* is a native of the mountainous parts of South America, it does well in smoky districts; indeed I have seen it in good condition in London where few other Conifers would grow.—T.

State of vegetation.—We have had weather during February which has proved very beneficial to our fruit trees. Without being unduly cold, with little weather that prevented work being carried on, and with not at all an excessive rainfall, yet we have found vegetation to have been so restful, that there has been little progress made, and the fruit buds and growth generally are almost where they were when the month came in. Without doubt we shall see a wonderful change so soon as we get a few days of consecutive sunshine and warmth. The deterring agency of the month of February has been found chiefly in dull, cloudy, or misty skies with easterly or north-easterly winds, yet strong or biting only occasionally. The soil has been dried considerably and is in good tilth, but the more seed sowing has been delayed the better for the seeds. The earliest Apricot bloom opened here on a warm south aspect on the 20th, almost too early, but there is plenty in reserve. The bloom on an east aspect is rather more retarded, and justifies the general experience of the late Mr. Wildsmith, who preferred to have half of his Apricot trees on a west wall, so as to have a good reserve for later blooming. Peach bloom is by no means forward. Bush fruits have remained almost torpid during the month. That is good, because at the close of January both Gooseberries and Black Currants were so active, that but a week more of mild weather might have brought them into full leaf. Now there does not seem to be any great fear that these or any other of our hardy fruits will be in any way too early.—A. D.

***Rhododendron præcox rubrum*.**—We make another note of this lovely greenhouse flower, and hope to soon publish a coloured plate of it. Those who have not yet got it, lose much beauty in the spring months

THE HOP IN GARDENS.

THIS is the season when our thoughts turn to spring and the garden, and in the list of climbing plants the Hop should have a good place. There are few things more beautiful than the common Hop, which, even when seen climbing over the straight poles in the Hop fields, has a gracefulness and picturesqueness inexpressibly charming. We can take some of this beauty to the garden, and use the Hop for covering bowers, arbours, trellis-work, and odd nooks, especially if evergreen vegetation is not required. A good use for it is as a climber permitted to ramble at will over dead trees, amongst shrubs, and stumps, as any soil is



A Hop-covered arbour. From a photograph by Major Arthur Terry.

suitable. We lose much picturesque beauty in gardens by ignoring things like the Hop because they are "common." Nothing is common if it is capable of giving the delight the Hop of the field will when set in a place it can clothe with a luxuriant and rich green vegetation. We remember a gnarled Apple tree on the fringe of a beautiful pleasure ground, over which the Hop had spread its vigorous shoots, and it would not have been easy to discover a prettier bit of free and picturesque growth. As with the Ivy it makes a happy contrast to Clematis Jackmani and its varieties, the mass of deep green leaves intensifying the colour of the rich abundance of deep blue flowers. Nor is its charm confined merely to summer,

but as autumn approaches the plant then carries its rich clusters of golden yellow Hops, and receives additional beauty of no mean kind. The revival in our gardens of climbing plants, as the Clematis, Jasmine, and other sweet favourites, has resulted in many happy pictures, as shown by the accompanying engraving. This represents one of the finest arbours of Hop we have seen, and from it we can judge of the rich beauty that a common climber can give when once it has become established in the soil. There is another kind called the Japanese Hop, which has been much used for covering arbours and trellises. The growth made is surprisingly rapid. Those who have not yet heard of it should give it a trial, and though resembling the common type, it has no commercial value whatever. The bunches of flowers are larger,

and therefore the plant has an advantage for the garden.

Seeds in dated papers.—I believe that every paper of seeds of whatever kind should be dated before it leaves the seedsman's hands, thus assuring the planter of its age, for unless it is dated, how is he to know that it has not been in some shop for years? Even when he deals directly with the grower, which he seldom does, the date does no harm, for some planters use left-over seeds the next year. Old seeds do not lose their vitality all at once, as an animal dies, but are continually losing it, and old seeds that germinate in the hot-house may fail in the garden. Again, if it is so old that only half of it will grow, that half is inferior to new seed, as will be seen at harvest if

they are planted side by side with new seed. How is a person to know how thick to plant old seeds? Last year fresh seeds were tested at the Pennsylvania Experiment Station, and a second test was made this year from the same papers, to ascertain the falling off in vitality, with the following result: Beans, 12 per cent.; Cabbage, 3; Lettuce, 30; Onion, 9; Parsnip, 8; Peas, 7; Radish, 2; Tomato, 21. Certainly many more would have failed had they been planted in the ordinary way.—*Country Gentleman.*

AMERICAN NOTES.

A beautiful Carnation.—At the Orange show, in November, was exhibited a new double white Carnation that good judges declare to be the best of its class yet brought to the light for public inspection. It is a seedling, of John McGowan, Orange, N.J., and named by him Miss Lizzie McGowan. In texture the petals are firm and durable, and are pure white, sweetly fragrant. The flower has the valuable characteristic of not bursting in the calyx, a trouble too often spoiling otherwise good and beautiful Carnations. It is a free-flowering variety, bearing numerous large blooms measuring $2\frac{1}{2}$ inches in diameter. John Thorpe calls it the "best" white Carnation.

A "new" Japanese fruit.—Let me call your attention to another "new" Japanese fruit, namely, *Elaeagnus longipes*. True, it is not new by any means; at the same time, it is almost unknown in general cultivation. It is a thrifty shrub, of comely form and appearance, and in midsummer bears the utmost profusion of red berry-like fruit, and two-year-old plants bear freely. The fruit is cooked and used as a sauce with meat, especially chicken, and it is one of the most delicious sauces that ever tickled the human palate. We are planting this shrub in quantity for its fruit, as we are Currant bushes.

Flowering of *Seafortbia elegans*.—In the grounds of Eugene S. Sheffield, at Santa Barbara, California, stands a handsome *Seafortbia*. At 8 inches from the ground the circumference was 33 inches, and at the flower-spike, $3\frac{1}{2}$ feet from the ground, the girth is $23\frac{1}{2}$ inches. It has twelve fine healthy leaves, every new leaf larger than the preceding. It is in robust health, as shown by the deep green colour. It has come into flower at a bad time, this being the rainy season, with short days and long cool nights. Whether it will set seed I cannot say, as it was not forward enough when I saw it. Being the first, the flower-spike is small, but as it will continue flowering now, the spikes will get larger as the plant increases in size. From the ground to the top of the leaves the plant is about 15 feet high, and Mr. Sheffield may well be proud of his *Seafortbia elegans*, or, as some will have it, *Ptychosperma Cunninghamii*.

Exochorda from soft cuttings.—This fine shrub has been the stumbling-block of most propagators, from the difficulty of propagating it except by seeds, and seeds have been produced in such meagre quantities that the plant still remains a high-priced one. Like many others, I have tried various methods to root soft cuttings, but without much success until last winter. In February last, Mr. Whittier, one of the propagators at Shady Hill, tried the following method with complete success: Cuttings about 1 inch long from forced plants were put into 1 inch of sand in small boxes which were closely covered with a single pane of glass, the cutting being set almost or quite down to the bottom of the box. These boxes were put in the warmest part of a house heated by flues, where the bottom-heat was probably about 90° to 100° . They were syringed very carefully twice a day, and no other water given, with the result that all the cuttings rooted in two or three weeks. This result was seen by several who had tried and failed like ourselves, and excited much interest. The requisites for rooting *Exochorda*, then, seem to be these: Cuttings grown under glass; a high temperature; not too much water, and that all applied to the foliage; thin sand, and tightly closed small compartments. About 300 cuttings were used in this experiment,

and every one rooted; they are now 3 inches to 20 inches tall, in rows.—F. L. TEMPLE, in *American Garden*.

Gladiolus Snow White.—This variety, which is soon to become so well known in the horticultural world through the very general announcement in the 1890 catalogues, is without doubt one of the most valuable of its class ever sent out. While it has been shown at the meetings of the Massachusetts Horticultural Society in former years, it was never brought to the attention of the trade so prominently as at the annual convention of the Society of American Florists in New York, August, 1888; it there attracted universal attention and admiration.

Roses Albany and Hoste.—Duchess of Albany I regard as one of the best Roses introduced for several years, and it must become a general favourite in the very near future. It requires the same treatment as La France, from which it is very distinct in colour. Mme. Hoste is also a real acquisition. When first introduced the general opinion was that it was not decided enough in colour to make it popular, but it is very popular in the New York market and is steadily growing in favour. It is a good grower and very free flowering. At its best it is a clear canary-yellow of good size and shape, and is a good companion for Bride, Bennett, Mermet, &c., in a general way.—J. N. MAY.

Lælia Arnoldiana, n. sp.—This new species has been imported for L. Gouldiana, which it resembles somewhat. It belongs to the group of Lælias of which L. autumnalis, L. albida, L. Gouldiana, and L. Crawshiana are members. It is distinct from either by its flowers, colour, and remarkably free growing qualities. The pseudobulbs are 4 inches to 6 inches long, pyriform, and deeply furrowed. The leaves are in pairs, 5 inches to 7 inches long, leathery, lanceolate, very thick, dark green; scape 1 foot to 4 feet long, bearing three to eleven flowers; sepals and petals broad, pointed, slightly reflexed at the end, of a rich warm rose colour, shading off towards the centre; lip three-lobed, the lateral lobes straight, white or pale rose, middle lobe reflexed, deep rose-purple at the end, pale towards the centre, the interior traversed by two yellow ridges spotted purple. This fine species is dedicated to Mr. Hicks Arnold, of New York City, one of the most ardent lovers of Orchids.—W. A. MANDA, in *American Florist*.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—**WINTER-FLOWERING PLANTS, PROPAGATING.**—The advantage that attends the early propagation of the different kinds of plants that are grown for autumn and winter-flowering is that it admits of the wood getting fully matured before the end of summer. The flowering of this section of plants depends more upon the condition named than on the size the specimens attain.

EUPHORBIA JACQUINLEFFLORA.—Plants of this Euphorbia that have been kept during the autumn and winter along with the warmest section of stove species will have made numerous shoots that should now be in a condition for striking. They should be taken off with a heel when 5 inches or 6 inches long. By adopting this method few will fail to strike. Trim off a few of the bottom leaves and the jagged edges of the bark, so that there may be nothing soft that is liable to cause decay. Three or four cuttings may be put into a 3-inch pot. Sand, alone, is the best to use. A stove temperature of not less than 70° is necessary to ensure the cuttings striking. They must be kept close enough to prevent the leaves flagging, as if this occurs, they generally turn mouldy and are in danger of communicating it to the wood. Shade from the sun, and as soon as roots are formed gradually give air until the plants will bear full exposure; after this stand the plants close to the light. When well rooted, move them all together, just as they have been struck, into larger pots, disturbing them as

little as possible. The larger and stronger the plants get the more bloom they will bear. For this reason it is better not to stop the shoots, but allow them to extend as far as they will. Loam, with rotten manure and sand, is the best material to grow the plants in.

PLUMBAGO ROSEA.—This, like the preceding, requires a considerable amount of heat in all the stages of its growth. The cuttings are more certain of striking if severed with a heel of the firm wood. When the shoots are from 5 inches to 6 inches long they are in the best condition, for though they will strike when smaller than this, the larger and stronger growths will invariably take the lead, and make better plants than smaller ones. Four or five cuttings may be put into a pot. Treat generally in the way recommended for the Euphorbia, except that when the time for potting off comes, only put one plant in a pot. It will also be necessary to stop the plants once or twice during the spring.

THYSACANTHUS RUTILANS.—This plant when in bloom is better adapted for decorating a warm house than the flowers are for using in a cut state, though a few of the drooping sprays are effective when arranged in a large vase and allowed to hang in their natural position. The plants look best when allowed their naturally erect shape, without any attempt to induce them to branch much. Cuttings of the young shoots which have been produced by plants that have been kept through the winter in heat will now be in right condition for striking. They should have two or three pairs of leaves; if smaller the wood is likely to be soft. Put them singly into 3-inch pots filled with sand. In moderate heat, with a close, moist atmosphere, and shade when necessary, they will root in a few weeks. After they are fairly established move them to 4-inch pots. Fresh loam, with some rotten manure, leaf-mould, and sand forms a compost in which the plants will make rapid progress. They may be stopped once so as to induce the formation of several shoots, or they can be allowed to go on with a single growth, at the option of the cultivator. Keep them in a moderately warm genial temperature through the spring and stand them where they will be fully exposed to the light to keep the wood stout and short jointed. Shade from the sun in the middle of the day.

ERANTHEMUM PULCHELLUM.—In this we have the best of the winter-flowering Eranthemums, being a free grower and equally free bloomer. Plants that have been kept in a warm house through the winter will in most cases have produced shoots independent of the flowering wood, which should be avoided, as it does not strike well, nor grow freely after roots have been formed. The cuttings will root in a few weeks treated in the usual way with a brisk heat in a close atmosphere and shaded. The plants should be grown in rich material from the first; leaf-mould and rotten manure ought to be mixed with the loam at the first potting. They should be put into 6-inch pots as soon as they are sufficiently rooted. This species branches freely, but to have the specimens fully furnished at the base the points of the shoots should be removed as soon as a little growth has been made; a second stopping will be necessary later on in spring, when the plants may be transferred to 8-inch or 10-inch pots. This is not too large a shift for this Eranthemum, as it is one of the strongest growers amongst the soft-wooded section of stove subjects.

JUSTICIA CARNEA.—This handsome autumn-blooming species is not so much grown as it deserves to be. Its dense erect heads of flesh-coloured flowers are produced from every branch. Independent of the individual merits of the flowers, their distinct character from those of other things that come in at the same season is an additional attraction. The cuttings will strike if treated in the way advised for the Eranthemum. The plants must not be stinted for pot-room, or the lower leaves will disappear before the time of flowering, which detracts much from their appearance. Repeated

stopping is necessary to correct the persistent, spare, erect habit of growth.

SERICOGAPHIS GHIESBREGHTII.—The branching sprays of bright red flowers which this plant bears in autumn are always an attraction in the stove. The flowers are also useful for cutting, but when required for this purpose, the plants must have plenty of light while the growth is being made, and from the time the blooms are formed until they open the plants must be kept so that their tops are close to the glass. Inattention to this important matter is often the cause of the flowers of stove plants that come in during autumn or winter being of little use for cutting. This Sericographis is not so strong a grower as many of the species that bloom late in the season. To have the specimens large enough to flower well, no time should be lost in getting the stock struck. Shoots that are from 4 inches to 5 inches long and severed at a joint may be put several together into a 5-inch pot filled with sand. A brisk heat is necessary to strike them quickly, which is requisite, as the leaves being soft in texture are liable to damp if long confined. When sufficiently rooted, put them singly into 4-inch pots. Rich open soil, such as advised for quick-growing subjects generally, is the best to use. The plants must be kept in a warm house all through the spring. They will need stopping twice. In June they may be put into 8-inch or 9-inch pots; these will be large enough for them to remain and flower in. Manure water should be applied regularly during the latter part of summer and up to the time of blooming.

CELOSIA PYRAMIDALIS.—To keep up a succession of this most useful plant to the end of the year it is necessary to make three sowings. A pinch of seed should be now put in. Sow and treat in a similar manner to that which answers for the ordinary Cockscorn. Pot off the seedlings when they are 2 inches high. Keep the plants near the glass during all the stages of their growth to correct their natural tendency to spire up high. Light is also indispensable to give the requisite substance to the leaves; if at all wanting in this respect, the lower ones perish before the time of flowering.

T. B.

FRUIT HOUSES.

ORCHARD HOUSE.—The disbudding of trees in the early house will still require attention, as much injury not only to the crop of fruit, but also to the wood for another year may result from leaving more shoots than can have full exposure to light and air. In the manipulation of compact pot trees it rarely happens that more than two breaks from each fruit-bearing shoot need be retained, one at the base, the other at the point. When these have been decided upon, those intermediate may be rubbed off, or, having young fruits clustering at their base, they may be pinched for the present, as a few leaves will draw the sap to their support. Shorten back any straggling shoots to a good break, a little in advance of the second or third fruit, eventually to be reduced to one for the crop, and pinch all gross shoots before they have time to rob the lower parts of the trees. Simultaneously with disbudding carry on thinning by the removal of pendent fruits, if others point upwards are at hand, but avoid thinning too closely, as a few may drop at stoning time. Renew the top-dressing as the old is washed away; gradually increase the strength of the liquid, and syringe copiously when the temperature begins to rise, and again when the house is shut up close on fine afternoons. Let the minimum temperature range about 56°, with a little air, shut it off at daylight, commence the day ventilation at 65°, run up to 70° or 75° with a free circulation, and avoid sudden depressions by reducing very early in the afternoon. Keep a sharp eye on the foliage, and fumigate on the detection of the first curled leaf.

THE GENERAL HOUSE.—If the fruit from this structure is wanted immediately after the first house is cleared, the pipes must be warmed to prevent the temperature from sinking below 45° at night, and to raise it to 55° through the middle of the day. Keep the roots well supplied with tepid

water, and regularly damp the walls and floors, but avoid wetting the trees when the weather is sunless and cold.

CHERRY HOUSE.—Trees now in bloom must have plenty of air, with sufficient fire-heat to raise the temperature a little and maintain a brisk circulation without creating a draught. A house of Cherries in flower is an enchanting sight, but being so impatient of moisture on the petals, condensation must be prevented, otherwise the pollen will become pasty and the fruit will not set. Fertilise lightly with the brush on fine days, and resume syringing when the crop is safe. The enemies to Cherries are black and green fly, and a small lively grub, which pierces the young fruit immediately after it is set. The aphid may be destroyed by fumigation, but hand-picking is the only mode of getting rid of the grub.

PLUMS being a little later than Cherries and more subject to aphid, they must be well smoked before they commence opening their flowers. In other respects, both as regards a low temperature, plenty of fresh air, and a dry buoyant atmosphere, their treatment is precisely the same. Trees in pots must never feel the want of water, and those in inside borders should be well watered and lightly mulched before the flowers open.

MELONS trained to single stems must be stopped when strong enough to produce laterals which will show fruit. If the pots are placed close together and space is limited, these laterals may be pinched home to the fruit the moment it can be seen, otherwise, a little extra foliage being advantageous, they may be pinched at the second or third joint. Maintain a brisk bottom-heat about the roots, be moderate with water when they are in flower, and fertilise from day to day until the crop is set. Two fruits to a plant are ample, but in order to ensure a pair that will swell in unison the choice should be made from four or five. Make repeated sowings for succession, and throw pot-bound surplus plants away. Thoroughly cleanse each compartment, and, if possible, let fermenting material play an important part in the production of a sweet, moist bottom-heat.

CUCUMBERS.—Winter plants, still in full bearing, must be well top-dressed, with rich compost and copiously fed. Avoid over-cropping and cut the fruit young; thin out the old leaves, a few at each dressing; lay in the young shoots, which, now the season is getting on, may be more freely pinched, but avoid getting them too much crowded, as the foliage must have plenty of light. Damp the floors and walls when the morning temperature begins to rise, and if touched with spider, give a good tepid bath when the house is closed.

HARDY FRUITS.

TRAINING PEACH TREES.—The most important work in this department just now will be the training of Peaches and Nectarines against open walls. A great number of fruit growers tie their trees to wires strained half an inch or so from the face of the wall, but train them ever so carefully, a cold current passes behind the wood. If the situation is really good and the summer favourable, this may not prevent the ripening of the young growths and fruit, but wherever perfect maturity is a matter of touch and go the grower will do well to stick to the old-fashioned shred and nail. The work is quite as quickly and certainly as neatly performed, whilst each shoot pressing against the wall derives the fullest benefit from absorbed and reflected heat. Having laid in all the main branches, train the fruit-bearing shoots not less than 5 inches apart and see that the pressure is against the shred or tie in preference to the nail or wire; also cover all the old branches with young wood if only for the production of shade, as exposure of these when the sap is in full flow and root moisture none too abundant is the worst cause of paralysis in aged trees. As no one now thinks of cutting away two-thirds of each fruit-bearing shoot, training should be conducted upon a principle that will favour extension without crossing or crowding when the trees are in full growth. I take it for granted that all the trees

have been detached and carefully washed; also that the walls have received their annual cleansing with sulphur and soapsuds, or being old and particoloured, with the old brick-red wash tinged to taste with Venetian red. If they have not spider and fly lurking in the old nail holes and joints, these pests may appear before the trees are out of flower, when the grower must blame himself if he lose the first shoot. Peach culture in this country is made up of numerous details, and a clean start with young shoots which will not be attacked by insects is not the least important. Protect with canvas or nets suspended from broad copings, but avoid coddling, as too much of a good thing makes the flowers and shoots tender, when the first may not set and the second may be injured by frost or cold winds. When the first flower opens is quite early enough to put on the nets, which may remain until the fruit is set, but canvas must be removed from the front of the trees every day.

W. C.

KITCHEN GARDEN.

ASPARAGUS.—With us, that forced has been unusually good, and I am warranted therefore in anticipating a crop in the open air superior both as regards quality and quantity to that obtained last season. Although a moisture-loving plant, this must be accompanied by good warmth, or otherwise a partial or even complete failure may result. Cold, dry weather is retarding growth somewhat, but in all probability it will have a most beneficial effect upon the crop generally. Be this as it may, the work of putting the beds into proper order ought not to be delayed much longer, or the early growths may be damaged. Raking off soil and manure placed on the beds last autumn is a very doubtful proceeding. When the crowns are nearly bared, the earliest shoots are liable to be spoilt by a moderately severe frost only, and in any case it has the effect of much shortening those that are uninjured. These partially exposed plants are the first to suffer badly from drought during the summer, this being the time when they really require the most moisture and rich food. The least that can be done is to leave fully one half of the mulching material on the beds, the rest being banked against the oftentimes too closely shaved sides.

SPRING MULCHING FOR ASPARAGUS.—Those who have taken the advice I have frequently offered in these pages concerning the folly of mulching, heavy soils especially, in the autumn will do well to attend to them now. The first proceeding should be to lightly break up the surface with forks, not, however, to the extent of disturbing many roots, this being followed by a mulching of decayed manure. Old Mushroom bed manure and a liberal dressing of good leaf soil answer well. If a dressing of some kind of special manure can be afforded, this may be forked into the surface at the rate recommended by the vendors, but land that has been annually heavily manured would be more benefited by a dressing of newly slaked lime, a bushel of this being sufficient for every 20 square yards of surface. Salt is, perhaps, the most generally used fertiliser, and on light soils or any in which clay is not present it acts beneficially. Not a few beds, however, have been ruined by its too frequent or too liberal application. It has the effect of making the clayey soils sodden and cold, and in this Asparagus roots perish. In no case ought the beds to be completely whitened by it, and two or three light sprinklings are better and safer than one heavy dressing. A hundredweight of coarse salt is ample for 60 square yards.

BLANCHED ASPARAGUS.—Whether or not Asparagus is improved in quality by blanching, it is very certain a good length of blanched stem improves it both in appearance and market value. When the plants are grown in rows somewhere about 3 feet apart, it is comparatively an easy matter to blanch the growths. It can best be done, for the first time at any rate, by well mounding over the clumps with added fine light soil of some kind to a depth of about 6 inches, but in after years sufficient light soil can be obtained from either side

of the rows. The mistake of heavily covering over beds with ordinary heavy garden soil must not be made, as I have met with an instance of several beds being ruined by this proceeding. These blanched growths must be traced down to near their source prior to cutting or twisting them off, the soil again being mounded over the clumps.

POTATOES IN SHELTERED POSITIONS.—The end of March or the beginning of April is quite soon enough to plant early Potatoes in the open where they run the risk of being badly crippled by spring frosts. In the case of those grown on sunny sheltered borders a heavy crop is not so much desired as an early one, and in these positions they are also more likely to be protected in some way. A few extra early dishes can be obtained by planting a single row of old Ashleaf, Mona's Pride, Victory, Improved Ashleaf, or some other quick maturing variety at the foot of a south wall. For this purpose it is better for both the fruit trees and also the Potatoes if the latter are planted on a narrow raised border, say about 15 inches wide and about 18 inches deep, of added light loamy soil with a thin layer of manure underneath. One row of sets is sufficient, these being dibbled in 8 inches apart and 5 inches deep, the soil being then smoothed over. All that further need be done will be to protect the shoots as they come through the surface and for some time after with either inverted flower-pots with their holes stopped, a strip of canvas, cotton shading material, mats or branches of Evergreens. A portion or the whole of a raised sunny border may also be planted now, the drills for these being drawn from 20 inches to 2 feet apart, according to the known vigour of the variety grown, and 5 inches deep, the sets being arranged about 8 inches apart. A little soot, wood ashes, or superphosphate of lime distributed along the drills will benefit both the Potatoes and subsequent crops. The sets to be preferred are those with the central or primary sprout intact, but for several reasons it is not wise to closely denude them of all the side shoots. All should be mounded over carefully in order not to damage the sprouts in any way, and the lighter and more freely worked the soil, the better the prospect of a good crop of clean tubers.

EARLY CARROTS.—Much the quickest grown and most tender roots can be had with the aid of a slight hotbed, such beds being also of good service in raising Radishes, a few score of Celery plants, Cauliflowers, Lettuces, and even a few Asters and other flowers. A slight hotbed 8 feet by 4 feet, and about a yard in depth, is ample for a small establishment, and a depth of 6 inches of soil, which ought always to be fine and light in character, may be enclosed by either boards or a frame. Moisten the surface if at all dry, sow the Carrot seed thinly and broadcast all over the bed, and the other kinds also thinly in patches with it, covering with about half an inch of fine soil. A little rough protection may well be afforded where there are no glass coverings, and in many instances it will be necessary to enclose with fish nets, or otherwise the birds will steal most of the seeds. The various plants raised must be early pricked off, the Carrots eventually having most of the bed to themselves. If two or three Vegetable Marrow plants are raised or planted on the bed in May or early in June, they will ramble in all directions and alone pay for all trouble taken.

CARROTS ON WARM BORDERS.—The best varieties for either hotbeds or warm borders are the French Horn or Paris Forcing, and either Nantes Horn or some other larger form of stump-rooted Carrot. The last-named keep admirably, and there is but little need to sow any other or larger-rooted varieties. Supposing a breadth of warm border, though not necessarily one facing due south, about 12 feet by 6 feet, is sown now with Horn Carrots, this may be drawn from all the summer and autumn and yet a good number of roots be left for winter use. Not till the more forward roots are pulled do the smaller ones make much progress, and a comparatively long check does not prevent their ultimately attaining a serviceable size. Make the ground as fine as possible for the reception of the seed, but if this cannot well be managed, these

ought to be covered with sifted sandy soil. Either soot or wood ashes or both together may well be sown with the seed or else lightly stirred into the surface of the ground, and the seed should be sown rather thinly in quite shallow drills drawn 9 inches apart.

LETTUCES.—Any small plants wintered in frames as well as those preserved in the seed bed ought now to be finally planted out, though it is not advisable to do this in frosty weather or when cold, easterly winds prevail. They naturally heart in most quickly at the foot of a sunny wall, the next best place being sheltered wall borders. In the former position they ought to have a narrow raised border similar to that advised in the case of early Potatoes, this holding two rows of plants put out with a trowel, if they can be moved with a good ball of soil about the roots, and about 9 inches apart each way. Fix them rather firmly and keep a close look-out for slugs. Those recently raised in heat should, after having been placed on a greenhouse shelf for a few days, be pricked out into boxes for a short time and kept under glass till of good size, when they may be hardened off and planted out. These will afford a good succession to any raised in the autumn. A pinch of seed may also be sown on a sunny border, where a portion of the plants may be left to attain their full size.

RADISHES.—In order to have a succession to those grown among Carrots on hotbeds, sow more seed on a warm border and continue these small sowings every fortnight. Early Frame, French Breakfast, Forcing Turnip-rooted, and other newer early forms are all suitable, the seed being sown thinly broadcast or else in shallow drills 4 inches apart. Birds are very fond of Radish seed, and it must either be coated with red lead or protected with fish nets.

W. I.

PACKING PLANTS.

THE note on packing plants for America (GARDEN, Feb. 22, p. 172) is very opportune, for in the case of plants that are packed to travel long distances a great many undoubtedly perish during the journey from damp, either through the soil about the roots being too moist, or the roots themselves too much surcharged with moisture at the time of packing. The previous treatment accorded the plants and their condition at the time of despatch have, of course, a good deal to do with their travelling qualities, as firm plants of a woody texture bear confinement much better than those of a succulent character. This applies more particularly to such things as Fuchsias, Pelargoniums, Chrysanthemums, and the like, which travel best towards the end of the summer or early in the autumn. Plants intended for export must be in small pots, not more than 3 inches or 4 inches in diameter, and they should, if possible, be stood out of doors on a bed of ashes thoroughly exposed to the sun by midsummer. This treatment will cause the wood to become well ripened, and although the foliage will acquire a rusty hue, the plants will bear a long confinement much better than those surcharged with sap. A month or so before the plants are packed they should be removed under glass in order to ward off heavy rains; and it is also necessary that the water-can be used sparingly—just enough, in fact, to keep the plants fresh. Treated in this way, we find such subjects as those above mentioned travel well even to India if the pots are surrounded by dry shavings and packed in tiers, leaving space for a free circulation of air around the heads of the plants. This is further assisted by boring holes in the boxes opposite the air spaces. The greatest caution must be observed in packing the pots securely so that they cannot shift in any way, as if they move about at all during the rough treatment they receive, the chances are that few of the plants will survive. I have received a great many Chrysanthemums from America, and find that, as a rule, the newer varieties usually represented by little succulent plants travel very badly; while some older kinds, which had been struck in the spring and kept in little pots till midsummer, came quite fresh and sound. Where it is intended to send but a few plants, as a rule the post affords a very ready

means of doing so, and of course in this case they should weigh as little as possible. This is best effected by turning them out of their pots, taking off as much soil as can be spared, and enclosing the ball of roots in the thin, tissue-like gutta-percha, which being waterproof will prevent evaporation; and consequently the soil must be dry when the plants are packed. It is now well known that many things can be sent for very long distances packed in Wardian cases and hermetically sealed till they reach their destination. In their case the plants should receive just the same hardening treatment and be packed in a dry state, that is to say, not parched up, but only very slightly moist—difficult to describe, but easily learnt from practice. Bulbous plants, from their succulent nature, may be packed much drier than ordinary fibrous-rooted subjects. The evil effects of an excess of moisture may be often seen in the cases of *Lilium auratum* that are sent in such enormous quantities to this country during the winter months. These bulbs are each enclosed in a ball of clay, and are consequently completely isolated from each other; but should one rot and moisten the clay covering, the decay then set up will sometimes affect the entire contents of the case.

H. P.

CHRYSANTHEMUMS.

SYNONYMS OF CHRYSANTHEMUMS.

THE various lists of Chrysanthemums have now attained such an inordinate length, that it is very difficult without a special knowledge of these plants to make a distinct selection, though the trouble in this respect is greatly lessened by the fact that many nurserymen who make a speciality of Chrysanthemums publish also suitable selections for whatever purpose they may be required; many, too, give a more or less complete list of synonyms, a perusal of which well repays the time spent and discloses some interesting facts. For instance, in 1886 Messrs. Cannell exhibited several new varieties imported direct from Japan, and which they distributed the following year. Among those which received a first-class certificate, and which was indeed quoted at a higher price than any other, was Mrs. H. Cannell, with beautiful pure white flowers. Now this is by all growers (Messrs. Cannell included) regarded as synonymous with Christmas Eve, a variety distributed by the American nurserymen, and sent to this country two years previous to the distribution of the other, viz., in 1885. Another flower is Lady Trevor Lawrence, which is the same as Mrs. Beale and Robert Bottomley, this last coming from the other side of the Atlantic. Several other instances are recorded in different catalogues of the same variety being distributed by an English and an American nurseryman under different names. Included among the number are Mr. Frank Thompson and W. G. Drover; Marvel and Mr. H. Wellam; Charlie Sharman and W. M. Singerley; Mrs. Vannamann and Mr. Addison; with Mrs. J. M. Gerard and Mrs. Dunnett. All this is no doubt to be accounted for by the fact that they have been imported direct from Japan, and therefore the identical varieties have been distributed on the two Continents. Some of the hair-splitting, too, in the selection of new varieties might well be done away with, a case in point being the beautiful, but now old variety, Bouquet Fait, which in 1882 or 1883 sported to an orange-buff colour. This variety was perpetuated and distributed under the name of William Robinson, a coloured plate of it, in conjunction with two others, being given in THE GARDEN for April 12, 1884. Since then we have had two others put into commerce, viz.—Marchioness of Downshire and Magicienne, which appear to be one

and the same thing with William Robinson. Again, in 1885 the French raisers sent us Lakmé, of somewhat the same character, and flowering about the same time as the now popular William Holmes, but instead of crimson, the flowers of Lakmé are a kind of orange-salmon, a beautiful and distinct shade of colour. This variety was followed after two or three years by Lincoln's Inn, which is precisely the same thing; still I believe that both were awarded certificates by the National Chrysanthemum Society. The foregoing list of synonyms is quite sufficient to suggest the question, How many names might be eliminated from our catalogues if the whole of the varieties were flowered and proved under similar conditions?

H. P.

THE CHRYSANTHEMUM IN JAPAN.

DR. HADJIME WATANABE'S address at the Berlin Chrysanthemum show, as reported at page 115, is entertaining, but rather too brief, and therefore only whets the appetite for fuller particulars concerning the way in which the Chrysanthemum is treated in Japan. It is my opinion that Japanese Chrysanthemum cultivators are just about as much divided in their opinions as to the most advisable method of culture as we Western enthusiasts are. One Japanese writer not long since, in *Le Jardin*, affirmed that monstrous blooms, far surpassing anything produced here, are grown on single stems in his country; while other native authorities, and Dr. Watanabe is perhaps the latest, mention plants remarkable for the large number of flowers upon them. In his address, Dr. Watanabe alluded, as a fact of importance, to 300 blooms having been counted upon one plant. This does not seem to be a particularly noteworthy achievement in Chrysanthemum cultivation, be the grower Japanese or English.

A Tokio Chrysanthemum admirer in the early part of the past year kindly supplied me with some information about his favourite flower, and accompanying his manuscript were half-a-dozen water-colour drawings of Chrysanthemums on silk. Presuming them to be faithful and natural-sized representations, there was in no instance cause for astonishment at their colours, form, or dimensions. They would be surpassed in all qualities at any ordinary English exhibition of Chrysanthemums. Considered merely as works of art, they are pretty, although quaintly executed, and it is certain that no exhibitor would be likely to go into ecstasies upon seeing them. By way of further enlightenment, a photograph of a Japanese Chrysanthemum show was sent. In this the plants exhibited were apparently grown with a single stem only bearing one bloom. The plants were arranged in rows, each row being composed of plants higher than those in the row immediately in front, and sloping gradually to the back. Instead of being arranged indiscriminately, all those plants of one variety are placed in a row together. Stiff formality prevails in the display, and appears to be the chief thing aimed at. To gauge the approximate size of the flowers would be difficult, but it seems to be far from imposing.

From another source, however, it is but reasonable to infer that "spoilers of the Chrysanthemum" do exist in Japan. But there, as here, special cultivation is requisite, and its followers are not perhaps to be numbered in the same proportion as with us. Possibly a limited number of exhibitors or trade growers may for obvious reasons be the chief exponents of big bloom culture, but the popular method is unquestionably for decoration.

Kiku is the name for Chrysanthemum in Japan, but the word is said to be not pure Japanese. My correspondent supposes it is ancient Chinese, as it does not resemble any word now used in China. Without attempting to enter into matters of Oriental philology, it does not seem to a Western mind a great transition from the Chinese Chü-hwa to Kiku, especially as the "ch" in the former word is sounded like "k." As already mentioned in a

previous article, Chû-hwa is the Chinese generic term for *Chrysanthemum*.

Flowers have frequently been adopted by Japanese nobles as their family badges, for armorial bearings, in a European sense, they have none. It is not uncommon to find families bearing two and even three of these badges. The readers of THE GARDEN are already aware that the Kiku crest is the national badge or arms of the Empire of Japan, and that the Kiri crest belongs more exclusively to the Imperial family. The latter is an adaptation of the *Paulownia imperialis*, and is always used in conjunction with the Kiku crest when necessary to identify the Imperial family. The Kiku crest, on the contrary, is used alone.

On this point, we are told, that many centuries ago when the Japanese were desirous of adopting something for a royal crest a deal of discussion arose, and it was finally decided to adopt the *Chrysanthemum* and the *Paulownia imperialis*. The reason for this, we learn, was because both are very strong plants, and if the buds or stem be cut, then new buds will come and never be withered away. So the Kiku and Kiri were adopted as appropriate heraldic badges to symbolise the continuous succession of the Emperor's race. In its heraldic form the Kiku crest bears little resemblance to the real flower. The idea was probably suggested by the form of a single-flowered variety of the *Chrysanthemum*. Apart from the numerous artistic modifications of the Kiku crest, and their name is legion, the Kiku is delineated in a circular form with sixteen petals, rounded at the tips, issuing from a small circle in the centre.

C. H. P.

STOVE AND GREENHOUSE.

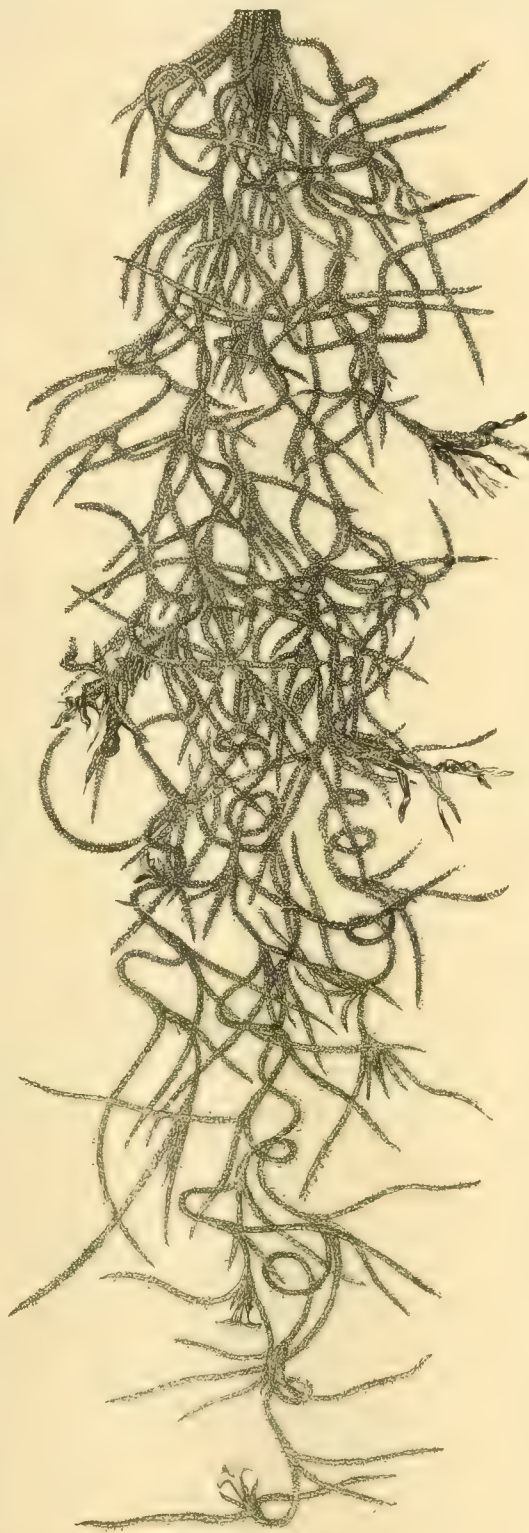
CHOICE BROMELIADS.

"A FRIEND," who wishes to start the cultivation of these plants, writes asking for a description of a few kinds which are handsomely variegated, or that have showy flowers. I am very glad to have interested someone in Bromeliads, because they may be grown by anyone having accommodation. They are especially amateurs' plants, as they may be left with little fear of harm accruing. I am just now in a better position for correcting the names which I have hitherto known many of these plants under, as I have lately received Mr. Baker's text-book on the Bromeliaceæ.

These plants are all best potted in somewhat stiff soil, and good drainage is essential. Light loam and a little peat will be found the best mixture to grow Bromeliads in. The soil should not be kept too wet, and I have found it best to always keep a little water standing in the crown of the plants; in fact, I like to always water into the crown; this will keep the soil sufficiently moist, and the water standing in the plant fresh. I have frequently seen gardeners carefully drain the water out, giving as a reason that the water standing in the plants is most injurious, whilst to me it appears to be the very life of the plants. I would recommend the following kinds, which may be stood upon stands similar to those used by the best Orchid growers; it sets off their beauty and gives the plants, especially when young, a better chance of thriving:—

TILLANDSIA SPLENDENS.—This is an old plant introduced to cultivation some fifty years ago, and when I was a boy it was much sought after. The leaves are arranged in a vasiform manner, sheathing at the base, and thus forming a receptacle for holding water, the tips being recurved; the ground colour is dark shining green, transversely striped with broad cross-bars of black, beneath these are very distinct, but paler on the upper side; the inflorescence is in the shape of a flaming double-edged sword, composed of a distichous double row of bright red bracts, which retain their colour for a

lengthened period, and contribute largely to the display in winter. Even when not in flower it is highly decorative; the flowers just show beyond the bracts and are pale yellow, but they do not last long. It bears the names of *Vriesia speciosa*, and by this name it was figured by Hooker in the *Botanical Magazine*, t. 4382; also *V. picta* and *V. zebrina*,



Tillandsia usneoides.

and under this last name it is frequently now to be found in English gardens. It comes from French and British Guiana.

T. ROZLI is a plant similar in its markings to the last, but the leaves are narrower, and the black

markings are arranged in irregular shaped blotches and not in broad transverse bands; the spike is erect, branched and not showy, the bracts being mostly green and the flowers rose-coloured. As a foliage plant it is very handsome. It comes from the Peruvian Andes.

T. LINDENI.—This is undoubtedly the finest of all the genus. I lately noted it in fine condition with Mr. Bain at Sir Trevor Lawrence's at Burford Lodge. It has produced several varieties.

T. USNEOIDES (see cut).—This plant is more curious than pretty, yet it looks well when established upon a block of wood, its long stems and leaves being covered with silvery white scales. The flowers are small and yellowish green. It is widely spread over Brazil and Mexico, and is found even as far north as Florida, in the United States. On this account it is well deserving of our attention. It belongs to the sub-genus *Strepsia*.

T. XIPHIODES.—This is another species suitable for culture on blocks; indeed, under this treatment it thrives best. It is a dwarf plant with lanceolate leaves, each some 6 inches long, sheathing at the base, but tapering upwards into a sharp point. The leaves are leathery in texture, more or less clothed with whitish scales. The spike is erect, as long, or longer, than the leaves, and bears numerous oblong bracts, from which appear many large and deliciously sweet-scented flowers of the purest white. It comes from about Uruguay.

T. SANGUINOLENTA.—This and the following species I saw recently in good condition in the nurseries of Messrs. Williams and Son, of Holloway, where I am happy to find the plants still receive the attention they deserve. The leaves are strap-shaped, and are said to become nearly 3 feet long and some 3 inches to 5 inches broad. The ground colour is pale green, which is thickly spotted and blotched with bright brown. As a beautiful-leaved plant it must always be conspicuous. It is one of Roelz's introductions from New Granada.

T. GUTTATA is a plant somewhat similar in appearance to that previously named. Its leaves, however, are narrower and shorter, but the basal part is broader. They are pale green sparingly spotted with brown dots, which are shaded with purple. It comes from Southern Brazil.

T. INCURVATA.—It is as a flowering plant I recommend this. The leaves are plain green and not so long as the inflorescence. The bracts are red, tinged with yellowish green towards the base, flowers small, yellow and green. Its spike remains in beauty a long time, and it is one of the handsomest of the green-leaved kinds. It has been in cultivation about ten years, and comes from Southern Brazil.

T. FENESTRALIS.—This is a very handsome, fine-foliaged plant. It comes from the province of Brazil called Parana, and was introduced to cultivation about twelve years ago. It flowered first in the collection at Kew about four years ago, but the flowers are by no means handsome, and have nothing to recommend them. The leaves, however, are very beautiful, being each 1 foot long and about 2 inches broad, strap-shaped, and reflexed, sheathing at the base; the ground colour is yellowish-green, transversely streaked with lines of bright green.

T. TESSELLATA.—This species is of large dimensions and of vasiform habit; the leaves are each about 2 feet long and 3 inches to 4 inches wide. The ground colour is yellowish-green with horizontal and cross lines of bluish-green. It comes from Southern Brazil.

T. DUVALIANA.—This has plain green leaves which are remarkable for their large sheathing bases, deep green on the upper side, tinged with dull purple beneath. The flower is much longer than the leaves, and composed of about ten or twelve pairs of boat-shaped bracts, which are coral-red at the base, passing into green at the tips; this

lasts long in full beauty, the flowers being yellowish-white with pale green tips. It comes from Southern Brazil. W. H. G.

Ficus repens.—Mr. Fellows says he never saw *Ficus repens* growing out-of-doors before. I beg to say it is quite hardy here growing on a south wall in a warm and sheltered position. *Ficus repens* is a capital creeper for covering old walls of plant houses. We have the back wall of a lean-to Orchid house, 50 feet long, covered with *Ficus repens*. It has only been planted three years, and it has covered the whole length of the house. Give it plenty of water, cut it in occasionally, and it will soon form a dense carpet of foliage. Being evergreen, it always has a clean and healthy appearance, and is certainly preferable to a limewashed wall.—W. DRIVER, *Longfords, Minchinhampton.*

Bougainvillea glabra.—*Bougainvillea glabra* is at home when rambling among the rafters of an intermediate Palm house, where it gets abundance of sunshine and a saturated atmosphere during its season of growth. A plant of *B. glabra* forms the chief covering of a wall of a lean-to fernery here facing north, and although one might naturally expect nothing but foliage considering its position, yet it blooms abundantly during the months of July, August and September. The young shoots are annually cut back to the main stems at the beginning of February, and except for six weeks then, it forms a pleasing background for the other occupants of the house. When the plant is in flower, the delicately-tinted involucres show to advantage above the soft green of the Ferns. Anyone desiring a covering for a similar wall could not do better than try a plant of this *Bougainvillea* in a narrow and shallow border.—R. C. H.

Arum Lilies.—I noticed in the conservatory attached to the residence of Mr. Cobb, at Hounslow, the other day a number of very fine *Arums* in 10-inch pots. The plants were full of robust leafage and carrying exceptionally fine flowers, some of them having six expanded at once with others following. The gardener, Mr. Smith, told me that he had grown these plants or clumps in the same sized pots for the past six years. The method adopted is this: after the plants have done blooming they are turned out of the pots, and all the old soil which can be removed from them short of injuring the roots is displaced, so that the clumps of soil are reduced fully one half, if not even to less. The plants are then put out into the open ground, planted in good soil and well watered. They are in no way shaded. The foliage all dies down, but if watering is attended to new leaves soon break up, and by October the plants are as full of stems and leafage as they were before being turned out. It is thus possible to get them back into the same sized pots as before. In repotting a little artificial manure is added to the new soil. How the plan operates is plainly evidenced in the very fine growth and flowers seen on the plants now. If we could see at this time of the year a competition for Callas, Mr. Cobb's fine plants would be hard to beat. As they stand on the floor of the house the foliage and flowers form a very effective foreground for the Azaleas, Deutzias, Cinerarias, Cyclamens, &c., which crowd the stage and shelves and make the whole literally a mass of gay colours.—A. D.

Boronia megastigma.—This deliciously fragrant greenhouse shrub, now flowering so freely in many places, appears to be represented in our gardens by two distinct forms, for in one the colour of the flowers is very much deeper than in the other. The darker form is the more ornamental, and in this the flowers are blackish purple without and yellow within, while in both respects the other is much paler. Such an amount of variation is no doubt owing to the original plants having been raised from seed, and I am also inclined to think that we have a more freely branched and sturdier form in cultivation than was the case a few years since. In all of them, however, the fragrance is the same, and though by no means overpowering, it is still sufficiently pronounced for a single plant

to scent a fair sized structure. It is well grown by a few of our nurserymen, who still make a speciality of the so-called hard-wooded plants, and is by them usually grown in the shape of small, freely branched bushes, whose slender twigs are thickly furnished with their little bell-shaped blossoms. The newer *B. heterophylla*, represented by a plate in THE GARDEN, November 12, 1887, is another very desirable species with carmine-coloured blossoms, in which the fragrance, though less pronounced than in the preceding, is still very agreeable.—H. P.

VIOLETS DYING OFF.

I ENCLOSE Violet leaves and flowers for your inspection. Will you kindly inform me of the cause of disease and in what manner a cure may be effected. The plants were grown in a walled-in kitchen garden, and put into frames at the latter end of September, when they were in a very healthy condition. The frames were filled with good loam and leaf-mould. Up till the middle of November a few blooms opened, after which the plants were attacked by this disease, and have gradually dwindled down to their present condition. The aspect of frame is due south, and the plants were protected from frost by means of mats, flow and return hot-water pipe (2-inch).—W. B.

** The leaves and flowers sent were much damaged in transit, but, judging from these and the symptoms given in the accompanying note, "W. B." has been troubled by the same disease that has spoilt so many Violets under glass in this neighbourhood. A few plants are not unfrequently lost during most winters, the leaves and hearts all collapsing together, but this is very different and not nearly so serious as an apparently new enemy, which undoubtedly is of a fungoid nature. In this case the leaves and flowers only are much crippled or totally destroyed, the hearts or crowns surviving. I have recently seen three instances of this disease in different gardens, the failure being quite as complete as in the case of "W. B.'s"; not a single plant in a frame escaped, and only a very few imperfect blooms have been gathered. The disease is most probably atmospherical, that is to say, the germs are transmitted from the outer air, and it would appear to be most prevalent in the neighbourhood of towns. Some of the affected plants I have just alluded to were perfectly free of disease when placed in the frame. Of this I am confident, as I happened to supply them to a friend. Ours have done remarkably well, while those of my friend are total failures. I am unable to say whether well coating the foliage with sulphur would have preserved them from disease, but much doubt it, and it is quite certain neither fire-heat nor abundance of fresh air is of any avail. In any case, the affected plants will not be of any service this season, but already there are signs of the disease having done its worst, and if young healthy leaves are again formed, I would unhesitatingly divide and prepare the plants for the next season in the usual manner. Should, however, the young leaves also become diseased and sulphur not check its spread, then the whole lot ought to be burnt, and a fresh start be made with a clean stock of plants obtained from a country district. At one time I was under the impression that this failure of frame Violets was traceable to fogs accompanied by a sulphureous or impure atmosphere, but we have not suffered from these to any appreciable extent for many weeks past, and still the Violets have dwindled away. This disease is to me and probably very many other readers of THE GARDEN a most interesting problem, and it is to be hoped it will disappear quickly, as effective remedies are difficult to find for these mysterious occurrences.—I. M. H.

Two good Abutilons.—*A. venosum* is perhaps the grandest of all *Abutilons*, though being a tall-growing species, it will not find so much favour as the dwarf-habited varieties. Perhaps the best position for this species is as a pillar or roof plant in a good-sized structure, as the specimen can then be planted out and ample space allowed for its full

development. In this way the large palmate leaves of a deep green colour are very handsome, irrespective of the blossoms, which are each as much as 3 inches in diameter when fully expanded, while the bundle of stamens protrudes nearly 1 inch beyond the corolla. The petals of this are of a deep orange-yellow, strongly netted and veined with crimson, the contrast between the two colours being very marked. A peculiar feature, especially noticeable when trained to a roof, is the great length of the flower-stems, which in the case of a strong vigorous specimen reach nearly 1 foot. A second species somewhat in the same way is *A. striatum*, but neither the flowers nor the leaves are as large as those of the preceding. A very distinct *Abutilon* is *A. insigne*, with large, heart-shaped, rugose foliage and dark maroon-coloured blossoms, of a more open shape than those of the other kinds. It needs more heat than most members of the genus, and may be grown and flowered well treated as a shrub. Of this species a coloured plate was given in Vol. XVIII. of THE GARDEN. Since Mr. George has relinquished the raising of new *Abutilons* we do not see so much of them at the various exhibitions, though a collection of well selected kinds is very interesting, judging by the progeny of the distinct *A. insigne*.—H. P.

A SMALL GREENHOUSE IN FEBRUARY.

I HAVE more than once alluded to the small greenhouse which I have in my small garden, and have contended that there is not one that I know of from which more pleasure has been derived or so much successional flowering obtained. When I say that the size of the house is 20 feet by 12 feet, and that the only heating is by an old-fashioned brick flue, my object being simply to keep out frost, and that all else that I have besides are frames and an unheated annexe, I think it will be seen that I have made the most of my space.

The first thing which I have always kept in view is to grow only such things as are suited to a cool house. I have more than once been tempted to try things which I was told would be sure to succeed, but about which I had doubts, as, for example, *Asparagus plumosus nanus*, with its pretty foliage, but I soon found that it would require more heat than my house could give it, and so I gave it up. There were some things I was ambitious enough to desire to grow, and although I was told by some that I would fail, I have been enabled to accomplish my end.

To begin with, Orchids, of course some would say, "You did not attempt them." I did, and, what is more, of one of my pets, *Disa grandiflora* and its variety *superba*, I may safely say that I have seen in no private collection this lovely Orchid so flourishing. I have grown it for a good many years. I have given it away to many friends, and although I have told them how I grew it, I have in almost every instance found that failure was the result, and when I came to ask, found that my directions had been departed from. There has been a good deal of discussion about the difference between it and the variety *superba*, which I have not yet been able to settle. I have now, through the kindness of the curators of Glasnevin and the Dublin College Gardens, and the curator of Edinburgh Gardens, what I hope will be flowering plants of these varieties. I have also plants from Mr. Backhouse and Mr. Ware and my own imported clump, so that if they all flower I shall be able to compare and see what difference there is. At present I fancy I see a difference in growth in those from Glasnevin and Edinburgh, but this may change as they advance in age. The only other Orchids I have attempted are a few *Masdevallias*. These, I was told, would not do for me, but I have found them to do fairly well; they look healthy, and I have generally from eight to ten blooms on them. I also tried *Odontoglossum Alexandræ*. I was told it was a cool house Orchid, but my house was too cool for it, and so I gave it up. However, I am not writing of what my house contains, but of what I have in flower in February. I have thus already had about a dozen pots of Roman Hyacinths. Paper-white and early Roman Narcissi have been grown six in a pot

and have furnished sweet flowers during the dull weeks from Christmas onwards. They are now thrown away, for I have long since learned that there is no use in trying to keep them. To them have now succeeded Tulips, Hyacinths, Cyclamens, Cinerarias, Primulas, and a few other things, so that the house is quite gay.

The Tulips that I have grown are about four dozen, consisting of the Van Thols, Pottebakkers, Proserpine, Village Maid, and a few others. These were planted some four and some six in a pot, were grown in a cold frame, and then transferred to the house. Hyacinths have been treated much in the same way, only one bulb in each pot. I have, however, this year been disappointed in mine; they have not bloomed as well as usual, several spikes coming from the bulb, and, of course, destroying the quality of the bloom. They are, however, very gay, although I have this year reduced the number of bulbs, having generally grown about six dozen, while this year I have only grown about a third of that number. I have grown them in the ordinary method in a compost of good loam and well rotted cow manure. When potted they were placed in a bed of ashes, and about 4 inches above the level of the pots, and a little before Christmas were removed into a frame, kept dark for a few days, and then brought into the greenhouse. I have found that these bulbs planted out afterwards in the garden do very well, and furnish good clumps of bloom in the early spring. I have an excellent lot of Cinerarias, and, curiously enough, although it was a packet of mixed seed, I have out of my dozen and half of plants only two alike. The plants are dwarf, the flowers good. I mention this because I heard it maintained the other day, by no mean authority, that if you wanted to get dwarf Cinerarias you must go to France for seed.

My plants of Primulas are small, and I fancy they require more warmth, especially in December and January, than I can give them. There are now half-a-dozen good plants of Arum or Calla showing flower, and they will, I think, be fully out in a few days, so that they, too, may be classed amongst the February flowers. When these are done flowering they are kept in the pots until all fear of frost is over; they are then taken out, planted in a shady moist place at the bottom of the garden, and there left until they are lifted in the autumn, repotted, and brought into the house. I have several pots of Freesias. The most forward will just be in to say it has bloomed in February. There are eight bulbs in the pot, and each bulb has three fine heads of bloom. This will show that I have no difficulty in growing this most fragrant and delightful bulb. I have, when writing, received from a friend in the Riviera a beautiful boxful grown, of course, in the open.

Cyclamens have formed quite a feature in the house, and have done exceedingly well. I have several strains, and altogether about four dozen bulbs. At one time I greatly favoured the giganteum strain, but after all the varieties with medium-sized blooms are the best, I think, as they are more free flowering. I have two especially noteworthy plants, one with the darkest flowers I have ever seen in a Cyclamen, and the other with beautifully scented pure white blooms. This fragrance used to be characteristic of the flower, but it seems to have been lost in their hybridising; it was therefore a pleasure to find it again in growing these. I place them in a cool frame after flowering, then lay them on their sides until repotting is necessary. It is better to renew them from time to time as the bulbs wear out, although I remember to have once seen in a greenhouse in Suffolk a bulb nearly 10 inches in diameter and crowded with an enormous quantity of bloom, but that was many years ago.

I have this year grown a few Daffodils in pots, but only two of them flowered in February—obvallaris and incomparabilis; the former I think by far the prettier of the two for pot culture. I have plants of a capital flowering plant for early use—Doronicum austriacum, which is now full, as is also Libonia floribunda, one of the worst flowers

for cutting that I know, as it so soon goes off. I have, of course, a few plants of Marguerites, and Azalea Deutsche Perle is just coming into flower. Well it may be said, What have you got to follow these things when they are all over? A good many things; but of these I may write by and by when I come to mention flowers in bloom in March. Let me add that at the end of the house, planted in a box, I have two plants of Lapageria, one rosea and the other alba; that they were in flower for months, and gave a very large quantity of bloom, the last of which I cut early in February. This is trained along the east end of the house, and has been most satisfactory. I have also a long shelf running the length of the house over the footpath; this is now filled with Pelargoniums, which will be brought down when the bulbs and early things are all gone; while underneath the stage are Begonias lying on their sides, ready to be repotted and take the place of the Pelargoniums when their day is over; while in the annexe I have some Fuchsias and Lilies which are to furnish the house later on. I think I may safely say that it is well utilised, and I know it affords me a vast amount of enjoyment.

DELTA.

ORCHIDS.

MILTONIA (ODONTOGLOSSUM) VEXILLARIA.

"J. T." writes complaining of his want of success with this species and its near ally M. Roezli, saying the pseudo-bulbs rot and die with him, and asks for some hints as to their cultivation. M. vexillaria is a beautiful species, and it has produced many fine varieties. The later introductions of Mr. Sander have proved to be very fine both in size of flower and richness of colour, quite eclipsing the older plants. Amongst many gems which have cropped up from importations have been the forms known as alba, Cobbiana, superba, and many others. The cultivation of these Miltonias is not difficult provided they are kept free from insects, which work such havoc that even when in flower the plants present a sickly and burnt up appearance that quite destroys their beauty. It is of no use "J. T." trying them in the same house as O. Alexandræ, for there they will only drag out a miserable existence, whilst if they are placed in the Cattleya house the atmosphere is too dry and only encourages thrips. I noticed a fine lot of these plants a few weeks ago, and which I am afraid will show the ravages of these pests in a marked degree. I found out soon after Miltonia vexillaria was introduced that it must be grown in a much warmer position than the other species, and also that it required an abundance of moisture in the air. We know very little of its natural habitat, saving that it is wild in the Western Cordilleras of the New Granadian Andes. I do not remember ever to have seen any reference as to the altitude at which it is found. It requires a separate house, which should be as warm as the Cattleya house and a great deal moister. I have had M. vexillaria, M. Roezli, and M. Phalaenopsis all doing well standing during the winter upon a damp wall well exposed to the light in the East India house. These, however, were little plants, and the next season on their removal to another part of the house where the air was drier, the plants, especially those of M. Roezli, were soon smothered with black thrips.

The temperature of the house devoted to these and some others requiring similar treatment should not fall below 60°, rising a few degrees in the daytime, and it may rise 10° by sun-heat in the winter without being injurious. I would advise on such days that great care

be given to have a genial moisture rising in the atmosphere. This is a plant that must never be dried, the plant being upon the move the whole season. Less water is necessary to its roots in winter, yet it enjoys a moist atmosphere all the year round, the only time when a drier air is advantageous being when it is in flower. I may also add that the Odontoglossum house is warm enough for it in the summer, giving it a somewhat light position. It requires exceptionally good drainage; the soil should be good fibrous peat, from which nearly all the fine particles have been shaken. This mixed with some living Sphagnum Moss should be made firm about the roots, and in potting, if some moderately-sized nodules of charcoal are inserted, they will serve to keep the soil open. The plants, too, should sit well above the soil in order to keep the pseudo-bulbs free from moisture, which might otherwise lie about and become stagnant. Treated in the above manner, "J. T.'s" plants would improve, but, judging from the state in which he describes them, I should not imagine they will bloom this season, but they should be taken in hand at once in order to induce strong growth for 1891, when in all probability he may expect them to bloom.

W. H. GOWER.

Cymbidium Devonianum.—"T. H." sends me flowers of this species. This is a rare and beautiful plant, which usually flowers a month or two later than this. It produces pendent racemes of flowers some 18 inches or 2 feet long, and bears from twenty to thirty flowers, the sepals and petals of which are pale green, streaked with dotted lines of purple; lip red, bearing on each side a spot of blackish-purple. It thrives well in the intermediate house.—H.

Cypripedium porphyreum.—A very richly coloured form of this plant has recently been in flower with Mr. Drewett, of Riding Mill-on-Tyne, and is much superior to the more usual forms of the plant. The lip is of a rich dark purple-lake, and the apical half of the petals is of the same rich colour, gradually shading into pale rosy-purple at the base. The sepals are of the same light colours as in the more usual paler-flowered forms. Altogether it is a handsome and desirable form, and Mr. Drewett informs me that the richness of colour is permanent, as each year his plant has bloomed the flowers have always been dark. I have seen other flowers nearly or quite as dark, and I think it must have been from one of a similar colour that Reichenbach originally described the plant.—N. E. BROWN.

Odontoglossum Alexandræ.—Mr. May, gardener to Mr. Jacomb, at Cheam Park, has just sent me a beautiful form; the flowers measure nearly 4½ inches across, the sepals and petals being round and full, and beautifully crisp on the edges; the former are rich deep lilac-rose or mauve, the petals white suffused with mauve; lip prettily frilled, white, stained with yellow at the base. It is a magnificent flower and well deserves attention. These rich rose-coloured forms, I imagine, are denizens of a region by themselves. I know some few years ago, when O. Alexandræ was a much rarer plant than it is now, that the rose-tinted flowers were sent by a Mr. O'Reilly, but I never knew what particular spot he was collecting in, and this flower of Mr. Jacomb's puts me in mind of the dried flowers sent home by that collector.—W. H. G.

Odontoglossum triumphans.—I am glad to see many forms of this grand species now appearing in various gardens round London, and I cannot understand why this plant has not been more largely grown. I lately noted a very rich and bright coloured form of this plant, the sepals and petals having a ground of rich deep yellow, and the transverse bands heavy and very rich chestnut-brown. It is a plant which makes a spike some 2 feet or 3 feet long, and bears many flowers,

but I do not remember to have seen it branched. It is quite a cool house plant, first introduced to English gardens by Messrs. Low, of Clapton, but first found by M. Linden, and of whom I purchased in Brussels, twenty years ago, the finest and darkest variety I have ever seen of this species. It comes from New Granada.—W. H. G.

TWO GOOD HYBRID ORCHIDS.

NOTWITHSTANDING that nearly thirty years have elapsed since it was proved that exotic Orchids could not only be raised from seeds matured under cultivation, but that cross-breeding amongst them could be made to produce valuable results, yet the really good hybrids hitherto obtained are few in number. In the face of the fact that hundreds of hybrids have already flowered in England alone this statement may appear untenable, unless the standard of quality is fixed very high. In my opinion a hybrid which is not an improvement upon its parents and a distinct gain as an ornamental plant ought not to be called good in a horticultural sense. The botanist, and perhaps also the *connoisseur*, see something to interest and admire in every plant which is the result of crossing two distinct species. Those, however, who admire Orchids only for their beauty of form or colour look for something more in a hybrid than the mere fact that it is a "mule." No one would hesitate to call good such hybrids as *Calanthe Veitchi*, *Dendrobium Ainsworthi*, *D. Leechianum*, *Cypripedium Morganiae*, *Lælia Digbyana-Mossiae*, and a few others almost, if not quite, as meritorious as these. A good garden plant should be capable of easy multiplication, and the hybrids here named may be considered such. The list of those hybrids which deserve only to be called mongrels merely is, it must be admitted, a very long one. Some day we may hope to see Orchid breeders as willingly destroy bad crosses as the raisers of Roses, Geraniums, &c., are now. There is at present too much promiscuous crossing amongst Orchids; the result of the cross is not bothered about; consequently many of the hybrids are very inferior.

Some genera of Orchids are exceedingly slow to multiply under cultivation, and it sometimes happens that a hybrid of the greatest beauty is raised, but there are so few plants—perhaps only one of it—that its existence is provoking to everyone except its fortunate possessor. Amongst these must be placed the *Phalænopsis*, of which Mr. Seden has raised several very beautiful hybrids. Probably the best of these is *P. Harriettæ*, a cross between *P. grandiflora* and *P. violacea*, which flowered for the first time in the Chelsea collection in May, 1887. It is a most charming plant, abundantly distinct from its parents and from every other *Phalænopsis* in the size of its flowers and their colour. Mr. E. Corning, of Albany, U.S. America, is the lucky possessor of a plant of it (possibly there are others which are unknown to us), and flowers from this have lately been forwarded to Kew. Mr. Moon, who has made a drawing of them for THE GARDEN, said that he knew of no more delightful *Phalænopsis*, hybrid or species, than this. Leaves were not sent, but the scape bore two flowers, each nearly 3 inches across, the sepals and petals broad and overlapping, almost wax-like in texture, and coloured a rich, clear cream, splashed at the base with bright rose-purple. The lip resembles that of *P. violacea* in form, except that it has the side lobes of *P. grandiflora*, whilst its colour is bright rose-purple, except the middle portion about the callus, where it is yellow, spotted with pale brown. It is difficult to convey a correct idea of the beauty

of the flowers, and, unless the plant is easier of increase than most *Phalænopsis* are, it will long remain scarce.

The second hybrid of which I lately saw flowers—this time from Mr. Norman C. Cookson's collection—is at least as beautiful as the *Phalænopsis*, whilst there is some prospect of its becoming plentiful in time, as it belongs to a genus which is comparatively easy to multiply, viz., *Phaius*. Mr. Cookson's plant has not, I think, been named, but it is the result of crossing *P. Wallichii* with *P. tuberculosus*. Its parents could not but produce something startling, and it is easy to imagine the breeder's anxious expectations when the seedlings first showed for flower. We learn that several plants were raised from this cross, and that Mr. Cookson expects to be able to exhibit flowers of it in April next before the Royal Horticultural Society.

The history of this hybrid remains to be told; meanwhile here is a rough description of its flowers: Spike 1 foot long, bearing five flowers, each 4 inches across, the petals and sepals similar in form and arrangement to those of *P. Wallichii*, 2 inches long, half an inch wide, and coloured a pale rosy salmon, with a faint shade of brown; lip 2 inches long, three quarters of an inch across the mouth, almost campanulate, spurless, the front lobe three quarters of an inch long, recurved, wavy and crisped; the colour of the tube is apple-yellow at the base, deep crimson in the upper half, the front lobe purple, with flakes of a darker shade, and a keel or line of bright yellow running from throat to apex; the column is white.

If this hybrid has anything like the constitution of *P. Wallichii* it will be a most valuable garden plant, much more so than its other parent, which, whilst being one of the most beautiful of Orchids, is at the same time one of the most refractory. Mr. Cookson is to be congratulated on having raised an Orchid of so much beauty and so great promise as this hybrid *Phaius*. W. W.

SHORT NOTES.—ORCHIDS.

Cœlogyne cristata alba.—Mr. Cowley, gardener to Mr. Tautz, Studley House, Shepherd's Bush, sends me a spike of bloom, saying, "You will find it is fragrant. I do not know if this has been noted before." I have never observed this before. It yields a lovely fragrance, similar to that of white Jasmine, rendering it very sweet and delicious—another recommendation for this chaste beauty.—G.

Cypripedium Stonei acrosepalum.—This is a very rare form of the species. It originated with Messrs. Seeger & Tropp in their nurseries at Dulwich. The flowers are of about the same colour as those of the typical plant, but instead of the broad dorsal sepal, this portion of the flower is narrow and lengthened out until it terminates in a point, whilst the lower sepals are more developed. At first they were divided, thus approaching the original form of the genus. It is very rare, two plants only being known to exist.—G.

Cymbidium Lowianum.—A very fine and bright-coloured variety in two plants is now in great beauty at Langley Park, Beckenham, the residence of Mr. Goodhart. They are good-sized specimens, and each has thirteen spikes, the one bearing 211 flowers and the other 323, the blooms being large, and with a very bright reddish-crimson band upon the lip. The same number of spikes developed in the autumn on one plant, but they were taken off by the fog. After this the plant was kept somewhat dry and rested, with the result that a second crop of spikes has been developed, and which is now flowering. No one need therefore find fault with this plant for not being free-flowering. It is a very beautiful species—another of the treasures obtained from Burmah by the Messrs. Low, of Clapton, and after whom it was

named by Professor Reichenbach. It grows to an enormous size, and certainly is a terrestrial plant, as it could not obtain sufficient nourishment as an epiphyte. It succeeds best in a mixture of light turfy loam and fibrous peat, which should be well drained. The atmosphere must be kept well charged with moisture during the growing season, and the temperature about intermediate heat; in winter the plants should never be allowed to suffer from drought, but they should be kept on the dry side and comparatively cool.

Orchids from Southampton.—I am surprised to receive from Mr. Innes, gardener to Mr. J. Buchan, a box of Orchid flowers. It would seem that his employer cannot overcome his love for these plants, and after having sold the collection which he had been to my knowledge twenty-five years in collecting, he now commences again. Amongst the flowers is a *Lælia anceps*, which I should think is the dark form named *Protheroeana*; an excellent variety of *Odontoglossum maculatum*, and which I recently observed in Mr. Horsman's collection under the name of *anceps*, and a *Pilumna fragrans*, pure white and delightfully sweet; it is a reduced form of *P. nobilis*, but both are highly deserving cultivation for their fragrance, especially as they may be grown in the cool house.—W. G.

GARDEN FLORA.

PLATE 743.

ALLAMANDA VIOLACEA.*

HERE is the picture of a plant which must come as a surprise and a delight to the younger generation of horticulturists, whilst those who knew it when it was in gardens in England some twenty-five years ago will welcome its return. It is a plant of more than ordinary interest. As a useful, easily grown, free-flowering, handsome stove climber, and an *Allamanda* of exceptional colour, it deserves to take rank with the choicest of indoor plants. To the hybridiser, the possibilities of a cross between the large and beautiful yellow-flowered kinds and this rosy-purple one will recommend it to his special care. The student of colour development in flowers will find this *Allamanda* rather a poser, and he may find interest in trying to account for the occurrence of a purple-flowered species in a genus, the flowers of which, with this one exception, are distinctly yellow-flowered. If we are to believe that "all flower colouring was originally green, then yellow, then white, flesh, rose, red, purple, and finally blue," then we must either hope to find *Allamandas* with white, flesh, and rose-coloured flowers, or we must believe that they are "missing links." A glance at the figure of this purple *Allamanda* suggests the flowers of some of the cultivated *Dipladenias*, in which there are white, yellow, flesh, and almost crimson-flowered kinds.

In THE GARDEN for 1886, Vol. XXIX., p. 400, will be found an account of the genus *Allamanda*, and also a plate of one of the best of the garden kinds, viz., *A. Hendersoni*. In that account notice is taken of *A. violacea*, "which found its way into English gardens about twenty years ago, but which has apparently now disappeared." I had seen some years before in the house of Mr. Jefferies, of Oxford, a picture of

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, September 27, 1889. Lithographed and printed by Guillaume Severeys.



ALLAMANDA VIOLEACEA

these purple flowers, but it was not until after referring to books that its genuineness was undoubted. Gardner had discovered this species in the province of Ceara, Brazil, and had afterwards figured and described it in Fielding's "Sertum," calling it the most beautiful of all Allamandas, and describing the colour of the flowers as violaceous. As an instance of how a plant may be preserved in some garden where one would least expect to find it, the finding of *A. violacea* in the Natal Botanic Gardens alone amongst all the gardens tried is worth recording. Two plants were received at Kew last year from Natal. They were so weak when they arrived that it was thought advisable to graft a bit of each on to *A. cathartica*. Both of these flowered in September, and whilst one was the plant represented in Mr. Moon's drawing, the other was duller in colour. A note in a contemporary last year disparaged *A. violacea* as a garden plant, its flowers being described as "undecided, dirty salmony-purple, more curious than beautiful." Evidently the worst of the two plants flowered at Kew was here meant, for no one could describe in these terms the plant represented in the accompanying plate.

The grafted plants did not do a whit better than those struck afterwards from cuttings. In the case of *A. grandiflora*, however, grafting must be resorted to if good, healthy, free-flowering plants are desired. On its own roots this plant is most unsatisfactory, but when grafted on to *A. cathartica* or any strong variety it grows well and flowers profusely.

The cultural requirements of *A. violacea* are exactly those which answer for the yellow-flowered kinds. It differs from the other species in having the leaves usually four in a whorl and in having more hairs on the stems and leaves. W. W.

Training plants.—Although most plants require some amount of staking and training to get them into form and so give them a start, training has been much overdone. When plants are too regular and stiff they are very objectionable. Most of us who have been long in gardens can remember the Azaleas that used to be the fashion, at which time hooped frames were made for the plants. To these every branch, twig, and shoot were closely tied, and the whole when finished looked like a shaven pyramid of green, or when in flower walls of colour, as no leaf nor bloom stood out beyond the other. We yet see plants very much tortured and spoiled by being brought into formal shapes. There are many plants that are better in every way without stakes at all, and many that would be much more attractive if they had less support. The most pleasing forms, perhaps, are the loose bush and pyramidal, as both are natural, and the more we follow Nature's lines the more satisfactory will the results be. It is only for growers to discriminate which of those forms any plants lend themselves to and then follow them, but instead of much staking and tying attention should be given to regulating the growth by stopping strong shoots and thinning and pruning. By so doing the force of sap is balanced, and the growth instead of being irregular becomes uniform and equal throughout. Soft-wooded subjects, such as Chrysanthemums, for instance, must, of course, be staked to support them, but only the main branches should have sticks to prevent breakage by wind, and hard-wooded plants hardly require any at all. In tying these they should be tied out, not in, as a plant so

handled, that was of fair size before, may, and often is, so reduced in dimensions as to look in value about half what it was before.—S. D.

FLOWER GARDEN.

THE ENGLISH HAIRBELL.

(*CAMPANULA ROTUNDIFOLIA*.)

THE true type of the Hairbell, the Bluebell of Scotland, will be familiar to our readers; indeed in many counties it is amongst the commonest of our field and wayside plants. When seen wild struggling to keep its own with the surrounding herbage it is a truly beautiful flower



The English Hairbell (*Campanula rotundifolia*).

with a grace unequalled by any other species of this popular genus. It would be superfluous in the case of such a well-known plant to give a description, but perhaps not out of place to point out its usefulness in the garden, especially for rockeries and borders of mixed hardy flowers. In a wild state it is most variable. I have often selected over a dozen varieties in a small meadow, differing in the width of the leaves and size of the flowers, which are of various shades of blue, the variation in habit and height being also very remarkable. Many of these varieties make delightful and lively patches in the garden, and, together with the white form often called *Hosti alba* and the exquisite *soldanellæflora*, give a useful variety both in form and habit. They vary in height from 9 inches to 2 feet, and are furnished abundantly with their dark blue pendent bells. The North American *linifolia* and the South European *Scheuchzeri* are nothing more than extreme forms of this lovely plant, the last-mentioned being a very free-flowering and charming rock plant. K.

Helianthus cucumerifolius.—This beautiful annual ought to be more grown. It is a gem of a Sun-

flower, with a charming habit, brilliant little blooms, each about $\frac{2}{3}$ inches across, with jet black eyes, looking most telling at a distance. It has a much longer season than *Rudbeckia*, its commonest rival, and is more sturdy also than the *Harpalum* section, and more beautiful and enduring than the other perennial Sunflowers. It is an annual and ripens seed freely, but the discs must be picked almost daily, else the seed drops out and is lost. This is probably why it is called a bad seedling thing and forgotten. The flowers are very useful for cutting. Sow it in spring in a frame, prick the plants into pots to help them on, as they are lanky and disappointing-looking for some time, but when planted out they gather strength and form the prettiest bushes possible. Four plants will fill a bed 4 feet across. Occasionally one gets a splendid mule plant crossed by the ordinary Sunflower—most beautiful when it occurs, but sterile and very weak stemmed, needing careful staking, though well worth that little attention.—A.

NOTES ON HARDY PLANTS.

Anemone blanda.—The warm winds and rains are bringing this into full flower rapidly, but in such variable weather the flowers are not so good as when the plants are kept in a cold frame. The shade varies from deep blue to very pale blue. This variation in colour results, I believe, from weather changes and other local conditions, and this difference in colour has led many to suppose that there are varieties of the species. There may be some permanent difference, but I have never observed it, when plants have been so placed that occasional severe frosts could not reach them when in the bud state. As with coloured Primroses, Hepaticas, hardy Cyclamens, and even Wallflowers, the colour becomes damaged by one night's frost, for when buds that have been prominent at the time open, they have a bleached appearance. This I believe to be the chief cause of the many shades of blue to be seen in an open-air patch of this Windflower, and I am further confirmed in this view from seeing pale and dark flowers on the same plant.

Species of Crocus.—The more important feature about these, other than the ordinary spring-flowering varieties, must be that of their period of flowering, that is, from the point of view of a flower-lover, because in many the general appearances of size and colour are similar. I do not, of course, wish to imply that important botanical distinctions do not exist, but as garden objects one might well get practically the same effects from half a dozen kinds selected for their periods of bloom as from twice that number, provided, of course, that the same number of bulbs were employed.

Helleborus viridis.—On reading the remarks of "A Gloucestershire Parson," one feels like taking a stroll in a lovely old garden, but when one comes to the description of this plant, a question arises as to its correct name. Does not the description at p. 169 more nearly apply to *H. foetidus*? *H. viridis* is an evergreen, or winter-foliaged plant; *H. foetidus* is not, and they are otherwise most distinct.

Daphne Fioniana.—I for one am most grateful for the manner in which our notice has been drawn (p. 169) to sweet-smelling shrubs and plants, and though I daresay many will fail to catch the scents described, the perfumes of the garden justly claim the increased attention now bestowed. To have a keen sense of smell is a source of much pleasure in a well-stocked garden. From experience I can say that few flowers are scentless; the drawback is when one speaks of a quality of perfume of a given flower to receive the wondering glance of inquiry from a friend who ends the matter by saying "I cannot smell anything." I wished to say a word for this *Daphne*. It flowers only a little later than *Mezereon*; the flowers are abundant, strongly and deliciously perfumed. The shrub is dwarf and of a deep Holly green. Small plants of but a few inches high are now in flower here. It is a more easily accommodated shrub than *D. Cneorum* or *rupestris*, of which it may fitly be described as an enlarged form.

Seedling Hellebores.—Doubtless the coloured

or forked-stemmed section is in its infancy yet as a garden flower. We are annually finding hybrids from seed gathered anyhow with far better, larger and brighter flowers than those of the type, and even when allowance is made for the extra vigour of seedlings there are large quantities that one feels induced to mark off as distinct and improved flowers. I base these remarks on personal experience and on plants raised from seed gathered without reference to name or colour of parents, but I may add the seed bearers included a goodly collection of some score or so of types and natural hybrids. We may now cease to trouble ourselves as to what this and that variety may be botanically, for when seedlings are brought together and well cultivated, they cross with such freedom as to puzzle the most acute observers in a few years. What is of most moment is that in two or three years we can get charming flowers from seed, and we have the additional pleasure of expectation of something new and good. J. WOOD.

Woodville, Kirkstall.

Home-grown Lily of the Valley.—The idea had apparently become accepted as a fact that Lily of the Valley of foreign growth must of necessity be the best, but, thanks to the efforts of several market and private growers, especially in the county of Norfolk, where the Lily of the Valley is especially at home, being found growing wild in many of the woodlands, such splendid examples of good culture have been exhibited, that there cannot be any longer a doubt as to the possibility of crowns quite equal, if not superior to any that come from the Continent being produced. Wishing to put the matter to a test, I prepared a piece of ground by deeply cultivating and liberally manuring it. I planted out a quantity of crowns singly in rows 1 foot apart, kept them free from weeds during summer, and top-dressed with manure in winter. The next spring they flowered very well out of doors, but when allowed two seasons' growth before being lifted the crowns were fully equal to any I have ever got from the Continent. As the home-grown crowns can be lifted and potted at once without any of the exposure or drying to which imported crowns are more or less liable, I felt sure that they would start more satisfactorily into growth than the foreign ones frequently do. In this I have not been disappointed, for never have I had them finer or start with so little trouble. I am quite sure that if those who frequently complain of the difficulties attending the early forced batches of this lovely flower would turn their attention to home-grown crowns they would have equally satisfactory results. Lily of the Valley does not need a better climate, but only better culture than it generally gets to bring it to perfection.—J. G., *Hants.*

Storing Gladioli—treatment of spawn (*G. gandavensis*).—Though the time for planting has now arrived, I would like to say a word on this subject in reply to "Delta." I have frequently stated in *THE GARDEN*, that I am in the habit of lifting any of the hybrids of *G. Gandavensis* not fully matured—often such varieties as *Duchess of Edinburgh*, *Marquis of Lothian* (Campbell), *Stafford Northcote*, *James McIntosh*, &c., are quite green even in November—and letting them dry out slowly surrounded by sand. To this system "Delta" has several objections, without, so far as I remember, saying how he matures those not ripened when frost threatens. Surely he would not twist off the green stems, and then place the imperfect corm in a warm study and dry atmosphere such as he describes at page 155? I should consider such a system apt to cause degeneration. As to the objections (1), "The potting shed where the corms and attached stems are stored should be heated." . . . Certainly not; frost in the south of Ireland not once in a decade does even Potatoes any harm in a house, and I was under the impression Kent is a few degrees on an average warmer. Gladioli corms when dried out are not liable to be injured by a degree or two of frost. Many leave them out all the winter, and in my case some accidentally get left out every year, but they are the first to appear. 2. "They should be grown

in a tolerably stiff soil with sufficient earth to them to be of any value." . . . There is an obvious misconception here. It is not for the sake of the adhering earth I care, but I always believed the sap or nutriment stored in the stems and leaves returns in part to perfect the arrested growth at lifting, and thus assists maturation. Long since, I thought your correspondent understood this was the object I aimed at. Of course, dried out stems are not retained, and the corms are at once put in dry sand. Lastly, "The saving of the spawn must be put off until the planting time." . . . This is not correct. As soon as I observe the stems dried out, say in a month or six weeks, I remove them, and generally the adhering old corm of the previous year with the accompanying spawn. As I grow my Gladioli with some of them blooming into November, even if planted in February, I could not think of removing the stems when lifting. Perhaps "Delta" does not mean that? If your correspondent, to whom I am much indebted for years for hints in your columns, is satisfied with his system so ought I, as my stock increases from year to year without counting additions from spawn or purchase. In starting spawn I took the advice of a correspondent some years ago, and made a trench 6 inches or 8 inches deep for the spawn, planting in March after a fall of snow on a fine day. I waited until July or August, expecting, like the ordinary corms, to see some sign of the spawn or bulbils, but when examined all had rotted or disappeared. Since then I generally start the spawn in heat, either near the hot-water pipes in my greenhouse, or put a long deep box on some stable manure for a short time, thus giving them a start. This start is everything, for if those diminutive bulbs are placed in cold wet soil several inches deep in the open garden, you have seen the first and last of them if the rule of covering them twice their diameter is observed. An inch of soil is all they require, but some rich loam might be added afterwards. If they grow thickly in the box they must be given liquid manure, but I like to give them plenty of feeding material. They cannot get too much air and sunshine afterwards.—W. J. MURPHY, *Chenel.*

DIVIDING POLYANTHUSES.

"WILL it be safe to divide and transplant Polyanthuses now?" asked a lady the other day. My reply was, "There is no better time." The misfortune which attaches to the division and replanting of Polyanthuses now is that not much of a showy bloom follows, because the strength which should have been used for flower-production has to be utilised in root-production, and the plants are really not well established until the bloom is over. Some growers allow their clumps or large plants to remain untouched until after the flowering period, but in that case the division of the crowns cannot well be done until early in May—perhaps later—and the most useful time to secure rooting is lost. Although I prefer the raising of Polyanthuses from seed yearly, dibbling them out into the ground when quite strong in April, yet some sorts it is needful to propagate, and to ensure stout plants of these the following winter the wisest course is to lift the old clumps now, shake all the soil out from them, divide with a sharp knife, and then break out carefully all the crowns singly. These just now are making new roots from the base of the leaves, and whilst in the old clumps find it hard to get into the soil, which is also pretty well exhausted. If these single crowns be now dibbled out into rows in good deep-holding soil, the new roots attached will soon take hold and go down deep. If the divided pieces have much of the old root attached, it is very probable that such portion may, by engendering rot, prove a weakness rather than a source of strength. If these divided crowns do well, as they should in deep-holding soil, they will develop into fine blooming plants next winter. They may also remain undivided for a second year, and should then be again broken up and replanted. If the spring should prove to be very hot and dry there is some risk to be encountered, but, on the whole, I have found better results come from plants so propagated than when divided and replanted in the autumn.

Just then new roots are not developed, neither is there much root-activity during the winter. The spring seems to be the great season of rooting well-divided plants, whilst seedlings seem to be making roots all through the winter. I have lifted seedling plants from seed-beds in the early spring with roots fully 6 inches long, and which have struck vertically downwards. In some cases a liberal top-dressing of fresh soil is helpful to old plants. The natural tendency of the Polyanthus and Primrose is to push crowns higher above the soil every year, and therefore some form of feeding roots not otherwise able to find sustenance seems needful. Still, where clumps have grown into clusters of a score of distinct crowns, it is obvious that whilst the roots in the outer ones may be fed by top-dressing, those crowded inside the cluster are not so well favoured. Hence it is wisest to lift the clumps bodily, divide as advised, and replant the crowns singly every three years at least. A. D.

YELLOW CARNATIONS.

MR. A. R. BROWN, of Handsworth, Birmingham, who contributes to the annual report of the Carnation and Picotee Union some notes on the flowers of the past year, says, "What a grand flower Germania is; but I cannot say the same for Will Threlfall, which has too few petals to be of much good." It is a curious fact that when I first bloomed Will Threlfall in 1888, I found the flower large and of full substance, and resembling that of Germania, but not quite so well coloured or so well formed in the petal; still, a vigorous grower. Last year, though apparently as vigorous as ever, it appeared to lack the substance of the previous year, and so my own experience was similar to that of Mr. Brown, while Germania was as good as ever. We know that seasons affect flowers, and probably Will Threlfall more so than Germania. While I cannot but admit that Will Threlfall is inferior to Germania, yet I look upon it as very useful and well worth cultivation. That the incidence of the season materially affects flowers is conclusively shown by a further remark of Mr. Brown's. He states, "This year (1889) I have not had a good bloom of Favourite, light-edged rose, or J. B. Bryant, heavy red edge, which last season were the finest Picotees I had."

It is interesting to notice that almost every contributor to this valuable portion of the annual report of the Union has something to say in praise of the yellow ground flowers. It is admitted that they now form a leading attraction at all Carnation shows. Among Mr. Dodwell's fine strain of seedling yellow grounds, his S. 167 and S. 197 are highly spoken of. Mr. Dodwell does well to thoroughly test his seedlings by two or three seasons' growth before giving them names, and that is why they were shown under seedling numbers. It was Mr. Dodwell's S. 167 that took the premier prize in the fancy class. I fully agree with Mr. Dodwell in reference to the title of fancy; he admits it is detestable, hastily given, and as hastily adopted in 1877; but while, like him, I would gladly see it changed, I scarcely know who is to take the initiative.

M. Ernest Benary, of Erfurt, the raiser of Germania, is now distributing a considerable number of fancy and yellow ground Carnations, which he has arranged in sections, but his catalogue is in German and not in English. Under the head of yellow grounds he includes not a few varieties that English growers would perhaps be slow to recognise as such; but they have a peculiar beauty of their own, displaying shades of colour rarely found among the English-raised fancies. Among those of M. Benary's flowers shown at Oxford, I may mention Schliben, Theodore, and Stadthalt; but a reference to his list will disclose many others that are fully described and recommended.

Last year Mr. R. T. Ellis, Garlies Road, Forest Hill, sent me a few yellow grounds raised by himself to try, but while I was pleased with all, I did not succeed, owing to the peculiar character of the season in blooming them, so satisfactorily as I could have desired. But I have good rooted layers for

the coming summer's bloom. I can join Mr. Dodwell in his praise of Maud Ellis, a deep yellow ground Picotee, each petal heavily edged with scarlet. This is a very promising flower, and I think it is destined to make a reputation among the yellow grounds. It is a good grower also—an additional recommendation. Then there is a Picotee named Lemon Drop, raised by the Rev. A. Rawson, of Windermere, in the way of Douglas's Almira, but superior. I observe that Mr. Dodwell places this below Maud Ellis, which he says was the finest of all the yellows sent to his care last season. R. D.

ORNAMENTAL GRASSES FROM SEED.

THE following remarks on these most useful accessories to floral arrangements have more particular reference to a few of the best known annual kinds, and as such can be easily grown from seed every year. I have grown these and a few other kinds for several years and have found them extremely useful in cut-flower decorations as well as for the garden. They are the means of a great saving of cut Ferns, especially the Maiden-hairs; they also impart to any arrangement of a floral character a light and graceful appearance peculiarly their own. During the summer, more particularly in very hot weather, they are excellent substitutes for Fern fronds in the making up of sprays and button-holes; the Fern then fades so quickly; whereas the Grasses may be relied upon to last well until the flowers fade. The following are all useful kinds to grow, viz.:—

AGROSTIS PULCHELLA, one of the first to come into use, and valuable for small arrangements.

A. NEBULOSA, a taller growing species, comes into use about the time of the Rose season, and is well suited for associating with the queen of flowers.

BRIZA MINIMA (syn., *B. gracilis*), the small (quaking Grass, is a most useful companion to the preceding, very light, and of a paler green colour.

B. MAXIMA, the large (quaking Grass, is one of the best of its class, not so prolific perhaps as some others in the production of its spikes, but so decidedly distinct and ornamental as to make full amends for that failing. It is well suited for associating with Water Lilies, the earlier of the *Gladioli* and the garden Lilies.

LAGURUS OVATUS (the Hare's-tail Grass), with its small downy white tufts supported on long slender stems, is quite distinct from any other kind. It looks well in company with the last named amongst the Lilies.

ERAGROSTIS ELEGANS is one of the latest to come into use, being extremely useful during the late summer and autumn for arranging with many kinds of herbaceous plants, or any flowers with slender stems that can hardly support themselves; whereas if this Grass is first arranged lightly in a vase, such flowers may be thrust amongst its slender, but stiff and very light spikes.

HORDEUM JUBATUM (the Barley Grass) is another kind well worthy of a place in the garden, and of very distinct appearance.

STIPA PENNATA (the Feather Grass), a hardy perennial, does well in the herbaceous border in the form of tufts. It may be raised from seed in order to obtain a stock, and afterwards increased by division as required.

To secure all these Grasses for use later on in a dried state, it is decidedly the best plan to gather them as soon as they have arrived at perfection and whilst still of a fresh and bright appearance. In this manner they dry a far better colour and last a greater length of time in good condition. The afternoon of a fine bright day is the best time to cut them, and whilst they are quite dry. They should afterwards be tied up lightly in small bunches and placed in a dry room, not in immediate contact with the light of the window. Each bunch should be kept in an upright manner, or as nearly so as possible; if there are a good number of empty marmalade jars at disposal, these would answer the purpose and save the trouble of tying each bunch up first. Of dyed Grasses I have nothing to say beyond strongly condemning all such efforts to assist Nature as unnatural, being merely a disfigurement and nothing else. In point of cultivation there is no difficulty beyond that of

ordinary attention and care in the sowing of the seeds and their after treatment. The seeds of *Briza maxima* and *Lagurus ovatus* will go much further if they are well rubbed out of the husks before sowing; whilst seeds of the *Agrostis*, both being very minute, can be sown more easily if mixed with some sand or fine soil at the time of sowing. I generally sow the seed at the end of March or early in April, according to the state of the ground. Sowing is best done where the young plants are to remain, so as to save any future trouble in transplanting. These Grasses look well when mingled with other annuals, such as *Calliopsis* and other flowers of a light appearance. *Eragrostis elegans* will reproduce itself from seed on the same piece of ground as sown the previous year if the autumn has been favourable to the ripening of the seed. This Grass being of a somewhat strong growth will have to be thinned out rather freely. It looks well grown near the water, where clumps of it would also thrive luxuriantly and be fresh when most of the Grasses are faded. J. H.

Box as an edging.—As an edging is usually to form a dividing line between walks and borders or breaks in a kitchen garden, I question if anything better for this purpose can be found than Box where it succeeds and expense is an object. The first cost of laying it is not an important item, as anyone at all familiar with the work can lift and dress it, prepare the ground, and relay 30 yards a day with ease, and once laid it will last for twenty or thirty years if kept within bounds by edging and hedge shears. Although some delay cutting Box until May, yet I believe the end of March and beginning of April are the best for that operation, as the latent eyes plump up and start into growth with the season. No fear need be entertained of injury from late spring frosts, for Box is so constitutionally hardy, that I have never known a single case where it has suffered in the least even though cut earlier than this. The only plea that can justly be urged against Box for edgings is that it harbours slugs, but the same may be said with equal fairness regarding any other living edging, and, in my opinion, Box favours this evil less than Thrift, Ivy, Gentiana, or Pinks (which are recommended by some); it is also more easily kept in bounds and does not become so patchy as these. Rough stones covered with alpine and creeping plants may be in keeping with rustic work in odd corners of the pleasure grounds, but not in the kitchen garden, as no place affords better protection for slugs and weeds than an edging of this kind.—R. C. H.

—It is a pity that so many persons near large towns are giving up Box edging by reason of its liability to die off. It may not be known generally that this fine old edging plant is obtainable in many varieties, some very tender and only fit for the purest air, others robust as a Privet or Ivy plant. The most robust dwarf Box is the Dutch variety. In a garden at Chiswick all the different sorts of edging Box have long ago given way, but the Dutch seems quite perfect; there is not even a weak spot in it. It is of a charming colour too, a soft, light, warm green, not very common. Let the Dutch Box be tried before going in for edging tiles.—A.

The landscape gardener wanted.—It is amongst our picturesque old ruins that he is wanted. If we take up an old print, giving a view of a ruin, it certainly is wild and picturesque. I remember Netley Abbey in this condition, a great part of it quite inaccessible for jungle and confusion. It is now trim—too trim, in fact. George Cutt's beautiful etchings of Fountain's Abbey in 1809 indicate a similar state of things; but now it is neat, trim, and bare. Photographs of Fountain's Abbey are on view in London, showing a stream running by it, the banks trim and straight and parallel, just like a canal—it looks most inappropriate. How one longs for a nice bend or two in it, and a fine patch of Flags in the foreground; things quite easy and naturally suggesting themselves to a landscape gardener, but never to the beautifiers of ruins. Certain fine plants would also grow best in the angles of

ruins, and should be always put there. Ivy, although a great ornament, in course of generations may get too suffocating, and even conceal too much, so that a judicious occasional cutting back would be an advantage. Masses of Rose and Bramble of every kind should break the angle of the wall against the ground, and old blocks of stone should be grouped a little picturesquely where there is room without being in the way.—A.

ORCHARD AND FRUIT GARDEN.

THINNING GRAPES.

THE season for the performance of this tedious and important operation being at hand, if in many places it has not already commenced, a few words upon the subject may not be out of place. The removal of superfluous "shows" has been practised upon Vines for a great number of years, most likely from a period anterior to their culture under glass, but the thinning of the berries, practically speaking, is not commenced until after the Grapes are set. In order to become an adept at thinning the operator must have a quick, but steady hand, a good eye, and a thorough acquaintance not only with the different sections, but also with the individual Vines under his management. If we take as an illustrative example the Black Hamburgh, a variety met with in all gardens, large and small, we find not unfrequently in the same house Vines which produce large, loose bunches which require moderate thinning, others with close compact clusters, which set thickly and swell their large hammered, short-stalked berries to double the size of the first, whose berries, as a rule, are slightly oval. Uniform thinning in these two cases, it is hardly necessary for me to say, would result in the first being too thin, whilst the second would contain more berries than could swell without becoming distorted. Here, then, we have the fullest proof that the operator must be well acquainted with the capabilities of his Vines before he can perform the mechanical part of his business, and when well up in this respect a good hand will thin a large bunch almost to a single berry. The best time to thin all free-setting varieties has arrived when they have passed out of flower and the leading berries are the size of peppercorns. Lady Downe's, Mrs. Pince, some of the Sweetwaters and Muscats, more or less shy setters, should be allowed to get pretty well advanced, and when the best berries take the lead those falling behind should be removed, as stoneless berries never take the second swelling. It sometimes happens that the operator must retain some stoneless berries or put up with apparent blanks often in the middle of a large bunch, and here experience comes in, as not unfrequently the blank of to-day may be closed by good berries filling up the space within a fortnight. Indeed, of two evils, it is better to have a bunch slightly thin than made symmetrical by the retention of a few small-sized berries.

When artistically thinned, a cluster should contain a given number of even-sized berries, thin enough to take the finishing swelling without pressing each other out of shape, and sufficiently numerous to furnish well up the stalk, and form a mass which will not fall from its conical shape when cut and laid on its side in the basket. If summer Grapes are insufficiently thinned, they do not suffer so much as late ones which have to hang through November and December; therefore, whilst condemning under-thinning at all times, I would say be particularly careful with late ones, which must be loose enough to admit a free circulation of air when

the leaves are falling, and to escape mould when hanging in the Grape room. Lady Downe's, Alicante, Gros Colman and Gros Maroc, two of our largest berried Grapes, should be thinned until there is no possible chance of their binding; otherwise, no matter how perfect the form of the clusters, their value will be gone when mould gets into the storeroom.

Really fine Hamburgh berries average about 3 inches in circumference, but some (notably those exhibited by Fleming and Meredith) averaged 4 inches in circumference, whilst very fine Gros Colman sometimes exceed 4½ inches. To make room for berries of this class one may safely follow Mr. W. Thomson's advice to his men to thin until they think they have spoiled the bunches, and no grower, I may safely say, produces better Gros Colmans. So much for theory, neither more nor less than well-developed practice. Now for a few words to the young operators now trying to win their spurs as exhibition Grape growers. To them, I believe, falls the tedious wielding of the scissors with hands raised on a level with their heads and their bodies in all sorts of positions, and certain conditions being imperative, not unfrequently when other people are in bed or taking their evening walk, these men are patiently plying their art for very low wages.

As Grapes should never be touched by the hair or flesh, either of which destroys the bloom and produces rust, the thinner should begin at the point and work upwards, holding, turning, and steadying the bunch with a small hooked or forked peg, or thin piece of matting. All the smallest and a great number of the inside berries should be taken at the first thinning, and the better to initiate young beginners, they may be engaged in the preliminary process of cutting out blind berries, commonly called cleaning.

Early morning, dull days, and late in the evening, when the hand is steady and the body cool, especially the first, are the periods which should be devoted to thinning, but where a vast amount of work must be got through in a short time, great relief, sometimes denied, may be given to the men by piecemeal shading. The Vines are none the worse for the temporary cloud, and appreciative hands move all the faster. Where time admits, the crop should be looked over three times: The first, as I have stated, immediately after the Grapes are set; the second, when the size of large Peas; and lastly, for the removal of stoneless or badly placed berries, just before they commence the last swelling.

WILLIAM COLEMAN.

Black Currants for profit.—Much has been written about the culture of fruit for profit in this country of late, but after reading the most of what the various writers have had to say on the subject, I have noticed that, with one or two exceptions, the Black Currant has been ignored. Now, when properly managed, this delicious and much esteemed fruit is equally as remunerative as the Strawberry or the Raspberry, or for that matter, the Apple. Indeed, it is an open question whether, taken year by year for a certain period, an acre of land devoted to a judicious manner to the culture of Black Currants would not be even more remunerative than three acres of Apple or Pear trees. Every grower knows that an untimely frost in May will frequently scatter all chances of a crop of Apples or Pears, but the Black Currant is very rarely injured by the weather. Bushes of this in good health will go on producing an enormous crop of fruit for a number of years, and even then when the plants are exhausted it is a tolerably easy matter to replace them with young trees. I have known Black Currants to pay remarkably well when grown on a small scale, and therefore why not grow

them in quantity? Of course, in Currant growing, as in other fruit, the best samples realise the highest prices. The large-fruited varieties should, therefore, be only planted; such, for instance, as Lee's Prolific, which, perhaps, is one of the best all round Black Currants in cultivation. The trees, moreover, should be planted on a moist loam and be liberally top-dressed with decayed manure.—C. L.

RULES FOR APPLE ORCHARDS.

FOR successful orcharding, there are many requisites to be observed which are given in extended articles, and which on account of their length the inexperienced are apt to overlook; they may, therefore, be more useful if condensed into the following brief rules:—

SELECTION OF GROUND.

Select a good soil, such as will raise good farm crops.

Make it mellow at once, or with previous mellowing crops.

Hillsides or rocky places are admissible only in case plenty of manure can be had for annual top-dressing.

See that the land has good natural or artificial drainage.

CHOICE OF TREES.

Choose young and vigorous trees, not over two years old from the graft.

See that ample roots are secured in lifting—enough to support the tree without staking, and give ready growth.

Avoid large, overgrown, or stunted trees which have short roots mutilated by lifting.

Remember that a good supply of roots is more important than straight stems or handsome heads.

Procure well-proved standard varieties, and not new lauded sorts.

PLANTING OUT.

Before setting out, dig holes broad enough to receive all the roots without bending.

Use no manure, except on the surface after setting or in the remote parts of large holes.

In planting, spread the roots out equally on all sides, at their full length, and fill in firmly with fine mellow earth.

After planting, shorten back the long shoots and thin out where too thick, giving a neat, even, moderate head.

Always shorten back before the buds swell, and never when partly or wholly in leaf.

Keep the ground for several feet around the newly-set trees clean and mellow all summer.

AFTER CARE.

Keep the ground cultivated over the whole surface for six or eight years after transplanting; after which allow Grass to grow only in case a good annual or biennial top-dressing of manure can be given.

As the roots of growing trees are as long as their height, avoid the mistake of digging or manuring narrow circles around the foot of the stem, but cultivate the whole surface.

Preserve a smooth clear stem by promptly removing all suckers.

Clover and sowed grain should never be allowed in young orchards; Grass, if kept short, and annually top-dressed with manure, is admissible; hoed crops, as Corn and Potatoes, do well.

PRUNING AND GRAFTING.

In well-managed orchards, much pruning is unnecessary, and when performed, do but little in any one year; thin the outside of the head and not the centre, and paint all wounds.

Undesirable fruits or those proved unfitted to the climate may be changed to good ones by grafting; several grafts spread over the heads will soon form bearing trees. For large trees, divide the grafting through two or three seasons.

SELECTION OF VARIETIES.

For home use, plant enough good varieties to keep up a constant succession from midsummer through autumn and winter, and of long-keepers

to last through spring till the ripening of Strawberries.

For market, choose such as bear heavy crops of saleable Apples, and plant orchards only in such places as they succeed well in, and find a ready sale at the most profitable times of year.

SCATTERED RULES.

If trees are received when frozen, they will be killed if thawed in air; but if compactly buried in mellow soil before thawing, they will not be injured.

Mice are excluded in winter by a smooth, compact, conical mound of soil around the stem of each tree, to be levelled again in spring.

Old trees may be pushed into new life and bearing by top-dressing well a circle of 2 rods diameter about them, and pruning out dead shoots.

As soon as a young orchard is planted, register the varieties in an account book, otherwise the labels being lost before bearing, loss and confusion of names will result.

Destroy codlin moths by spraying with Paris green and London purple, and punch borers in their holes with flexible wire.

CAUSES OF FAILURE.

Farmers who allow cattle to break into young orchards should remember that fences are as important as manure.

Planting in thin soil, setting trees hurriedly, and allowing weeds and Grass possession of a hard and crusted earth, will not accumulate silver and gold.

Planting large nursery trees, carelessly lifted with short and mutilated roots will prove unprofitable.

Shortening back the heads of newly transplanted trees after the opening of the leaves, instead of before the swelling of the buds, checks the growth and seriously injures them.

Allowing weeds and Grass to grow in young orchards invites mice and stunts the trees.—*Country Gentleman.*

* * Though the above may not in every rule be applicable to English orchards, still there is a good deal of wisdom in it. It is from the *Country Gentleman*, a paper for many years well informed as to orcharding. We omit a few of the rules not necessary to observe in our climate.—Ed.

Honey-dew on Peach trees.—Will you kindly give in your next issue the best remedy for honey-dew on Peach trees, as I have got it on one tree, and some of the leaves begin to curl with it? The Peaches are set and nearly all the bloom has dropped off. I have syringed the trees every morning for about a week, and one night I put a little sulphur on the hot-water pipes.—A SUBSCRIBER.

* * Your Peach tree is infested with green fly, a very destructive insect if left alone, but easily destroyed by mild fumigation with tobacco paper when the foliage is dry. Prevention, however, being better than cure, you should always fumigate your Peach house a day or two before the first flowers expand; the trees will then remain clean throughout the setting process, when, if necessary, you may repeat the fumigation, but on no account fumigate when the trees are in flower. You have done wrong in placing sulphur on the pipes, as the fumes from this is fatal if not to the embryo fruit, yet most certainly to the tender foliage of the Peach. Let us hope the pipes were not hot, as it is to this circumstance only that you are indebted for escape from a catastrophe which would have killed every leaf in the house and ruined your trees. Wash off the sulphur at once, remove all the curled growths you can spare, smoke lightly, say twice in the course of a week, and ply the syringe freely twice a day. As you have not mastered the details of Peach forcing, read carefully the calendar from the beginning to the end of any of the past year's.—W. C.

Japanese Oranges in California.—From a circular issued by Mr. H. E. Amore, of San Francisco, it appears that the Japanese seedless Orange is becoming a favourite in San Francisco. The Onshiu-mikan is not only a highly palatable, but also a most artificially conceived fruit. It parts with its skin in the

most obligingly facile manner, and suffers itself to be divided into quarters with equally courteous readiness. Moreover, it has no seeds to stick in the throat of the consumer, and it contains only a mere shred of that white fibrous substance which renders the total consumption of a Chinese Orange impossible, except at the risk of serious detriment to the digestive organs. A Japanese Orange offers both a flavour and an aroma that have no equals.

THE EARLY THINNING OF FRUITS.

WHILE not a few question the wisdom of thinning fruit buds, few fruit growers will object to the prompt thinning of embryo fruits as soon as they are safely and thoroughly set. Experience, however, rather complicates than simplifies these qualifying phrases, and it is no easy matter at times to determine when and at what stages fruits are safely and thoroughly set. Cherries, for instance, are so specially ticklish on these points, that the majority of growers prefer leaving their thinning to natural rather than artificial selection. Even the time between the full blooming and final setting of Cherries and other fruits varies widely. An east wind very often arrests the process, holds the blossom in suspense in the very act of setting, and frequently leaves it in a jaundiced, unset condition, doomed to come to the ground when almost within sight of a perfect set. This wholesale jaundicing to death of Cherry blossom in the act of setting is one of the greatest trials of the fruit grower.

Similar failures, though hardly to the same extent, frequently overtake Peaches, Nectarines, Apricots, Plums, Pears, and Apples, and soils and seasons are probably the most fruitful causes of those wholesale blights that leave but a few fractional fruits behind them.

Only eyes and heads sharpened through failure and taught through many years of more or less bitter experience can learn thoroughly the vitally important art of the best, safest times to thin embryo fruits. There is far less danger of waiting for a natural selection than has been generally supposed. While every fruit was looked upon as having its head in the general food trough, it was taken for granted that exhaustion of vital force quickly followed in the track of mere numbers. But this danger is far less imminent than has been generally supposed. The more elementary functions of young fruits tend to augment rather than exhaust the food supplies, and it is almost certain that such functions continue until the plant has finished its selection of fruits intended to be carried through to maturity. If so, and experience can help the cultivator to ascertain when this stage is reached, nearly all that is left for the latter is to finally leave the best formed, most favourably posted fruits, and to adjust as closely as may be the weight of the crop to the strength and capacity of the tree. This may suffice for the current year's commercial exigencies. But as all fruit trees should be treated so as to grow in fertility and profit year after year, the crop should be so adapted to the tree's strength as to leave a considerable amount of vital and fertile force as a residuum after each crop. This annual residuum of strength in favour of production should be looked upon as the tree's reward or wages for the previous year's crop. Of course this growing strength and fertility might be reached through root feeding as well as by fruit thinning. The wise fruit grower will almost assuredly reach it through both channels. What is of most importance is that this growing strength and fertility should not only be reached, but maintained. Were this high estate of rational fruit culture generally attained and preserved, many of the risks, difficulties, disappointments, and losses incident to fruit growing would disappear. For instance, the gluts and scarcities that play such havoc with prices and profits would become more rare and finally disappear, for erratic crops are quite as much the product of excessive cropping as of unsteady climate. What more common, for example, than alternate crops and failures among Apples and

Pears, and a Plum season is nearly always succeeded by one, some say five, years of scarcity. Experience demonstrates that through rational fruit-thinning something like steadiness and regularity may be given.

And thus it is impossible to exaggerate the effects of rational thinning on the quality of the produce. The early removal of all misshapen, maggot-gnawed fruits and the regular distribution of the crop left over the entire area of the tree would raise the sample to its highest excellency and make it even, the last quality being almost as good a paying one as the first.

There is little doubt that it is largely in the direction of fruit-thinning and sampling that home fruit culture is to be raised into a profitable industry. And this is so far fortunate, as everyone who is willing may learn how and when to thin and sample to most advantage. The safest and most profitable method is to do both on the tree as soon after the embryo fruits are set as practicable, so that the food and strength of our trees may only be expended in growing the finest samples that will realise the highest prices. CALEDONICUS.

BLenheim ORANGE AND OTHER APPLES.

I HAVE carefully read the discussion as to which are really the best English Apples. It is doubtless a very difficult question to decide, for, as with other things, no one variety combines in itself all the good qualities, such as first-class flavour, handsome appearance, productiveness, a good constitution, and early maturity. Without doubt we have no English Apple to surpass, if to equal, the Ribston as regards flavour, but then it is so liable to canker that, except in a few places where the soil just suits it, it is hardly worth the space it occupies.

I am and always have been a great admirer of the Blenheim Orange. In my father's garden, in Worcestershire, there was a tree of this grand Apple, the like of which I have never seen before nor since. I could not now say how large it was, as that is quite twenty years ago, but it had a beautiful clean, straight stem and shapely round head that spread far and wide. It was never pruned nor interfered with in any way, but bore heavy crops of some of the finest fruit I have ever seen. The yield varied to some extent in alternate years, being usually very heavy one year and comparatively light the next. One season I remember we had no less than twelve pots from it. The Blenheim is certainly not equal to the Ribston in flavour as a dessert fruit, but its excellent cooking and keeping qualities amply compensate for that. Its great fault is certainly the length of time the trees take to come into full bearing, but this may be obviated to some extent at least by grafting it on to established trees of vigorous varieties. In any case it is probably the very finest of all our English Apples, and undoubtedly well worth waiting for.

In the same garden was a tree of King of the Pippins, though a mere pigmy compared with the other. It was the first time I had seen this variety, and though only a youth, I remember being much disappointed to find such a beautiful fruit of such indifferent flavour and poor, woolly quality. There was also a small tree of an Apple we used to call the Coriander, a fair-sized, smooth, round fruit of a deep rich crimson colour all over, without any markings whatever. The flesh was also deeply tinged with the same hue, and, from what I remember, very mellow and well flavoured. I have never seen nor heard of this kind since. Can anyone tell me anything about it?

But, to return to the Ribston. The truth probably is that the variety, never a very robust grower, is becoming worn out, and when it is taken into consideration that it has been in cultivation for nearly 200 years (according to the best authorities), this is not to be wondered at. Forty or fifty years ago the fruit was much more plentiful, and complaints about canker, &c., seldom heard. Why does not someone set to work and raise some seedlings from it and allied sorts? The Ribston

quality with a slight infusion of, say, the beauty and vigour of the Blenheim would be an Apple worth growing. I think all will agree that there is plenty of room now for some good new and really improved Apples. B. C. R.

THE PROFITS OF HARDY FRUIT CULTURE

NOW that a good deal of interest is being manifested in the cultivation of hardy fruits, it may be well to call attention to the exaggerated statements as regards the profits of the undertaking, so that those who are halting between two opinions may make up their minds as to whether they will adopt it as a reasonably safe venture for their capital and labour, or steer clear of it altogether. There are plenty of Job's comforters in this as in other callings, and who, if they cannot succeed themselves, come to the conclusion that no one else ever will. On the other side, again, there are those over-sanguine ones that would cause a rush of new aspirants for fortunes, as if a veritable gold mine had been discovered. It seems to me that these extremes are both equally dangerous to the healthy extension of the movement. The exaggerated statements are, as a rule, easy of explanation. For instance, in any well cultivated collection of fruit trees there may be found, even in very poor fruit seasons, some trees of particular kinds that have an unusually fine crop. If it is carefully harvested and sold, and the amount set down to the small space occupied by these trees, and multiplied by the number of trees it would take to fill an acre, it is by no means difficult to get such a total as would buy the land outright from one crop. This is the way that from £100 to £200 an acre are made on any kind of fruit you like to mention. There are very few that have acres all of one kind, and supposing that they were in a large enough way to have acres of all the leading kinds, it would still be unfair to set down what the one profitable sort realised without giving the average returns, and if we could by any means get the exact amount of profit realised on the existing fruit lands of Britain, it would be found to compare favourably with that of any other rural industry connected with the land. For instance, if we take the fruit orchards in Kent as our guide that the crop is annually sold by auction from, we can form a fair opinion of whether there is any profit to be made or not. From my own experience in the neighbourhood of Maidstone, I should think that no one would venture to say that it is in the hopeless condition some people seem to think. Even in very poor fruit years, the crops of Cherries where the soil suits them would average from £10 to £15 per acre, and other orchards of standard trees in proportion. Many a farmer has been enabled to tide over the worst depressions that have taken place solely by the aid of annual sales from orchards on which he hardly ever had expended a penny. These orchards were kept prolific by utilising them as the run for sheep, calves, and other stock both in winter and summer. Some will say that this is not very extraordinary, and that after the rent and other expenses were paid there would not be much profit left.

If you want to realise anything like the sums that one sees set down as the returns from well cultivated fruit gardens, you must go in for a very different expenditure per acre to that which is bestowed on these old-fashioned orchards, where after they are planted and get into good bearing condition, a little filling up of gaps or cutting out a dead branch here and there is all they get. Even with a large return it is not always possible to clear more profit from the acre of well attended trees than is done by the haphazard plan of leaving them practically to chance. The expenditure requisite to stock and keep in good working order several acres of dwarf fruit trees and bushes is very large, and after all expenses have been paid there is not so large a balance left as many would suppose, for we not only have to strike an average between profitable and unprofitable portions of the holding, but also between good and bad seasons. I have never yet known a season that was good for all kinds of fruits, or one in which

they all failed, and in some seasons when fruit has been the scarcest, the price obtainable for what we had has more than made up for the lack of quantity. I am decidedly averse to mixing up fruit plantations in the way they frequently are planted. I would strongly urge the necessity not only of growing the distinct kinds of fruits on one plot, but also the distinct varieties. In order to get the fullest return of which they are capable, they need distinct modes of pruning and general treatment, and after many years' trial I would advise growing as many distinct kinds of fruit (but not distinct varieties) as could be profitably cultivated in the locality, for when one kind fails another kind that may be plentiful realises better prices. We have had as many bad fruit seasons during the last few years as we are likely to see in a much longer period, and those who have expended time and capital in planting the thousands of acres that have been added to the fruit plantations of the kingdom will doubtless reap a good return for their outlay, for it requires a good share of patience to wait for the crops from young trees, and hitherto the older and less cared for trees have in many cases given the most profitable returns. I feel confident, however, that with fairly propitious seasons the crops will be abundant in all, and then the greatly improved quality of the fruit produced by young vigorous trees will make all the difference in the market value of the two. A hopeful sign of the times is that, in spite of bad seasons, planting goes on more briskly than ever within living memory.

Gosport.

J. GROOM.

CULTURE OF THE PEACH ON OPEN WALLS.

FRUITING YEAR.

IF all has gone well, the young trees lifted in October will be well furnished with flower-buds, and the new year having come in possibly with bright sunny days, the first step must be the prevention of their development by unnailling and securing all the shoots at least 6 inches away from the wall. A few light rods stuck into the border and secured to the wall at top will form a trellis to which the shoots may be tied for protection from wind and snow. But cleanliness being imperative, each shoot must be carefully washed with soap and water or a solution of Gishurst, 4 ozs. to 6 ozs. to the gallon of warm water, as the work of detachment is proceeded with. The walls also must be washed, especially if they are old and faulty, with strong soapsuds and sulphur, which must be well worked into the joints and nail holes. This work finished and the wall paths neatly covered with fresh stable litter, no further attention will be needed until the buds begin to show the colour of the flowers, when training must be proceeded with, and that quickly. If any of the points have been nipped by a hard winter, these and others showing undue strength must be shortened back to sound triple buds, but all others must be laid in full length, as they can be checked if necessary by summer pinching. The plain fan system of training answers best in this country, and, as in the preceding year, each shoot emanating from the top side of the main branch must have at least 6 inches to 8 inches space for the development of its leaves and the shoot or shoots, which in their turn will start from it. When all the trees are nailed or tied in (I prefer nailing, as they can be kept close to the warm brickwork), the wall paths may be coated with old lime rubble, as Peaches require plenty of lime, but not fresh lime, when they are stoning. Meantime, unless the situation is extra good, steps must be taken for

Protecting from morning frosts when they are in flower. In some gardens glass copings 2 feet in width are put up when the first flower opens and removed when the crop is safe, blinds or curtains being made with rings to run upon iron rods for the convenience of opening by day and closing at night. Although expensive at first, these running blinds serve a double purpose, for being so handy they can be closed on the approach of storms of rain or sleet, frequent forerunners of sharp frosts, or they can be used to a moderate extent for retarding the opening of the flowers when the sun in

February and March is helping them on, it may be, to destruction. Where glass copings are beyond reach, broad boards some 14 inches in width answer very well, light poles let into the border being used for steadying them and preventing the two or three thicknesses of fishing nets from flapping against the flowers. These, as a matter of course, are fixtures, as they let in plenty of light and air, and, provided the poles are placed 3 feet away from the foot of the wall, the attendant can travel from end to end when the fruit is setting and the first aphid by a curled leaf shows its whereabouts. I never fertilise my wall Peaches, but those who feel disposed to run over the flowers with a bunch of soft feathers on a bright day may certainly do so. When the fruit is set and the size of Peas, the trees will be sufficiently advanced for

Disbudding and thinning.—These operations are carried on piecemeal and conjointly, the greatest mistakes being made by those who treat all their trees, strong or weak, alike and commence too early. Strong trees should be taken in hand first, weak ones a week or two later. The first time over all the foreright shoots, especially those near the extremities, may be taken, also the small, malformed, and badly-placed fruit; then in the course of a week the shoots generally may be thinned, those with a young fruit nestling at the base being pinched to two or three leaves, not only for protection, but also for aiding in its development. Triple fruits about this time, too, may be reduced to one, naturally the best on the top side or apex upwards. When the Peaches are the size of Cob nuts they may be thinned still more, care being taken that a fair percentage be left for removal after stoning, when the strongest and best of trees should not be allowed to carry more than one fruit to every square foot of wall covered with foliage. To the covetous this may appear a light crop; but such is not the case; it is a heavy one, and those who wish to keep their trees in health and have fine quality every year must not go beyond it.

MANAGEMENT OF THE YOUNG WOOD.

I take it for granted that all covering and copings have been cleared away piecemeal, not suddenly when safe from frost, and that insect pests have not been allowed to cripple the early growths—a very important matter in open-air culture. Also the trees have been thoroughly and repeatedly syringed to free them from the remains of the decaying petals; that the exact number of necessary shoots are growing fresh and freely. When 6 inches in length, the most forward must be tacked or heeled in quite close to the wall, and this work must be incessant throughout the season. At this stage, too, provision must be made for covering all the strongest branches with foliage, also, if necessary, for increasing the number of shoots near the centres of the trees by stopping others. Some lay in more wood than is absolutely necessary and remove it by degrees; but unless the trees are weak and root action languid, this crowding at the outset is bad form and should not be practised. The attendants, as a matter of course, will keep a sharp eye on ties, shreds, and nails, as cutting by the one or pressure by nails or studs are common causes of gum and canker. As growth proceeds, all laterals must be removed to a single bud and strong shoots pinched to maintain a perfect balance; and later on, when the fruit is swelling for ripening, shoots which will be removed when it is gathered may be shortened back—first, to increase the size, and, second, to admit sun and light to those forming the succeeding year's blossom-buds.

Mulching.—Of two evils, it is better to have trees weak than too strong, as we can feed when necessary; hence my strong objection to the use of manure in the formation of composts. Young trees always grow quite strong enough in the soil I have recommended; but in order to keep their roots near the surface moisture should be kept in by a good covering of fresh stable litter; whilst older trees, which have covered a large area and are carrying full crops, may be mulched with rotten manure. This may remain until the fruit is gathered, when it should be reduced, but not entirely removed in order to let sun-heat into the border.

Watering.—As the Peach must have a well-drained border, it is hardly necessary for me to say it requires an abundance of water throughout the growing season. So important, indeed, is this, that, no matter how well other details are carried out, it will certainly fail where flooding is neglected. If the summer is hot and dry, the trees will take a good watering once a week until the fruit begins to show signs of changing for ripening, when the supply may be relaxed; but when gathered it must be resumed, as nine-tenths of the buds which drop in the spring are lost by the roots becoming too dry in the autumn and early winter. If thoroughly moist in November, winter rains will keep them so; but if found dry when the time arrives for the annual root-pruning, no rest must be allowed until the lowest particle of turfy compost is thoroughly moistened.

Finishing the fruit.—When elongation of the shoots slackens and the fruit begins to lay on colour, flavour must be secured by gradual exposure, not by the wholesale removal of the leaves, but by turning them aside, and, as I have previously stated, by further shortening of such shoots as will be removed when the trees are pruned in October; for be it understood that all faulty and all superfluous shoots must be removed from each tree so soon as the crop is gathered—it may be in August or it may be some weeks later.

Root-lifting.—Although all readers of THE GARDEN are well acquainted with my faith in root-lifting, I cannot close my subject without saying a few words upon the last and possibly the most important operation of the year. We lift and relay the roots of fruit trees sometimes to give new life, vigour, and fertility to old ones; but in this case, having started with young ones, the performance of this operation, it must be understood, is to maintain a fruitful condition by restraining or preventing grossness. On some soils root-lifting is unnecessary, but on really good calcareous Peach loams and in low damp situations, one may as well try to grow the Peach as a standard as to allow the roots to ramble past control, often into rich vegetable borders, and expect good crops of fruit. Root-lifting, indeed, in my opinion, is the key-stone of the success which has crowned the Peach grower's efforts, and so long as this is followed up, fruit of the finest quality may and will be grown by all who set out with the determination to do battle with prejudice and a fickle climate. Root-lifting, I may repeat, must not be accepted as a rough and ready mode of half killing a tree by chopping off its roots, for really and truly quite the reverse is the case. We raise them carefully, preserve all the fibres, shorten the strongest or robbers precisely as we check gross shoots in summer, and we relay in a horizontal position within the influence of solar heat and warm moisture. I stated at the outset that the young trees must be lifted at the end of the first season, an operation which would lead to the formation of a network of fibres just below the surface of the wall path, a portion of the border which I do not afterward disturb, unless the compost requires renovating. This network, left alone, spreads and ramifies quite as fast as the tops, especially when two-thirds of the best border in the garden is heavily manured for early vegetables, and once the balance is lost the crop fails and the trees frequently suffer the following winter. Many people neglect root-lifting because the roots are out of sight or on the score of expense, but these objections and all others must be set aside, or rather they must be faced by those who wish to keep pace with the times. The master of the art of culture, of course, knows whether his trees should be checked annually, biennially, or less often, as it is worse than useless for anyone to allow them to make growths which cannot ripen thoroughly. In the management of my own trees I see to the points of the roots annually in October, the *modus operandi* being as simple and, I think, as effectual as anyone can wish. In the case of young trees growing within 12 feet or 15 feet of each other, a trench the whole length of the border is thrown out a given distance from the wall, then with steel forks the men work inward until they reach the points

at which the roots of the preceding year were shortened, and finding that each of these shortened roots has sent out several healthy fibres, each of these in its turn is cut back to within 6 inches of the junction; the trench is then filled up, the lower part being firmly rammed with the best of the old compost free from manure. All the shortened roots are relaid in a little fresh loam, lightly covered with the same, and if at all dry the remainder of the trench is filled up with pure water. In the course of twenty-four hours the water has passed down to the drainage, each rootlet is hermetically sealed, at least so far as flooding stiff loam can seal it, the trench is then filled up, firmly trampled, and the work is finished.

If all goes well, each alternate tree is removed, annual root-shortening rendering the operation not only safe, but frequently advantageous, as they can be planted against other walls or under glass with the certainty of good growth and full crops of fruit. But the permanent trees being now 30 feet apart, the longitudinal trench is discontinued and a semi-circular one is opened instead. Well acquainted with the position of the trench of the preceding year, that of the current year is opened just outside its radius, and being composed principally of vegetable soil full of humus, this material is taken away. Then, as before, we work inward until the whole of the yearling roots are exposed, but having so many undisturbed fibres in the wall path, which also extends until 6 feet is reached, I invariably shorten back to 5 inches or 6 inches, relay in fresh loam, flood home, and finish off a day or two later. Trees treated in this way are neither puny nor strong, but quite strong enough, and so much of the border having been opened, we can tell at a glance whether the roots have had sufficient water.

DISEASES AND INSECTS.

If sound trees are selected and managed as I have suggested generally, they will continue healthy for a great number of years. Although subject to several diseases, those most to be dreaded are gumming and blister, but these rarely make much progress where the borders are well drained, the use of manure is avoided, and root-lifting is made an integral part of the system of culture. It sometimes happens that the best managed young trees suddenly develop gumming without any apparent cause, and when this happens the best plan is to clear them away, as the disease is constitutional, most likely having been conveyed by buds from unhealthy parents. Gumming, on the other hand, resulting from injury to the bark by a blow from a hammer, by pressure against a stud or nail, or by bending strong branches, as sometimes happens when a vertical trained tree is transferred from a Peach wall to a sharp-angled trellis under glass, may be cured by cutting out the parts affected and binding up with a piece of stiff maiden loam, aided, as a matter of course, by giving the roots pure compost which will not force a strong growth. In some cases the affected branches may be cut away altogether, but the injudicious use of the knife being so frequently an aggravating operation, the only time for cutting away with any degree of safety is early autumn when the leaves are falling.

Blistered leaves.—As these never appear upon trees under glass, it is reasonable to suppose this disease on open walls is brought about by unfavourable climatal conditions. Trees growing in cold, damp, badly drained borders, or in low-lying situations where the wood does not ripen properly, are most subject to blister; consequently steps which will improve the borders and climate will most likely cure the disease. Add to these, good copings which will check cutting draughts through the early spring, careful hand-picking through the summer, and sets of trees which have suffered terribly for years may be restored to a healthy condition. Root-lifting and relaying in higher, drier, and warmer soils is the great and never-failing remedy for these two diseases, and being equally essential to successful culture, annual root-lifting will be found a certain preventive.

Sun-burning in hot, dry summers not unfrequently kills large branches, and sometimes the

whole tree, especially when the sap is flowing rapidly and the roots are kept short of water. All stone fruit trees, including the Apricot and the Plum, the Green Gage especially, are subject to burning, and more frequently than many imagine the work of a few hours is due to a dry condition of the borders. As no amount of attention will restore a sun-burned tree, one preventive step is obvious. Another is shading the stems with tiles or thin pieces of board, and, as I have previously suggested, tying leaf-producing shoots upon the external parts of old branches.

Insects.—The worst of these are red spider and green and black aphid, the latter being decidedly the most persistent of the three. Years ago, when the winter washing of the trees and walls was neglected, these pests came out in shoals as regularly as the leaves, and many a crop of fruit was destroyed by the strong insecticides applied when the trees were tender and the elements most capricious. Thorough winter cleansing now results in a clean bill of health certainly until the critical stage is past and the continuous growth of the first set of shoots is assured; consequently this operation equally with root-lifting is the most important step which has led to our great success as growers of Peaches upon open walls. Fly, as a matter of course, will attack the best of trees, but coming later in the spring the usual insecticides can be used without destroying the early shoots. If fly appears in patches or upon single shoots, the attendant should be ready with his tobacco water or strong soap water when the parts affected should be immersed, and when the fruit is thoroughly set his management must be bad if he allows it to spread. Dipping in strong tobacco water, a decoction of Quassia, or bitter Aloes, and dusting with Pooley's tobacco powder are the usual remedies for black fly. One dressing, however, rarely makes a complete clearance; therefore, it must be repeated at short intervals, trees and walls being marked for special cleansing the following winter.

Red spider succumbs to copious and frequent supplies of clean water through the engine, and the wholesale washing of the walls being advantageous to the trees, root and branch, this mode of procedure during the swelling process will render the ravages of spider harmless until after the crop is gathered. Clean water free from lime, if possible, should be used, otherwise the fruit will be spoiled in appearance by the sediment. When gathered, soap-suds, the best and cheapest of insecticides, may be used very freely.

VARIETIES.

Although the varieties of the Peach are very numerous, and the nomenclature far from satisfactory, the sorts best adapted to open-air culture are so well known and so extensively propagated by the leading nurserymen who spare neither pains nor expense, that mistakes, at one time very frequent, now rarely happen; and if they do, gardeners who have studied the classification of Peaches, instead of waiting two or three years for the fruit, can generally detect glaring errors when the trees unfold their leaves and flowers. I should like to go thoroughly into this interesting matter, but space forbids; therefore, with the request that the grower will go to a good mart and pay a good price, I will give the names of a few of the best for culture against open walls. A whole host of early Peaches and Nectarines having been added to our lists, a great number of varieties, whose only recommendation is their earliness, have found their way into gardens to produce very inferior quality as compared with Noblesse and Royal George, two Peaches which will never lose their popularity. Early Peaches, as a matter of course, we must have, and some being better than others, I will enumerate those only which have turned out best in this locality. Taken alphabetically and independently of the time of ripening, the list will run as follows:—

A Bee.—Very handsome, delicious flavour; like an early Royal George.

Alexandra Noblesse.—Large, handsome, equal to the old variety, but earlier and not subject to mildew.

Alexander.—Very handsome, flesh juicy and sweet; the best of the earlies.

Barrington.—Large, handsome, and prolific, tree hardy; one of the best late Peaches.

Belle de Dore.—Very handsome and rich; an early Bellegarde.

Bellegarde.—One of the hardiest and best midseason Peaches.

Crimson Galande.—Above medium size, a superb Peach, very hardy.

Dr. Hogg.—Very prolific, good quality and early; rather small.

Diamond.—Large and handsome; one of the best wall Peaches grown.

Early Grosse Mignonne.—All the Mignonnes are superb; requires a good situation.

Grosse Mignonne.—Very fine and prolific, a fortnight later than the preceding.

Hale's Early.—Deep crimson, handsome and one of the best early varieties.

Nectarine Peach.—One of the best pale late Peaches.

Noblesse.—(One of the richest Peaches grown.)

Prince of Wales.—Large, handsome, late and excellent; tree very hardy and a sure cropper.

Rainmakers.—Resembles Noblesse, but later, a most delicious variety.

Royal George.—(One of the best; subject to mildew if kept dry at the roots.)

Sea Eagle.—Very large, pale in colour; a fine late variety.

Stirling Castle.—Handsome and excellent; one of the best.

Violette Hative.—Large, melting and rich; should be in every collection.

Walburton Late Admirable.—One of the best late Peaches; requires a good situation.

NECTARINES.

Elrue.—Medium size, one of the hardiest and best.

Hardwicke Seedling.—Large, handsome, and rich, very hardy.

Humboldt.—Very large and late, flesh yellow, flavour excellent.

Lord Napier.—The best early Nectarine grown.

Mursey.—Almost black, a grand old wall Nectarine.

Pine-apple.—Fruit mottled, flesh yellow, one of the best.

Pitmaston Orange.—Superb, tree delicate and not a strong grower; requires a good situation.

Rivers' Early Orange.—A good and early substitute for the preceding.

Stanwick Elrue.—Very fine, large, and worthy of extensive cultivation.

Violette Hative.—Large, handsome, and delicious, one of the best.

Victoria.—A grand late Nectarine, but must have a warm situation.

Eastnor.

W. COLEMAN.

Apple Claygate Pearmain.—I am exceedingly obliged to Mr. Coleman for his offer of scions of Claygate Pearmain, which I gladly accept, as I shall be pleased to try his and compare; but ours ought to be true, as the trees were obtained from a supposed reliable source, and yet it would seem they cannot be if the variety is hardy enough to do so well in the north. The soil here is not particularly suited to Apples, as it is light and shallow, for at 18 inches down we come on to a sandy gravel, but by trenching and working in our rubbish heap stuff below, we manage to grow very good fruit and keep the trees in fair vigour and health. I attribute much of the latter to periodical liming of the tops which we have again lately done with stone lime slaked and strained and then driven on quite fresh by using the garden engine. The coating the trees thus get settles accounts very quickly with all Moss, Lichen, American blight or other parasites, and makes the bark clear and smooth for several years after.—S. D.

How wine is coloured.—A recent issue of the *New Bulletin* contains a communication from the Chilean Consul-General in London respecting the use of the berries of a plant called the Maqui for colouring wines. The Maqui is a small evergreen shrub, common in Chili along the course of torrents, and in shady, mountainous woods. It is not cultivated, but grows wild, and the berries, which in Chili are eaten either fresh or preserved, are now beginning to be exported largely to Europe for the purpose of colouring wines. In the three years ending 1887, the exports were respectively as

follows: 26,592 kilos, 136,026, and 431,392. To France alone the exports during the same years were 500 kilos, 115,000, and 315,774. The Consul-General has no statistics for 1888 and 1889, but presumes that the increase went on in the same proportion. The berries are added to the Grapes in order to give the wine a good colour.

KITCHEN GARDEN.

NOTES ON ONION CULTURE.

Most gardeners, professional or otherwise, are very proud of a good bed of Onions, though why they should value these or their appearance more highly than other root crops is not quite so plain. Failures there are annually and always will be, but on the whole no great amount of skill need be expended on the production of a good crop, and it is equally certain Onions get more than their fair share of rich food. Large, well-formed bulbs are necessary for exhibition purposes, and fully-developed samples of the Tripoli section (three varieties of which are illustrated) are appreciated in most establishments, but for long keeping and real utility perfectly ripened, medium-sized bulbs are by far the best. This being conceded (it cannot be contradicted), the question arises, Why do gardeners as a rule aim at growing what after all are the least profitable and serviceable? It is no unusual occurrence for the intended site



Italian Tripoli Onion (one-fifth natural size).

for Onions to be either double dug or trenched, mixing solid manure freely with each spit, soot and other fertilisers being also used. Given this deep, rich, and comparatively loose root-run, in most cases the growth is rank, the bulbs correspondingly coarse, and also maturing and keeping badly. The larger the bulbs the greater the waste, more being cut away by the cooks than is made use of.

In many instances it may be necessary or advisable to grow Onions on deeply cultivated ground, but I hold it to be unwise to sow on newly trenched soil, it being scarcely possible to make this sufficiently firm without unduly trampling it. Better by far crop newly-trenched ground with Potatoes, these delighting in both a deep and loose root-run, and by the following spring a natural settlement will have taken place. During the winter the ground ought to be manured if at all poor and laid up roughly, a thorough pulverisation taking place by the time the seed ought to be sown. In ours and many other cases the Onions have to be grown on ordinarily manured and dug ground, but I always take care that this part of the work is done soon enough for either frosts or wind, sunshine and rain to completely break down all surface lumps. At the present time our com-

paratively heavy ground can easily be stirred about to a good depth with the foot, and a dry time being selected for seed-sowing, there will be little doubt about an even plant and heavy crop of Onions resulting. It is a somewhat time-honoured custom to sow Onions in succession to Celery, and in some instances this may answer well, but it will not with us. The surface certainly is at the present time in a very finely divided state, but owing to trampling



Flat Tripoli Onion (one-third natural size).

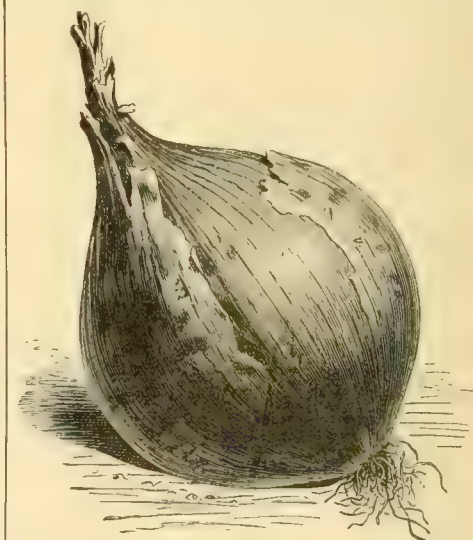
consequent upon lifting in all weathers, immediately below it is far too sodden. Celery also exhausts ground more than is often considered to be the case, and I do not believe in subjecting Onions to either extreme—that is to say, either poverty or over-richness. The Celery ground is therefore well prepared for Carrots, Parsnips, Salsafy, and Beet, these turning out of it most satisfactorily.

As a rule, Onion seed is sown as early in March as the state of the ground will permit, and many will have taken advantage of an unusually dry time in February to get it in. Those, however, who cannot get their ground into good working order at present need not trouble about it, as it is doubtful if anything is gained by sowing thus early, and in any case it will be found that it is far better to do the work properly at the end of March or early in April than to attempt it before the ground is in a suitable condition. Raised beds for Onions are fast going out of date, and there ought to be no necessity for pathways between any of the root crops. All that is necessary in the case of well-pulverised ground is to slightly level the surface prior to heavily and closely trampling it, a coarse rake being also passed over it, as there ought to be no inequalities. In many instances, it is not possible to get the surface sufficiently fine without recourse to forks or hoes of some kind, and not a few are under the necessity of covering the seed in the drills with sifted soil. The application of quickly-acting special manures may well be deferred till the plants are well up, but a liberal dressing of soot with just a sprinkling of salt added for light soils only may with advantage be stirred into the surface with forks before sowing the seed, this, in addition to being a good fertiliser, also acting as a preventive of Onion maggot.

Where the maggot is at all troublesome, preventive measures must commence before and accompanying seed-sowing, as it is of little use trying to combat it later on. It is my belief that solid ground and thin sowing, so as to do away with the necessity for much thinning out, are the most effective remedies that can be suggested. The flies which deposit their eggs at the base of young Onions have first to escape from the ground, and their egress ought, therefore, to be prevented as much as possible. According

to my experience, the maggot is most prevalent in gardens where the soil is of a loose or light character, and the best dressing for an Onion bed in this case is clay. This distributed over the surface long enough to become well pulverised and only just forked into the surface will cause this to bind and become more solid than heretofore, the Onion fly being considerably impeded in its movements thereby, while the crops will be also improved in other respects. When quite small beds are sown there is no reason why the old plan of distributing the seed thinly broadcast should not be followed, though I would advise amateurs to cover with an inch of fine fresh soil rather than to attempt, for them, the impossible task of raking in the seed. For the majority of gardens, sowing in drills drawn half-an-inch deep and from 10 inches to 12 inches apart is the most satisfactory practice. We find the greater distance best, and an ounce of seed being distributed evenly in drills equal to a length of 72 yards a good plant is secured and little or no thinning out needed. Only amateurs need be told that the White Spanish forms are the most suitable for present or spring sowing, the Tripoli section keeping badly.

As before stated, we do not fear the Onion maggot, but though usually escaping the loss of many roots from this cause, we are not so fortunate with respect to mildew. I have a weak-



Globe Tripoli or Madeira Onion (one-third natural size).

ness for grouping different kinds of vegetables as much as possible, but am obliged to well separate the autumn-sown Tripoli Onions from those raised in the spring. The former are much the most liable to be overrun by mildew, and from them it quickly spreads to the rest if they happen to be near them; hence the necessity of keeping them well apart. Onions and Strawberries succeed remarkably well together, both requiring good open positions and a firm, fairly rich root-run. Wherever, therefore, young plantations of the former are made, this not being done sufficiently early for the plants to attain a large size, there is much to be said in favour of the economical practice of either planting autumn-raised Onions or of sowing seed in the spring between the Strawberries, one crop not interfering with the other. The bulk of our autumn-raised Onions will shortly be planted between Strawberries. One row of Onions between moderately strong Strawberries and two rows when the latter are quite small is

all that should be planted or sown, but they may be grown more closely together in the row than customary in beds. We plant Tripolis 4 inches apart, while spring-sown Onions may be left in the rather wide drills, in which they ought to be sown about 3 inches apart.

W. IGGULDEN.

SALAD FOR WINTER.

WOULD any reader of THE GARDEN kindly advise me how to grow plenty of well blanched salad in quantity for winter use? I do not want the Chicory forced; it is too bitter. I grow plenty of Mustard and Cress.—VEGETARIAN.

* * Chicory used to excess will inevitably impart a bitter flavour to a salad, but mixed with Lettuce any time during the winter and spring months it both improves the appearance and taste of a salad, and in many establishments is considered indispensable. Lettuce, notably the close-growing Cabbage varieties, of which All the Year Round is a good type, can, with very little trouble, be had crisp and well blanched up to the end of October or thereabouts. In this case Chicory can be dispensed with, but ought always to be mixed with late Cos Lettuce and any of the Cabbage varieties that cannot be blanched late in the season. "Vegetarian" must therefore rely wholly or principally upon Endive, and, on the whole, this alternative is perfectly satisfactory. It is a comparatively easy matter to produce abundance of thoroughly well blanched Endive throughout the greater part of the winter and early spring months, or till such times as frame-grown Lettuces are available. We find the Louviers a superior early variety, and it also keeps well; but as this is not as yet generally procurable, "Vegetarian" cannot do better than grow the Green Curled, and with this the Broad-leaved Batavian. The last-named when grown to a good size and well blanched is nearly as crisp and sweet as the best summer Lettuce. Mixed with the more finely divided Green Curled, a salad attractive in every way is formed. When a failure occurs with Endive, this very frequently is either due to sowing too early or too late. In the former case the plants run to seed before they are fit for blanching; in the latter they do not, as a rule, attain a serviceable size. Endive succeeds best on a rather light, moderately rich and well worked soil. Instead of raising the plants thickly on a small patch of ground, the better course is to sow a good-sized breadth with seed, and the seedlings being duly transplanted elsewhere, those left on the bed will heart in early, while in the case of the latest sowings there will be a capital lot of plants on the seed bed conveniently disposed for protecting with frames or mats. From the middle to the end of June, according to the locality, is quite early enough to make the first sowing, the main crop being sown about the middle of July, while another sowing made early in August ought to be sufficient. We prefer to sow broadcast, this being done thinly and the seed covered with fine or sifted soil. We thus do away with the necessity for either thinning or pricking out, the plants being moved direct from the seed bed to where they are to grow. Endive succeeds admirably planted in succession to early Potatoes, Kidney Beans, or other quick-maturing crops, also between rows of young Asparagus and Strawberry plants. The rows of Green Curled ought to be 12 inches apart, a distance of not less than 10 inches dividing the plants in the row, but the Batavian being a stronger grower should be fully 12 inches apart each way. Seeing, however, that the latest sown will not grow to its full size, this in fact being undesirable, the plants may be grown more thickly, and with little or no protection will survive in the open until the spring, or they may be transferred to frames according as these are cleared of the fully grown and much more tender plants. It is of the greatest importance that Endive be thoroughly well blanched, and the better it is grown the more easily can this be accomplished. The blanching process ought always to be carried out piecemeal, only a limited number being taken in hand at one time, blanched Endive keeping

badly. The earliest and successional supplies may be blanched in the open or where they are established, either by tying up the outer leaves and enclosing in inverted flower-pots, or the plants may be covered with boards, slates, or hay. The main crops ought to be lifted carefully and stored rather closely in either frames, cool fruit houses, open sheds, or in a sheltered corner where they can be closely covered with mats whenever frosts are imminent, and, it is almost needless to add, this must be done before frosts cripple even the tips of the leaves. The blanching process may be carried out where the plants are stored, and much as advised in the case of open-air crops, or better still a moderate number can be transferred to a Mushroom house where they will blanch most quickly and surely.—W. I.

Scarcity of Parsley.—The scarcity of Parsley seems to have cropped up again, but though this is rather expected after a severe winter, one could hardly have thought there would have been any lack of that most useful commodity after such a season as that through which we have just passed, as we have had no frost to speak of, nor any weather that would account for Parsley going off. The truth is, we are getting this herb too double, or curled in the leaf for it to stand, as such holds the wet and never dries unless there is much wind to move and shake it about. Knowing this, I now go in for a bed or row or two of the commonest kinds I can get, but at the same time grow some of the best I can procure for garnishing, as the single does just as well for flavouring, and when a gardener has that, he never need fear being without, provided he sows or plants in the right place, which is in some sunny position in front of a hedge or fence on rather high dry ground, as there the common variety of Parsley will stand, whatever the weather may be. I am of opinion that the better way is to sow rather late and transplant, as the removal and check consequent thereon stop over-robustness and help to harden the plant. It is a good plan, when transplanting, to put in square patches that may be covered with a handlight, as these placed over the roots during winter, with their tops crossed so as to admit plenty of air, will so protect the leaves that they cannot take harm, and during snow they are handy to gather from.—S. D.

Potatoes for a sandy loam.—My soil is a sandy loam on the Kentish rag, and I should be glad to know what Potatoes (late ones) would do best on this.—E. C. L., *Ashford*.

MARKET GARDEN NOTES.

THE work of clearing the ground ready for spring cropping is now being pushed on briskly, and as the late severe weather has given vegetation a decided check, there are already signs that green crops will ere long realise better prices. It is after a good deal of the land is cleared, especially during April and May, that green vegetables are in most request, as the varieties in season are more limited than at any other date, and the young spring Cabbages take some time to attain size sufficient to satisfy all the market demands. Savoy, Cabbage Sprouts, Scotch Kale, and sprouting Broccoli are now in good condition. Dry wind frosts have enabled the carting of manure to be done under favourable conditions, and ploughing is being pushed on rapidly. Large breadths of Peas, Broad Beans, Parsnips, and Onions have been sown, and all available land is being prepared for successional crops, also for Radishes, Lettuces, &c.

EARLY POTATOES still claim the foremost place, and they monopolise the largest portion of most market gardens, for the great point in their favour is that they can be cleared off in time for a second crop of some kind or other. The land for Potatoes is heavily manured and deeply cultivated before planting takes place, and when the Potatoes are lifted, very little is necessary beyond levelling for the next crop; in fact, most of the winter Broccoli and green crops are planted without any further ploughing, as the firmer the soil, the stouter and

better the growth. The pink and white varieties of Beauty of Hebron are amongst the most popular of early Potatoes where quantity is required, but for quality and appearance, Ashleaf Kidney, Sharpe's Victor, and a few others are great favourites.

FORCED RHUBARB AND SEAKALE now meet with a ready sale, and large quantities of roots are being lifted for forcing, and placed either on the floors of the Mushroom sheds or else under the stages of forcing houses.

MUSHROOMS find a ready sale, as there are not many growers that make a speciality of them, but where they are well done few crops are so remunerative. Unfortunately, the idea is very generally accepted that they are a precarious crop. Pits and frames are now being fully utilised, as by the aid of a little bottom heat, early crops of Radishes, Carrots, green Mint, and other crops that mature quickly are got off in time for Cucumbers and other summer crops.

FRUIT PROSPECTS are now good, the cold weather having given a seasonable check to growth that in January was getting too forward, but which is now by no means unusually advanced. The clearing up of fruit plantations, collecting and burning all rubbish, manuring and dressing the trees, both for insect pests and to keep the birds from the buds, tying Raspberry canes, and dressing Strawberry beds require completing during the short period that remains before growth will be active. Preparations for grafting are being made, the time for that operation being close at hand. The grafts should always be cut off at mid-winter and laid in a cool damp place, and the stocks be headed down to within about 1 foot of where it is proposed to graft.

JAMES GROOM.

Gosport.

NOTES OF THE WEEK.

Pansy in flower.—A plant of a seedling Pansy of last year is as full of bloom now (February 24) in a border here as one might expect to find it in June, and the flowers are not shrivelled in appearance. This, for Yorkshire, is a clear testimony of the mildness of the season.—R. C. H.

Azalea Mme. Van de Croussen.—This is a beautiful variety. It is grown both on the Continent and in England for the market. The flowers are large and bright rose-purple, very telling. Several plants of it were covered with bloom the other day in Messrs. H. Williams and Son's nursery at East Finchley.

Cattleya Percivaliana alba.—Please say through THE GARDEN what you think of the enclosed white Cattleya. Is it a white Percivaliana? It is growing in the same clump as the above variety. It is an imported piece I bought for Percivaliana eighteen months ago.—J. E. R.

* * Undoubtedly; and a very good form.—Ed.

The Tenby Daffodil.—A bed of this, quite one hundred yards long, was bursting into bloom the other day in the Epsom nursery of Mr. Morse, but the severe weather of the past few days will arrest the expanding flowers. In some soils, as at Epsom, this grows freely, but with Mr. Walker, at Ham, it is not so satisfactory—others finding that it even dies out, as in the case of the common English Daffodil.

Orchid flowers in New York.—The use of Orchids for decoration, says a New York paper, has been more prevalent the two last seasons than ever before. Untold sums are spent each year for floral decorations for ball or dining-rooms, and the greater part of all this money finds its way into the Orchid growers' pockets. A table decoration not infrequently costs £40, when the richest specimens are used, but good effects can be got for £4 to £10. Boutonnieres and bride's bouquets of Orchids are at present much in use. A wedding bouquet made of the white Cattleya Trianae, which is one of the rarest of plants, is said to have cost a fabulous sum.

A yellow Sweet Pea.—This is to be found in one of Mr. Eckford's new varieties which is being distributed this season for the first time under the name of Primrose. The standards and wings are of a pale primrose-yellow, uniformly coloured throughout, the flowers large and stout. Mr. Eckford has been so fortunate in throwing new

shades of colour into our fragrant Sweet Peas, that he is certain, in course of time, to develop a deep yellow-coloured variety. He has given us blue shades also, and one of his new varieties of this season, named Captain of the Blues, the standards bright purple-blue, the wings pale blue, is a decided and striking advance upon the blue Sweet Peas, and will eventually prove a great favourite in gardens for cutting.—R. D.

Chimonanthus fragrans.—The present winter, with its mildness and marked scarcity of snow, has been most favourable to the flowering of the above-named shrub on open walls. I never remember to have seen it flowering so freely. Every garden that could give the wall space should have a specimen of this *Chimonanthus*, for shrubs that flower in the dead of winter are few, and none others have such a delightful fragrance. The flowers, though rather dull-coloured, look pretty when closely inspected; but when a few sprays of blossom are cut and placed in water in a warm room, they will remain fresh a long time. It is no trouble to grow, in fact, a rather poor soil should be given it, to encourage a moderate growth of spray, as it is the weaker branches that flower the best. The strong shoots which are sometimes made are best cut away. If planted in too rich a soil, the shoots are very vigorous, but such a specimen flowers very sparsely, if at all.—H.

The weather.—With Apricots in full bloom, and other things correspondingly forward, the severe frosts we are now getting are likely to do serious injury to many things. Frost set in rather sharply on the night of Feb. 27, when we registered 18° of frost, the next night 16°, and on March 1, after a heavy fall of snow, 18° again; since then the cold has increased, for on the 2nd inst., and again last night or early this morning, it fell to within 3° of zero, or 29° of frost. In the Rose garden this weather will prove very trying, as all classes of Roses are very forward; while up to the present sharp weather the Teas had not a bud injured, and were in many cases growing strongly. Tea Roses, which come through this ordeal safely, will have established their reputation as thoroughly hardy kinds. Yesterday and to-day the sky has been very clear and the sun powerful, adding an additional cause for alarm, as the rapid thaw which takes place among things in the full sunshine adds considerably to the fear of injury. At the time of writing there is every appearance that the frost will continue. It is to be hoped that this very cold weather is only local.—J. C. TALLACK, *Livermere Park, Bury St. Edmunds.*

Palms in the open air.—It seems absurd, when we have such a wealth of beautiful shrubs and trees that will stand the severest winter with impunity, to attempt to accustom Palms to the vicissitudes of the English climate. This is done in more places than one, and in the mild, balmy climate of the southern counties tender things like Palms may succeed and give pleasure by the unusual richness and distinctness of their leafage. But the bedraggled specimens further north, the leaves torn and seared by sharp winds, and altogether most unhappy in their unnatural position, are no ornament—rather a disfigurement—to garden scenery. It is not essential to call in their aid to beautify the parks or gardens of England, except, perhaps, in subtropical arrangements, in which tender things are simply used for summer embellishment. There are many beautiful trees and shrubs quite hardy in the open and giving rich beauty, either in the flower or leafage, that are almost unheard of, whilst they should be common. The neglect of these is more felt when we find gardens planted and disfigured with struggling Palms that if supposed to give a tropical tone to the scenery fall painfully short of the idea intended. It is not rare to see a kind of cage covered with canvas fixed over these unhappy plants during the winter, and then we have a big, ugly, improvised shelter to make wretched blots in the garden in the winter months.

Dendrobium litiuiflorum.—Several large plants of this beautiful Dendrobe are now opening their flowers in the warm Orchid house at Kew.

Notwithstanding the many species which are in full bloom at this season, there are few that surpass this in beauty or profusion of bloom. The flowers bear a great resemblance both in outline and colour to those of the finest varieties of *D. nobile*; they are not so large, however, being about 2½ inches across. The sepals and petals are chiefly of a bright amethyst-purple, paler towards the base, the somewhat trumpet-shaped lip being of a deep maroon, the front portion white. The blooms are mostly produced in pairs at each of the nodes of the old pseudo-bulbs, the latter being slender and about 2 feet high. It is a native of Assam and Tenasserim, and thrives under the treatment usually given to tropical Dendrobiums.

Camellia reticulata.—Without doubt this is the finest of all *Camellias*. In the temperate house at Kew, a large specimen several feet through and about 9 feet high is now bearing a great number of the gorgeous flowers. The stiffness of the blooms of *Camellia japonica*, which probably is the cause of their decline in public favour during recent years as flowers for personal decoration, is entirely absent in this, the petals being undulated and loosely and irregularly arranged. The flower is 6 inches or more across, and of the brightest rose-red. The specific name refers to the reticulations of the oblong serrated leaf. The species is a native of China, whence it was introduced in 1824. At Chiswick House there is a fine specimen growing over the back wall of the conservatory, and in the Royal Horticultural Society's gardens there is a large plant trained close to the glass in a low pit. The plant at Kew is growing in the open beds and is in splendid health. As showing the range and variability of this genus, the little *C. roseiflora* may be mentioned. It is in flower in the same house, and has rose-coloured flowers, each about an inch across. It is pretty, but not of sufficient merit to rank as a good garden plant.

Cœlogyne conferta.—This species appears to be but little known in gardens. It has been in Sir Trevor Lawrence's collection for some time, and is now represented at Kew by a well-flowered plant. It is certainly a charming species and only requires to be better known to be appreciated. The pseudo-bulbs are conical, pale green, and about 1½ inches high, surmounted by two short leathery leaves. The scapes are three-flowered, and they appear with the young growths at the base of the old pseudo-bulbs. The flowers are each 1½ inches across with sepals and petals of the purest white. The sides of the lip erect at each side of the column are white marked with a few transverse bars of orange-yellow, the front part being also white with a blotch of yellow on the centre. This is the dwarfest of a group of several closely allied species of which *C. ocellata* and *C. corymbosa* are perhaps the best known. These should all be grown in the intermediate house, and succeed best when potted in a compost of peat fibre and Sphagnum Moss with abundance of moisture at the root. Grown on rafts and suspended from the roof they are very effective when in bloom, but a substantial layer of the compost should be placed about the roots, otherwise they dwindle away through insufficient nourishment. *C. ocellata* and *C. conferta* are natives of N. India, where they are found at several thousand feet altitude. *C. corymbosa* comes from Moulmein.

The Chinese Narciss or Joss Flower.—Seeing Mr. Burbidge's article in your paper last year on the Chinese Narcissus or Joss Flower, I purchased a dozen bulbs from a nurseryman, in whose catalogue appeared an illustration, fanciful or otherwise, of the bulb when in flower, with four or five spikes, each with about a dozen flowers, accompanied with cultural directions for growing in water. Three of these bulbs I have tried to grow in shallow vessels with water and gravel, with the result that each has split itself up into three or four smaller bulbs, each of which has thrown a spike with one, two, or at most three flowers. The remaining nine I have potted like ordinary Polyanthus Narcissus, but these have not yet flowered. Can you or any of your readers tell me whether better results than those just mentioned have been attained? If not, the Chinese Narciss would seem vastly

inferior to the ordinary Polyanthus Narcissus, unless those in pots do better. As I have seen no mention made of the trial of these bulbs in your paper this year, perhaps some of your readers may be induced to relate their experience of them.—W. C. ATKINSON.

A singular flower is *Callipsyche mirabilis*, which may be seen now in the stove at Kew. It belongs to the Amaryllidaceous family, and was introduced from the Andes of Peru in 1868. The flowers are of remarkable character, consisting principally of stamens, which are fully three times the length of the yellow-and-green calyx, from which they protrude quite 4 inches, bending over in a not inelegant way; they are dull white. Several blooms are carried in an umbellate head, but although exceedingly curious, have no intrinsic beauty to justify the existence of more than one or two specimens in the stove. It likes a rich loamy soil and well-drained pot, as plenty of water is wanted in the growing season.

Staphylea colchica.—Those who have not yet used this *Staphylea* for forcing into bloom in the spring should do so. It is one of the best shrubs of its kind for this purpose, not only for its easy culture, but also for the distinctness of the drooping panicles of white flowers that have a strong aromatic perfume. In several gardens now it is the most agreeable plant in bloom, and the usual way of growing the plant is by keeping it in pots. Prune back after flowering to a good bud, and when a little heat has been used to promote growth, the plants may be hardened off and plunged in the open. This and the Purple Cherry Plum are two of the most recent shrubs used for forcing, and certainly two of the most effective.

A rare and beautiful flower that is now in full beauty in the Palm house at Kew is *Alpinia nutans*, which will recall to mind the better-known *A. nutans*. The plant is of elegant and vigorous habit, the leaves long, rich green, and tapering somewhat sharply to a point, resembling in character those of the *Hedychium*. But the chief charm is the flowers, which are carried on an erect spike and display rich and unusual colours. They are white, with the base crimson, in the bud, but when fully open the calyx is pure white, and the lip of the corolla, that likens the flower to that of an Orchid, is deep orange, brilliantly striped with crimson and finely crisped at the edge—a beautiful contrast of intense colours. Such a plant we might hope would soon become more common, but it was only introduced from Penang and Malaya in 1882.

Saxifraga macropetala.—Amongst the *Saxifraga oppositifolia* set flowering at present, we have seen few more beautiful or desirable than this one. It was at first thought to be a hybrid between *S. biflora* and *S. oppositifolia*, but though somewhat resembling both it has little in common with either. Its regular habit and upright growths, large deep purple flowers with a dark line near the base, mark it as amongst the most desirable of this group. It was found a few years ago by Dr. Kerner, who described it for the first time in Dr. Engler's synopsis of this genus. It is quite as free and as easily established as the old forms. *S. Rudolphiana*, said to be a hybrid, has proved an uncommonly useful plant. It flowers very freely, and is easily distinguished by the square or decussate form of its dark green leaves and its rich purple-red flowers. This is rather a scarce plant in gardens, but a most desirable one, even where all the *oppositifolia* forms are grown. *S. oppositifolia alba* we find also a most useful free-flowering form, particularly useful for pots.—K.

Hardenbergia Comptoniana.—This *Hardenbergia* is now flowering freely in the greenhouse at Kew. It is a slender growing climber with the leaves divided into leaflets three or five in number, while the small Pea-shaped blossoms are borne in crowded racemes, and their colour (a rich violet-purple) is very distinct. This *Hardenbergia*, in common with several of its allies, is far more useful as a rafter plant in a greenhouse than many stronger-grow-

ing subjects which are often employed, as by this very little light is obstructed, and consequently the plants beneath are in no way injured, which will frequently happen where more vigorous climbers are employed. The *Hardenbergia* can be struck from cuttings, and besides this seeds are sometimes obtained which germinate readily and grow away quickly. Another species of *Hardenbergia* is *H. monophylla*, the blossoms of which are also purple. *H. Comptoniana* is sometimes met with under the name of *H. Lindleyana*.—H. P.

Orchis Robertiana.—I send you by parcels post a spike of *Orchis Robertiana*, which has been in bloom with me under glass for three weeks. I purchased some roots of this plant from a Dutch firm in whose catalogue it was advertised as a good species for pot culture. I do not think it so well worth growing as *O. maculata*.—W. C. ATKINSON.

Beaumontia grandiflora.—We were reminded of this beautiful Indian plant by a spike of flowers in the stove at Kew. It belongs to the Dogbane family, and claims as relatives the *Dipladenia* and *Allamanda*. There are not many handsomer indoor plants than this *Beaumontia*, of which a coloured plate was given in THE GARDEN, Sept. 24, 1887. It is of bold growth, the leaves large—about 8 inches long and 3 inches wide—and rich green, forming a noble background for the glorious flowers, that are between 4 inches and 5 inches long, pure white, distinctly bell-shaped, and produced in a terminal corymb. *Beaumontia grandiflora* was introduced from Sylhet, in India, about fifty years ago, and was at one time much sought after, but it has gradually become quite rare. It is easily grown, requires an intermediate temperature, and does best planted out in a border. Our plate was drawn in the garden of Earl Cowper at Panshanger, where this *Beaumontia* is well cared for.

Single Chinese Primulas.—There is a remarkably fine show of this greenhouse flower in the nursery of Messrs. Cannell and Sons at Swanley, who have by careful hybridising and first-class culture raised a splendid series of varieties, in which we have the full perfection of the Chinese *Primula* as now attained. There is a rich range of colour, a breadth of petals, fulness and substance that the old florists would scarcely have dreamt of. This great advance has been chiefly confined to the single kinds, and we give the names of a few of the best. *White Perfection* is represented by a large batch. It is a beautiful white flower, with a deep yellow eye or centre, very free, and with Fern-like leaves. *Her Majesty* is another fine white, and of Cannell's *Pink*, a delightful recent acquisition, the flowers of tender pink colouring, we have already said sufficient; it has been described before. *Eynsford Red* is the freest of the red coloured varieties, the flowers very bright and telling; and another excellent kind in the same line of colour is *Improvement*. The Queen still retains its hold, and a coloured plate of it was given in THE GARDEN for August 5, 1885. There are many other named varieties, as the mauve-white *Princess Beatrice*, *Swanley Blue*, and *Miss Cannell*, all having an unusual boldness of form and clear and distinct colouring.

Hardy flowers at Broxbourne.—We have just experienced one of the most trying frosts that early spring flowers could possibly have, 24°, 18°, &c., of frost having been registered, penetrating frames and coverings of all kinds. Amongst the flowers that have stood the frost without being damaged is *Iris reticulata*. A cluster of this with the large twin-flowered *Carpathian Snowflake* side by side is one of the prettiest things in our garden this morning. *Anemone blanda* seems scarcely damaged, also what is called the white variety which we think quite distinct in foliage and habit (specimen enclosed). *Iris Rosenbachiana* and varieties of it are most beautiful, and promise well for the outside garden when more plentiful. A very dark form of *Iris Krelagei* has been lovely (we enclose a specimen). *Helleborus corsicus* is conspicuous at a distance on the rockery by reason of its drooping bunches of very pale green flowers. Amongst *Crocus*, *C. Imperati* fl.-purpureo has been the finest as yet, the flowers being larger

and deeper in colour than those of the type and it grows freely. *Galanthus Sharlocki* is in full bloom, with its curious pair of leaves twisted over the drooping flowers, which have green on the outer segments; very quaint. *Iris reticulata major* is a grand addition to free-growing spring bulbs, being larger in all its parts and much earlier than the type. The tufts of *Saxifraga oppositifolia* are just now freely studded with their lovely rose-coloured flowers resting on the dark green leaves. This is one of the finest of early rock plants. *Megasea Stracheyi* in the frame is a mass of Apple-blossom-like clusters of drooping flowers, which will be in April followed by large pea-green foliage. Much has been said of *Saxifraga luteo-purpurea*, but not too much, as here nearly 200 specimens flowering freely give us a fair chance of proving how useful and lovely a plant it is; it is also of most easy culture. *Cyclamen coum*, *C. c. album*, *Erica carnea*, *Galanthus Elwesii*, *Chionodoxa cretensis*, *C. c. albiflora*, *Scilla bifolia*, and *S. bifolia alba*, with those mentioned, form the bulk of the flowers now in season. The Lenten Roses have been very beautiful since January.—PAUL AND SON.

** With this interesting note came flowers of the white *Anemone blanda*, a pure white, delicate flower, and an excellent form of *Iris Krelagei*.—ED.

The winter Windflower (*Anemone blanda*), on account of its blooming now, is a truly charming spring flower, as early as the Snowdrop and Snowflake, and brightening our rockeries and borders with its deep sky-blue flowers long after these spring heralds are past. It produces a longer succession of bloom than any other of its near allies, and from towards the middle of December until *A. apennina* appears in late spring, *A. blanda* is a continual source of interest. Open winters, of course, are most favourable to realise fully what we have stated above; but even now, after 20° of frost, the blooms have not suffered in the least. It is a native of Greece and Armenia, and we believe from the latter district a large consignment has been brought quite recently, so that we may soon expect to see this deserving plant in every garden in England.

Amorphophallus Titanum, which created remarkable interest at its flowering last year in the Victoria Regia house at Kew, is not dead, as reported. The plant is in the most vigorous health, and the stem has risen several feet in height.

Oncidium prætextum.—A spike of this beautiful *Oncidium* comes from Mr. E. H. Woodall, of Scarborough; the flowers very sweet-scented, brown, blotched and barred with yellow. Its fragrance alone would make it a valuable species.

A noble Agave is *A. americana* variegata, and a splendid specimen may be seen in the Cactus house at Kew. The leaves are very broad, rich green in the centre, which passes off into a lighter shade, the margin deep orange-yellow. At this season when flowers are few, the striking character of such leaf variegation as this gains more attention.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Caledonian Hotel on Friday, the 28th ult., Mr. George Deal presiding. The minutes of the last meeting having been read, a letter was read from Mrs. Wildsmith, thanking the committee for their letter of condolence with her on the death of her husband, an active supporter of the fund. Among the special receipts announced was a donation from Mr. William Robinson of £15, and Mr. J. Hughes, the indefatigable local secretary at Birmingham, sent the sum of £14 0s. 11d., quite one half of this sum being from annual subscribers. The matter of the annual floral fête at Covent Garden was discussed, and it was resolved that a meeting of the market growers and salesmen be called at the Hummums Hotel on Friday, March 14, at 9 p.m., to confer with the committee, with a view of securing their co-operation and making arrangements for the fête. The annual meeting of the subscribers to the fund, the election of children, and the annual dinner were provisionally fixed for July 18, subject to certain indispensable arrangements. After some discussion it was unanimously resolved: That ten children be placed on the fund at the next

election. The usual vote of thanks to the chairman brought the meeting to a close.

RAINFALL, 1889.

I BEG to forward you the rainfall for 1889 at Belvoir Castle, 237 feet above sea level, and that at Belvedere House, Mullingar, 367 feet above sea level. In England 32.42 fell, in Ireland 33.78, the 19th of August in the latter country being marked by a fall of 2.28 inches. In Ireland the fruit crops were very bad; Roses fair, and herbaceous plants good. The grain crops about an average, but very different from what in the early season was expected. B. MARLAY.

Month.	Total depth.	Greatest fall in 24 hours.		Number of days on which .01 or more fell.
	Inches.	Depth.	Date.	
January ..	1.82	.58	11	11
February ...	2.59	.43	10	20
March....	2.92	.56	6	15
April ...	2.56	.45	3	19
May ...	2.69	.65	5	14
June ...	0.83	.38	1	7
July ...	2.62	.64	22	12
August ...	5.78	2.28	19	21
September...	2.03	.42	18	14
October ...	5.29	1.87	18	17
November ...	1.69	.56	24	12
December ...	2.96	.67	28	16
	33.78			178

—JAMES BAYLISS, *Belvedere, West Meath.*

Month.	Total dep h.	Greatest fall in 24 hours.		Number of days on which 0.1 or more fell.
	Inches.	D. pth.	Date.	
January ...	1.66	.55	10	13
February ...	2.03	.50	11	19
March....	3.27	1.53	9	12
April ...	2.96	.60	11	19
May ...	6.28	.80	8	20
June64	.23	9	8
July ...	3.06	.85	14	18
August ...	3.43	.95	22	18
September	2.60	1.07	24	11
October ...	4.04	.57	28	27
November59	.15	25	12
December ...	1.86	.40	22	18
	32.42			195

—WILLIAM INGRAM, *Belvoir Castle, Leicester.*

Single Banksian Rose.—Can any of your readers kindly tell me where I can get the single Banksian Rose?—T. R.

Azalea flowers failing to open.—Can any reader of THE GARDEN tell me why the flowers of *Azalea Deutsche Perle* when half expanded turn of a rusty colour and die? The plant is about five years old, and is in a 7-inch pot which is full of roots. The plant, which is potted in peat and sand, appears to be in good health.—G. ROUSE.

Sparrows in the garden.—We suffer from a perfect plague of sparrows at present. They eat all the buds of the Daisies and Primroses, and though we have the Ivy which covers the house constantly netted, we fail to catch more than half-a-dozen in one night. What can we do to get rid of them?—M. J. MACRAE.

Protecting frames against cats.—I wonder that garden-frame makers do not devise some protection against cats. It could be done in a variety of ways, and for either end of the frame. It would be most useful, especially in the gardens of suburban residents, where cats are so numerous. It is often difficult to give sufficient air to the frames, because a cat may get in and do much mischief to seedlings or young plants.—JNO. C. PARE.

Names of plants.—*Thomas Down.*—*Cologynae Massangeana.*—*W. Boyles.*—1, ordinary form of *Dendrobium Wardianum*; 2, *Dendrobium heterocarpum.*—*G. M. G.*—*Microlepia Novæ-Zelandiæ.*—*M. Moody.*—*Rhododendron Falconeri.*

WOODS AND FORESTS.

NATIVE AND FOREIGN LARCH.

THE Larch is the most valuable of all our forest trees. About forty years ago the Tyrolese seed was first introduced, and for many succeeding years I sowed tons of this. At that time the seed was collected on the higher ranges. The produce was remarkably fine, and commanded a higher price than the best native; but the supplies were soon exhausted, and the collectors came down to the lowlands, where seed was more easily obtained in large quantities. Nurserymen soon observed the great difference, as the produce of the latter proved too tender for our climate, and we were forced to return to our native seed, which has always been thoroughly hardy. A large quantity of seed is obtainable in Ireland, but the north of Scotland is the great gathering field. From the difficulty of collecting and cleaning it, it has always realised a high price, and in some seasons the crop proved an entire failure. This induced the German collectors to ship large quantities of foreign seed to the Scotch ports, and which they were able to sell at a lower price than the Scotch seed. In some cases it was sold as Tyrolese; in others it was mixed with the home seed. It always proved tender, and unsuited for our climate. To Scotch and Irish seed growers it has long been a subject of anxious and constant debate to devise some plan to prevent the introduction of this spurious article. In trees planted side by side the difference is most marked; while one will yield valuable timber, the other is perfectly worthless, and I have seen many plantations both in Scotland and in this country which, after years of waiting, can never prove of any value. Some 20 years ago I had, in this country, the disposal of a wood about 50 acres in extent. Two-thirds were native Larch (35 years' growth), and one-third foreign (about 20 years old). The first brought a large amount, the second were covered with cones, proving premature decay, and did not produce £10 per acre. I could point to many other Larch plantations, the produce of foreign seed, equally worthless. All the Scotch nurserymen anxious to obtain the genuine article, without adulteration, are obliged to send their own collectors. As tree-growing and the covering of our waste lands must soon force themselves on public attention—and I am glad to say that there is now a revival in this direction—I feel it to be a public duty to call attention to this most important matter. I will now, as briefly as possible, give you the opinion of one of the most experienced Scotch nurserymen and large contract-planters. The work is "Arboriculture," by the late Mr. John Grigor, of Forbes, published 1868:—

We often see Larch stricken down when young and in the vigour of growth in the absence of any visible disease, assuming all the appearance of an exotic of too tender a constitution to endure the climate of this country. This sometimes occurs in the vicinity of plantations of the same species, which luxuriates in the same description of soil in France, Germany, Prussia, &c., in a climate adapted to the Vine, so that seeds grown in such districts and imported have failed to such an extent as to cause the Larch in some parts of our country to be altogether abandoned as a timber tree. Hence the sad spectacle to be met with in many extensive plantations of hundreds of acres of Larch of no value. The Larch in congenial soil produces a greater quantity of valuable timber than any other tree. The great mistake which has hitherto attended its cultivation has been a complete disregard of the acclimatisation of the plant; hence the

diversified state of the Larch plantations throughout Scotland. Some are vigorous and profitable, others blighted, though standing in the same description of soil and climate. There can be no doubt that the reason why acclimatised plants of Larch are so seldom sought after is, that the great difference between plants from home seed and those from foreign seed is not known; if it was, a judicious planter would no more allow the plants from foreign seed to be inserted in his plantation than he would any other half hardy tree.

All that has been written above applies equally to the native and foreign Scotch Fir.

For many years Continental seed has formed the chief supply of the British nurseries, yielding not less than 20,000,000 of plants yearly, and during unfavourable seasons for the produce of native Larch seed the plants raised from Continental seed have amounted yearly to a much greater number. The quantity of native Scotch Fir seed sown in Britain of late years has been less than a tenth part of that imported from the Continent and sown throughout the country.

What is the remedy for this terrible evil? There are two that I would suggest. First, let the law make it penal to vend foreign seed or plants as native; second, buy only from men of well-known character, and have their guarantee. —RICHARD HARTLAND, *Lough View, Cork*, in *Irish Times*.

PINUS BENTHAMIANA.

THIS noble Pine is a native of the mountainous districts of California, where it is said to attain to a height of from 100 feet to upwards of 200 feet with a uniform thickness of trunk. It was introduced into this country by Hartweg in 1847, and although it has proved perfectly hardy and has withstood our severest winters since that date, yet it does not seem to be altogether at home when planted on wind-swept districts, more especially when the site of the plantation is in the vicinity of water. This may appear rather strange, as Hartweg is said to have first met with it on the mountains of Santa Cruz, a coast range running due north across the bay from Monterey. From this circumstance one would think it would thrive in similar situations in this country, but as far as I have seen this is not the case. Some thirty years ago I planted some specimens of this Pine on the margin of a lake, and although the soil is of good average texture, yet the trees made but slow progress in comparison with other Conifers in the same plantation. Some of the best specimens of this tree which I have seen are growing in a moderately sheltered, but not confined situation, where the soil is of a loose gravelly texture and perfectly dry.

The tree when thoroughly established, and indeed at all stages of its growth, is rather bare and deficient of side branches in comparison to many others of the Pine tribe, and besides it never brings up the thickness of stem in anything like a uniform proportion according to its height. This is a serious drawback to its profitable culture in this country. Isolated specimens when well clothed with side branches from the ground upwards no doubt give the spot a furnished appearance, but some people prefer seeing a clean bare trunk surmounted with a canopy of green branches and spray, and to such Bentham's Pine is all that can be desired. As the tree is very impatient of damp at the roots, great attention should be paid to draining where requisite. Many Conifers thrive remarkably well when planted on deep mossy ground provided it is well drained, but this tree is an exception to that rule. When the tree is planted under favourable circumstances as regards soil and site, it makes a noble specimen and is well worthy of extended cultivation.

J. B. WEBSTER.

A VALUABLE paper on "The Utility of Forests and the Study of Forestry" was read before the Indian Section of the Society of Arts by Dr. W. Schlich, Professor of Forestry at the Royal College of Engineering, Cooper's Hill. In the course of his re-

marks Dr. Schlich gave an account of the instruction in forestry at Cooper's Hill, and mentioned that the authorities were thinking of appointing a second professor of the subject, and thus doubling the amount of instruction now given. After the reading of the paper, Major-General Michael, C.S.I., who presided, made some interesting observations. No one, he said, who had visited the great forest regions of Germany, Austria, and France could fail to be impressed with the visible effects of good management, and to wish they were more generally apparent in England and Scotland. There were signs that the education and practical training of foresters were being more thought of at the present time in England, and he ventured to predict that Dr. Schlich would shortly have a good many students under him who were destined for home employment and not for India only. Personally he knew more about the value of forestry and the life of a forester in India, having spent seven or eight of the happiest, and perhaps the most useful, years of his youth as a forest officer. That was more than forty years ago, before the time arrived for experts like Dr. Schlich and his distinguished predecessor, Sir Dietrich Brandis, to come to the country. He could, therefore, tell any of Dr. Schlich's students who might be present that the life of a forester in India was not only a career of importance, but that it was one full of interest and of real enjoyment. The formation of the department in which they would serve had justly been characterised by Sir Richard Temple as one of the greatest achievements effected in India during the Queen's reign.—*Nature*.

Qualities of the Austrian Fir.—Some twenty or thirty years ago it was written of this Fir that "so highly is it esteemed by many that it is thought it may ultimately supersede the Scotch Fir, but for the higher price of young plants which has hitherto acted in some measure as a check upon its universal diffusion." The tree, it appears, is more suitable for different soils than the Scotch Fir, produces better timber in the south than the latter does, and is a far better tree for shelter. The Austrian Pine is now much commoner and cheaper, and, speaking from experience of it on a large scale with living trees of all ages up to about forty years, I am prepared to say that the Scotch Fir cannot be compared to it in any way under equal conditions in the south. In taking a general survey of some plantations lately, it was plain to the most casual observer that the Austrian had the advantage over the Scotch Fir in all cases, both being planted in equal quantities on the same ground. For shelter purposes the Scotch Fir cannot compare with it, and it is not affected by the white blight, as the Scotch Fir is in numerous instances and to a very serious extent in the same plantation. I notice also that the Austrian Fir contains an unusual quantity of resin—an important factor in the quality of Pine timber, and one which constitutes the main difference between good and bad examples of the Scotch Fir, the best examples containing most resin, and *vice versa*. I am not the only one who has noted this, for I have either heard or read somewhere that the Austrian Fir produces more resin than any other European tree.—Y.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

A GARDEN BY THE SEA.

ALREADY many of those who are obliged to spend the greater part of the year in the smoke and din of our large cities are looking forward to a well-earned holiday. Some people say that anticipation of the pleasure is itself a great part of the enjoyment of a summer outing; and there is a good deal of truth in the saying. Few places are more delightful for a summer resort than Scarborough. It is not my purpose to write about Scarborough as a seaside place with more than usual attractions for the summer visitor, but to speak of one special attraction, the garden by the sea. In passing, I must not forget to pay one debt of gratitude to Scarborough for its gift to the world of English gardeners in the shape of the Scarborough Lily, *Vallota purpurea*. I do not quite know why that beautiful autumn flower bears the name of the queen of watering-places, but, as it does, when I see a pot well filled with the fine red blossoms and the dark green leaves of the *Vallota*, I feel grateful to Scarborough for the gift of so much beauty.

Many who go to Scarborough do not care very much for the restless throng, who spend a great part of every day in walking up and down the terraces at the Spa, but prefer a quiet seat and a book where they can at once enjoy the sea and, undisturbed by constant passing and repassing, pore over the pages of their last selection from the library. But this pleasure is much increased when one can find such a seat in a pleasant garden, sheltered from almost every wind and fragrant with flowers.

A great deal of ingenuity and doubtless a great deal of expense have been bestowed upon this garden. You enter at the top of the south cliff, a good way beyond the last house of the town. The well-kept walks wind down a steep hill, with beds and banks of flowers on either side, which last summer were wonderfully bright and pretty. In order to keep off the rough and cold winds coming from the sea, high banks have been raised, which completely shelter the plants, and at the same time catch all the sunshine, which in the north is especially precious. A sweet-scented little cruciform flower, whose acquaintance I had never previously made, was so fragrant, that the evening air was delicious with its perfume. [Probably the *Night-scented Stock* (*Matthiola bicornis*).—Ed.] At the back, against a low paling, put up for the purpose of protection from the sea breeze, there were Hollyhocks in full vigour, and all unmindful of northerly winds. In front of these were Lilies—*auratum*, *tigrinum*, and *Harrisi*, &c.—with a profusion of other strong-growing border plants in the foreground, especially grand masses of large pure white double Poppies. The *auratum* Lilies did not look quite happy, but everything else did. There was no attempt at bedding out tender plants. A few yards from the entrance you come upon a lovely view; the path winds down into a steep ravine, which goes down to the sea, and on the opposite side rises with a steep ascent, clothed with banks of flowers. As far as the eye can reach is the great wide stretch of sea, with the dark sails of numerous herring boats, the long trail of smoke from steamers on their way to Hull or Newcastle, and nearer to the shore the little pleasure

boats scudding along under one large square sail. The flower beds go to the very bottom of this dell, till the lowest beds of all are so close, that they must constantly be bedewed with the spray from the waves, which dash heavily against the rocks at high water whenever the wind is from the north or east. The beauty of the garden consists not so much in the flowers themselves, although they are exceedingly well arranged and carefully trained, as in the proximity of the place to the sea, and the singular combination of the wild open German Ocean with the sheltered and luxuriant shrubs and flowers.

Scarborough, as everyone knows, is divided into three separate towns. First there is the fashionable quarter on the south cliff, which has the advantage of the garden above described; then there is the old quarter, given up to fishermen; and further on, the north cliff, which is extremely jealous of its more favoured and more fashionable neighbour on the south cliff. Here there is no Spa, but there is one of those intolerably ugly piers, which spoil many a beach on our beautiful coast, a fine stretch of sand, and a distinctly more bracing air than on the other side. That which interested me most last summer was to see the haste with which the north side was endeavouring to imitate the garden of the south. Numbers of men were employed, banks were being raised for shelter against the north, and evidently it is intended, in the course of as short a time as possible, to turn the whole cliff into a garden, something like the more advanced one on the south. Already numerous beds of flowers are grouped round the sheltered band-stand, but it will be impossible on the wild north side to emulate the south in the pleasant fragrance and beauty of its "garden by the sea."

A GLOUCESTERSHIRE PARSON.

WOMEN AND GARDENING.

I READ with regret Mr. Dean's account (THE GARDEN, p. 211) of the low position occupied by women in market gardens, and I am glad to say that in the few private gardens that I know in which women are employed their status is considerably higher. Many branches of gardening are so eminently suited to women, that their exclusion from them would seem to be due merely to slavery to custom. In quite the olden times, when some of the modern extensions of "woman's sphere" were undreamed of, even then the garden almost as much as the house was regarded as the woman's department. Women do and always have done a large part of amateur gardening, and it is to be regretted that they have not been enabled to take any share in it professionally. There are many women on whom the decree "Man for the field, woman for the hearth," bears hardly; they have naturally a strong love for out-of-door life. Sedentary employments are distasteful to them and household work is not congenial; in gardening they would find a healthful and natural outlet for their energies. Mr. Dean's picture of this poor, dirty, drenched, bedraggled woman gardener is truly melancholy, but is this doleful appearance a necessity? Might it not be considerably modified by suitability of attire? and, failing that, must women be compelled to work out on wet days? The men never do so in our garden.

We always employ a woman in the garden, and we find that she does extremely well work of a much higher kind than any mentioned by Mr. Dean. It would be a somewhat lengthy process to enumerate all that she does, for she is in short a good under-gardener in her own departments, which include the flower

garden and the greenhouses. She has nothing to do with the fruit or vegetables.

It is by no means a new experiment in our garden to place a woman in a position of trust and responsibility; it was an established custom before the garden came under my care, and for years it has been found to work most satisfactorily. Mr. Dean seems to suggest that before women can take up horticulture the problem must be solved, how they can do so "without injuring male employment." Had the fulfilment of this condition been generally required, few indeed would be the avocations now open to women. Aptitude has proved a better test. The woman's answer to such considerations is *il faut vivre*, even though others, like the French judge, *ne voient pas la nécessité*.

Fortunately, however, in gardening men and women are less likely to be brought into severe competition than in many other occupations; so much of the harder work is quite beyond a woman's power, that it is only in certain branches that they can be brought into conflict at all. Further, as Mr. Dean points out, horticulture is capable of many developments, and in this way, happily, more room may be made for both men and women.

H. M. W.

PALAZZO ORENCO, LA MORTOLA.

In these gardens the Palms, Eucalypti, Cycads, the immense number of plants in flower, many of which are just now the favourite flowering plants in English glasshouses, the marvellous growth of the Agave and Cactus family, the lovely little bits of aquatic gardening where, for example, are growing *Cyperus Papyrus*, *Philodendron pertusum*, *Aponogeton distachyon*, and *Richardia africana*, and again the fine masses of Bamboos, with their distinct tropical appearance and various coloured stems, each and all present highly interesting features, that lose nothing from the fact that so many of the species live well under conditions totally different from the orthodox mode of culture. For example, in one border are *Libonia floribunda*, *Akebia quinata*, *Salvias* of several species, *Russelia juncea*, together with *Cypripedium insigne*, *Alpinia vittata*, *Linum trigynum*, *Iris fimbriata*, *Primula verticillata*, *P. sinensis*, *Linnaea borealis*, and many other species differing widely in their natural habitat, and just as diversified in their geological preferences. Some certainly get a little shade, as, for instance, that dainty little Britisher, *Linnaea borealis*, but the major number all fare alike with a remarkable profusion of growth as the result. Failures are very few, and even these are not devoid of interest. The *Acacia* family is, of course, at this season one of the glories of the Riviera; in Mr. Hanbury's gardens there are some ninety species, and yet *A. dealbata* in such company refuses to flower. Again, Australian *Proteaceae* seem to revel here under Italian skies, yet one of the best known species, *Grevillea robusta*, refuses to grow—a problem that deserves some consideration, especially as other species of the genus *Grevillea* are flowering freely.

One of the most distinct features of the gardens is the highly coloured fruits of the *Solanaceae* and *Citrus* family. Among the *Solanums*, *S. ciliatum* var. *macrocarpum* is a most conspicuous and attractive plant, the fruits being about the size of a medium Tomato, of a red colour, but without the bright succulent character of that fruit. *S. marginatum*, with its silvery and spiny foliage, is rendered still more ornamental from its yellow-spotted fruits. *S. betaceum* is here a tree of some 10 feet or 12 feet, with hanging egg-shaped fruits not unlike *Victoria Plums*. Henderson's variety of *S. pseudo-*

capsicum is also a telling plant, the berries having a more brilliant tint than is usual in English grown plants. It is, however, the Citrus family that imparts the most colour to the gardens. There are about thirty species and varieties cultivated here, the trees being planted all over the garden; and as there are about fifty acres of kept grounds, the effect of the different shades of yellow fruit amongst the semi-tropical foliage is more easily imagined than described. One of the most curious members of the family is *C. aurantium* var. *Buddha fingered*. Quite two-thirds of the fruit is developed into long finger-like processes, which remind one of a deformed or cramped hand. *C. Limonum* var. *grossissima-de-Lima* and *C. decumana* are both most effective with their huge fruits.

The *Berberis* family, which furnishes English gardens with so many good things, is well represented in Mr. Hanbury's collection, at this season more particularly so by *Nandina domestica*, a shrub with large handsome decompound leaves and erect panicles of scarlet berries. This plant certainly deserves a place in every collection. *Anemones* in great numbers are in flower under the *Eucalyptus* trees, whilst everywhere that pest of the gardens here, *Allium neapolitanum*, is flowering freely in company with *Narcissus tazetta*, *Arum Arisarum* (another pest), and *Fumaria officinalis*. On the rocks that slope down to the Mediterranean from the grounds are numbers of native plants in flower, conspicuous amongst them being *Euphorbia dendroides*, *Globularia alypum*, a plant certainly worth a place in the herbaceous border, if only for its persistent flowering habit; *Cineraria maritima*, huge bushes of *Rosemary*, and numbers of *Agaves* and *Cacti* escaped from the gardens above. The gardens of the Palazzo Oregno take high rank and give ample evidence of the devotion of Mr. Hanbury to horticulture. Every part of the garden has been planted for effect. Most of the plants are labelled with an uniform, plain, unobtrusive label, and in no part of the grounds can be seen the slightest formal arrangement.

JOHN W. ODELL.

Ventimiglia, Italy.

TREES AND SHRUBS.

SOME NATIVE SHRUBS FOR COVERT AND LIKE USES.

It is curious how difficult it is to get out of the usual nurseryman's selection of trees and shrubs. Anyone who tries to plant any of our own beautiful native things soon finds this out. For example, the other day we wanted to have a piece of very low covert near a drive, not wanting to obscure the view above a fence of split Oak. One of the prettiest things for this is the dwarf Furze (*Ulex nanus*), which is common on many heaths in the south of England and elsewhere, and also towards the west. Now there are many introduced shrubs less valuable than this, but we cannot get it in any nursery. It may be that it exists there, but so far we have not succeeded in obtaining it. There is a Welsh form of this called *Ulex gallicus*, which is different in habit, but also an excellent plant for such purposes as we describe. The two are quite different in time of flowering and habit from the common Furze, and therefore good plants for various purposes. Another bush which is common enough in our copses is the Water Alder (*Viburnum Opulus*), the single or parent form of the well-known Snowball tree of the shrubberies, and, in our opinion, a more beautiful tree than the double form. As it grows in the under-

woods in Sussex and also crowds by streams, we get its name of Water Alder. Mr. Anthony Waterer told us last year he got an order for 100 young plants of this, and after searching throughout the trade, failed to get them. It is often very interesting, in planting a large place, to use native shrubs. They are perfectly hardy, and even more fit for rough work in coverts and by drives than most exotic plants. For instance, by rough drives and by drives away from the house we think it inartistic to introduce exotic plants if native ones can be obtained, and very often *Rhododendrons* even look prim and out of place where a colony of the red Dogwood, or of Furze or Broom, would be quite right and very pretty.

THE RED DOGWOOD.—It is not, perhaps, generally known by planters that this is a native of Britain, and a very pretty shrub for massing and grouping by drives, and, indeed, wherever a plant not too tall is required.

THE SLOE.—The Sloe is a native bush, of which we have planted several thousands. Its pearly little flower-buds in spring are almost as precious as the Hawthorn blossom, and a colony of flowering Sloes is very telling in the distance, as well as very pretty at hand.

THE CUT-LEAVED BRAMBLE.—This is an excellent plant by drives, or in any position we want to make a little difficult for people to get about in. It is not easy to get this in nurseries by the thousand, but it can be had here and there. We should very much recommend nurserymen to grow this as a plant for covert.

Sometimes the question of protecting lakes and other places from interlopers, and even dogs and other animals, is settled by a good mixture of Sweet Brier, Sloe, and Furze. Sweet Brier is a splendidly armed bush in soil where it does well.

One of the Tamarisks is a native of Britain, or, at all events, naturalised, and we use it among native shrubs.

THE BROOM will often be found extremely useful for covering a poor bank, and is very effective. If bought in nurseries, it transplants badly, and often it does much better from seedlings picked up in one's own woods. This is also true of the Furze, which is a most valuable plant for this sort of work.

THE DOUBLE FURZE.—The double Furze might often be used to great advantage in corners and more important places. It transplants so badly that it must generally be bought in pots, which prevents its use on a large scale.

THE SEA LYME GRASS.—One of the Grasses we find extremely useful for grouping with shrubs, to tie them together, as it were, is the Sea Lyme Grass, a bold vigorous plant that takes hold of any poor ground, and makes splendid covert. The smallest bit roots, and it may be readily divided into small pieces. The effect is good either in winter or summer. This is a plant that can be grown by nurserymen for covert, and is occasionally offered by them. We do not know any other plant that will so prettily cover some deplorably arid or sharp ugly bank as this.

THE COMMON RASPBERRY.—This is a beautiful shrub for covert or any like purpose, the fruit, which is generally better flavoured than that of the cultivated Raspberry, making it all the more interesting. Some covert plants are vaunted for being good as food for game, but without reason; but wild Raspberries and Blackberries will always be used by birds. The effect of the fruit is charming by a stream or about an old bridge, and, in fact, anywhere. The common Bramble occurs every-

where in coverts, but few act upon the fact that there are a great many different Brambles that are natives of Britain. They differ considerably in their variety, qualities, and other ways, and some of them would make excellent covert plants. They are sometimes local, occurring here and there, and not cultivated in nurseries, which makes a difference.—*Field*.

TREES AND SHRUBS AROUND LONDON.

HAVING now for nearly twenty years resided within the radius of fog and smoke, I have been able to observe the effects produced upon these the chief ornaments of the pleasure grounds of our gardens. In some cases successful cultivation is almost an impossibility, whilst in others no prejudicial effects are observable. Of the former the Conifer family form most unfortunately the greater portion, many of which it is almost useless to attempt to cultivate with even a moderate degree of success. Here, within sight of the Albert Hall and other conspicuous buildings in the West-end, I have had to remove several of these plants that would under favourable conditions have been fine objects for many years to come. I have noted that the process of retrogression goes on gradually, but is most apparent after a severe winter, accompanied, as such invariably is, with the dense fogs so well known and equally as much to be dreaded by all horticulturists as being so prejudicial to many forms of plant life. This failure cannot possibly be attributed to the soil, which I consider is favourable in many respects for Conifers. The trees here are not planted on the proverbial London clay, but in light loam resting on gravel of good depth, which overlaps the clay. Thus it cannot be attributed to a deficiency of drainage in the soil, nor, so far as I have been able to observe, to any other cause other than the baneful effects of the fogs. I have had to remove two specimens of *Picea Pinsapo*; one of these was formerly a very fine tree, and at the time it was cut down measured over 30 feet in height and of proportionate width. During the last season or two that it was allowed to stand it partook of a semi-deciduous character, losing a great proportion of its foliage in the spring-time. No disease in the stem was apparent after it was cut off in this or any other instance. *Picea Nordmanniana*, nearly as large as the foregoing, gradually dwindled away, making visibly weaker growths every year. *Abies Douglasi*, also a fine specimen, stood upon a slope, but by degrees lost its branches, and was at last more like a skeleton in appearance than anything else. *Wellingtonia gigantea*, once of good proportions, having reached nearly 35 feet in height, also eventually succumbed and had to be removed. The points of many of its shoots used to die off in the spring, thus causing it to look very unsightly. Of smaller subjects, *Thuja aurea* has failed, becoming very thin and bare. Others of the *Arbor-vitæ* class have had to be cut down, the last case being one of about 25 feet in height, which was removed last autumn. The *Retinosporas* are far from being in good condition. So far, *R. obtusa* only has had to be disposed of. Others could be named, but these are some of the chief and best known kinds amongst the Conifers.

Turning to American plants, the principal failures have occurred in *Andromeda floribunda*, which I have discontinued growing for several years. *Kalmia latifolia* rarely used to produce any flowers, unless, as in the case of the preceding, the plants were fresh from the nursery; afterwards their flowers would be visibly less year by year. Amongst other evergreen shrubs, I have noticed of late years that *Arbutus Unedo* rarely produces any of its fruit as it used to do, but continues to grow fairly well. *Berberis Darwini* has ceased to thrive and gone the way of the rest. The *Daphne* (hardy kind) is also a failure; whilst the *Veronicas* are rarely seen at all. Fortunately, the deciduous trees and shrubs are a redeeming feature in such a category of failures; some few do not do so well as could be wished. *Rhus Cotinus* (the Sumach) seldom produces any of its beautiful pedicels, as

seen further in the country under favourable conditions. The chief failing in the case of deciduous trees is that lack of the beautiful autumnal tints as seen upon many of them in the country; none of them assume those brilliant hues of colour which render the eve of their departure such a brilliant spectacle. This may partly be caused by the accumulation of the sooty deposit upon the leaves, but more, I think, by the quicker transition from one state to another in their decay. Climbing plants are not, as a rule, so much affected, but in some instances I have particularly noted that they do not flower so freely. The Pampas Grass produces its spikes freely enough when in a healthy state, but hardly before they have become fully developed they present a woebegone appearance, resembling a fine brush more than anything else I can call to mind.

On the other hand, there are a few things amongst the Conifers which stand out prominent by their hardy constitution and good appearance, having so far resisted the unfavourable atmosphere. *Pinus austriaca* (the Austrian Pine) has so far succeeded well, and I think may be relied upon within a moderate distance of town as one of the best for planting. The specimen here is a large one, growing under rather unfavourable conditions, but still it retains its good appearance and deep green colour through even the severest of winters. *Pinus excelsa* (the Himalayan Pine) does equally as well, and produces its cones very freely. This forms a beautiful contrast to the foregoing, with its pale green, glaucous coloured foliage and spreading boughs, as against the more erect growth of the first-named. *Pinus Cembra* and its dwarf form (*P. C. pumila*) are also reliable kinds to plant, the latter being well adapted for associating with rockwork of considerable extent. The type is more pyramidal in outline than most kinds, and of somewhat slower growth than many; consequently it is well suited for limited spaces. The Spruce Fir (*Abies excelsa*) I cannot recommend, but would rather include it among the failures. *Araucaria imbricata* succeeds remarkably well, and retains its branches down to the ground. Two specimens of this fine Chili Pine have reached noble dimensions with no symptoms of decay. They were planted about thirty-four years ago. The gardener who superintended the work drained the ground efficiently under and around them, as the positions chosen for them were scarcely above the water level of the contiguous lake. The Lawson Cypress (*Cupressus Lawsoniana*) is another satisfactory plant, the best by far of its class. *Thuja borealis* also does well; so does *T. Standishi*. The last-named is an attractive plant, of excellent habit, beautiful outline, and of a paler green than most varieties; it succeeds remarkably well and is a fine specimen. The Yews are valuable additions and form very good plants, some being of large size, although comparatively young. The golden variety retains its distinct character late into the autumn. The Atlantic Cedar (*C. atlantica*) does fairly well, but is after sharp winters and trying fogs disposed to shed its foliage prematurely. The Deodar is far more satisfactory than the last-named, one plant being all that could be desired both in habit and in health. The Cedar of Lebanon, of which we have only one example, and that supposed to be one of the earliest planted trees in this country, is on the wane; so are several more in the neighbourhood.

The Box, the Holly in several varieties, and the Laurels all do as well as possible; so does the common Aucuba, which could not very well be better or more satisfactory. With respect to Rhododendrons, I have noted that some kinds do not seem to be quite at home, but they are nevertheless a valuable addition to our gardens, even if a few do fail under such adverse circumstances. *R. Everestianum* is one of the best in constitution as well as one of the freest flowering of any that can be grown. The hardy Azaleas (*A. pontica* and the Ghent varieties) cannot be found fault with; they grow and flower well. *Berberis Aquifolium* grows well, flowers freely, and produces abundance of berries, whilst through the winter its foliage assumes a bronzy hue, spare shoots always being useful in the Chrysanthemum season for arranging with the

flowers. Magnolias, especially *M. conspicua*, succeed remarkably well and flower profusely; the evergreen *M. grandiflora* does not appear to mind our atmosphere any more than the common Laurel. *Cotoneaster microphylla* is, as a trailing plant, the best of its race, growing away as freely as could be desired. *Catalpa bryngaeifolia* is annually a fine sight in August, flowering most profusely, and frequently followed later on by its Vanilla-like seed-pods. The Tulip Tree (*Liriodendron tulipifera*) also does well; although much exposed to easterly winds it produces an abundance of flowers. So also does the Judas Tree (*Cercis siliquastrum*), since I have given up pruning it for the sake of neatness and allowed it to grow naturally. The Chinese Crab (*Prunus sinensis*) makes a fine show in the spring, and is well worthy of more extended cultivation. Of the shrubby Spiræas, the best are *S. arifolia* and *S. Lindleyana*. Why the latter is not more often seen is a puzzle; it is a grand plant both in foliage and flower. The long racemes of the latter make a fine show. *Wistaria sinensis* and most of the Clematis make a fine display whilst in flower, probably as well as in any locality. With most of the commoner flowering trees and shrubs no fault can be found in any way, but amongst those of ornamental foliage the Purple Beech soon gets dingy and dirty looking; it does not wash clean in rainy weather nearly so well as the variegated Negundo, which is most effective. I am of opinion the purple-leaved Filbert might be more advantageously grown than it is in many of our gardens. Fortunately, we can rely with every confidence upon the climbing varieties of the summer-flowering Roses; these help to prolong the Rose season considerably, often blooming in May. Mildew is the greatest enemy with which we have to contend in Rose culture. I am under the impression this is more prevalent through the foliage being rather more delicate than on country grown plants. J. H.

Garrya elliptica.—This exceedingly ornamental evergreen shrub is rarely met with in gardens, yet through winter and early spring it is most interesting and attractive. It is quite hardy, but the foliage is liable to be browned by cold winds if the specimen is in an exposed situation. During the summer the bush might almost be mistaken for a large-leaved dwarf kind of evergreen Oak, to which it bears a striking resemblance, but when, as now, the bush is heavily laden with its pretty catkins, which sometimes attain to a foot in length, it has a unique and striking appearance. I saw a healthy fair-sized specimen recently which was profusely laden with catkins. It was in a sheltered spot, but isolated upon the lawn. In the Episcopal Palace gardens at Chichester there is a specimen 12 feet high, with a proportionate spread of branches.—A.

The shrubby Horse-tail (*Ephedra distachya*).—This is the best known of the genus. All the kinds resemble to a certain extent the Equisetums, or Horse-tails, and though they are leafless, or nearly so, the bright green colour of the bark makes them most conspicuous at all seasons. *E. distachya* is a native of the southern part of France and Spain, in sandy soils on the seashore, and was introduced to this country a century and a quarter ago. It reaches a height of a yard or more, and forms a spreading mass of bright green cylindrical branches totally unlike any of our other hardy shrubs, while the berries, which do not always appear in this country, are red in colour. In the front part of the shrubbery, where the slender branches can grow at will, this *Ephedra* is seen to advantage, as it will break up the more formal outline of some of its associates, and it is a first-rate subject for large, bold arrangements of rockwork, as it will often succeed in positions that are too dry for the majority of shrubs. It is also known as *E. nebrodensis*. A second species is *E. monostachya*, or *vulgaris*, a smaller growing plant than the other, and one that will resist a greater amount of frost, as it is a native of Siberia, also some of the more southern districts of Asia. Other species are found in different parts of the world, but the nomenclature of the entire genus appears to be somewhat

confused, and it is more than probable that the list of distinct species would be reduced if they were grown together, as slight geographical variations would no doubt disappear under cultivation.—T.

Bell-flowered Heath (*Erica codonodes*).—In a note on the above in THE GARDEN (p. 195), "H. P." does well to call attention to a pretty Heath that planters greatly neglect, for it is rarely seen away from the nursery, and not met with in many of these; in fact, the family of hardy Heaths is poorly represented in our gardens, even where soil and situation are alike favourable, although there could not be anything more beautiful for planting extensively about the grounds. *E. codonodes* has a special value, flowering at such an unusual and early period of the year. If planted in a suitable soil and situation it would prove an early and striking feature in the shrub garden. Shelter from cutting winds would probably be all that was necessary to ensure its free and perfect flowering. As it is of an upright and rather bushy habit it would form a charming contrast with *E. carnea*, this last being used as a groundwork with bushes of *E. codonodes* thinly arranged and uprising from it. Before the flowers of *E. codonodes* were all faded, *E. carnea* would be in bloom.—A. H.

Pyrus japonica not flowering (p. 216, March 8).—The non-flowering of this shrub is partially to be accounted for in the information given by your correspondent "L. Surrey," in the words "a good mulching of manure." I advise that this be dispensed with entirely in the future, so long as the plants even only continue to do fairly well. By the other description given, "look the picture of health," I should imagine that the manure has caused the plants to grow far too luxuriantly; hence only wood-buds are formed, or but a small percentage of flower-buds at the most. It is the comparatively weakly wood that will give the most flowers, small growths of only a few inches in length often blooming their entire length. Sufficient pruning can be given when the plants are in flower by using the flowers in decorations when cut, taking off enough wood to permit of a free arrangement. If pruning is absolutely necessary, I would rather perform the work immediately the plants have done flowering than in the winter, and thus destroy a part of their beauty. The plants of *Pyrus japonica* under my charge I permit to grow half wild, merely securing the main shoots against the wall, which has a west aspect. From the wall outwards they often extend 3 feet or 4 feet, and are with scarcely an exception most profusely clothed with flowers every spring. I have never in fourteen years applied any manure to their roots, yet they still look as well as ever. A partial check might be given to the plants by a moderate root-pruning. Should dry weather ensue during the coming summer, do not give water, unless the plants are actually suffering for want of the same, and then even only water moderately so as to preserve the foliage.—J. H.

The Tree Purslane (*Atriplex Halimus*).—This forms a large spreading bush, grows quickly, and flourishes on a dry bank, or with the fullest exposure even upon the sea-shore with the salt spray dashing upon it. It produces suckers freely. I never saw the bush so beautiful as recently in the garden at Betteshanger Rectory. Here, however, it is found that the sparrows have an insatiable liking for the foliage, and they would quite strip the branches were not the bush protected by passing fine string over and around it. Where a branch rests upon the ground and the birds have been able to settle they have cleared off every leaf. There is something very strange and unaccountable in their manifest liking for the leaves of this shrub, as although almost all berry-bearing shrubs are relieved of their burdens, it is not often that foliage is attacked. Undoubtedly if the Tree Purslane was not protected from sparrows at Betteshanger they would entirely kill it, as they cannot let it alone even in such a mild winter as the present, when food is abundant.—A. H.

Berberis Aquifolium.—The remarks on this in THE GARDEN, March 1, are well timed. One great merit of the leaves of this is their enduring nature.

They are also very useful in decorations where no water can be used, as they last a long time. For backing wreaths next the Moss, the leaves are very serviceable, as they contrast so well with the white flowers and other greenery. I cannot agree that this *Berberis* only puts on the bronze tint in its best form when growing on a chalky soil. I am aware there is a marked difference in colour when growing on different soils. I have never seen the leaves so highly coloured as they are here. We have large patches of this *Berberis* growing in a disused gravel pit, where the plants make but little growth, the soil being very thin, the understrata simply rough stones. In this garden this *Berberis* is planted freely in patches, which have a beautiful appearance, especially in winter.—J. C., *Forde Abbey*.

ORCHARD AND FRUIT GARDEN.

CONVERTING INFERIOR SORTS OF APPLES.

ALTHOUGH some of my friends doubt my method of managing mature Apple trees after they have been headed back and grafted, it is gratifying to learn that they agree with my principle of converting those that are healthy in preference to cutting them down, the more so as I am strongly opposed to the planting of young trees in old Apple-sick plantations. In my experience I have found it takes about five years to transform an inferior variety into a fruit-bearing tree, especially when worked with strong-growing sorts like the Blenheim Orange, Flanders Pippin, a grand Apple, but owing to its weeping or spreading habit only fit for cultivation as a tall-stemmed standard, *Mère de Ménage*, and some others; whilst the majority of the free and fertile, like Worcester Pearmain and King of the Pippins, come in a year or two earlier. Then, considering the large heads they make in that time, no one, including those who do not believe in providing for our heirs, will hardly venture to say this mode of procedure will not pay. Sound judgment in the selection of suitable trees for heading back of course is a very important matter. Therefore, whenever one feels inclined to think twice, the proper course is to let them pass and proceed to others that are sound in trunk and limb, and show no signs of having passed the meridian of fertility. Of these hundreds may be found in all great Apple districts, and considering that past generations planted half-a-dozen trees on a space we consider barely sufficient for one, the old, ugly, and superfluous cumberers of the ground should be cut down—not perhaps all at once, but by degrees, as sudden exposure intensifies the check which follows hard heading back. By adopting this plan a great number of our old farm orchards might be gradually opened to solar heat and light, and become more valuable for grazing or tillage. The good trees, although irregularly placed, would yield a fair profit; whilst the ground crops would pay the rent. Old and decrepit plantations, on cold, low-lying flats, practically speaking, might be cleared away, but containing a very small percentage of good sorts, these might be left for giving shade and shelter and beautifying the landscape, with, as a matter of course, the prospect of some fine fruit. This, in my opinion, is the most feasible mode of allowing old orchards to revert to pasture, but whilst this gradual reduction in the number of trees and improvement in the quality of the fruit are going on, some good scheme for the formation of new orchards should be in active progress. The great liking for orchards composed entirely of standards is deeply rooted, and certain sorts, I must admit, succeed best upon clean 6-feet stems, but the rank and file of our best Apples do equally well, give less trouble, and produce much finer fruit when allowed to grow naturally as dwarfs and pyramids, the use of the knife

being limited to the thinning of the branches. The agriculturist's objection to these trees is bound up in calves, lambs, and mutton, but considering that one acre of comparatively closely planted trees on dwarfing stocks will beat double the area of standards, the first step should be the selection of the most suitable piece of land fairly elevated, but sheltered, of good texture, not too dry, but free from cold stagnant subsoil water. Upon such a site I would commence in a small way at first by trenching or cultivating, and when in suitable condition I would plant my garden-orchard with the sorts most likely to succeed in the neighbourhood. If quite satisfied that choice dessert sorts would succeed, my Cox's, Ribstons and others on the Paradise stock should be planted in rows 6 feet apart, and 3 feet from tree to tree, with the view to the ultimate removal of each alternate tree as fresh ground became fit for their reception. These selected spots, large or small, in proportion to the size of the farm, should be carefully fenced against the intrusion of hares and rabbits; not a hoof of stock of any kind should enter; and once established, the steel fork and Dutch hoe are the implements employed for keeping the ground in tilth and weeds in subjection. Paradise stocks! "What be they?" many a farmer will ask. Well, the same question in a different form was put by members of our craft when, not more than twenty years ago, the editor of *THE GARDEN* strongly advocated its extensive use in this country. Some few strongly opposed its introduction, but it has made its way, millions of this stock now being used annually, and if I make no mistake the wondrous specimens of fruit now so frequently met with in all good fruit rooms are the produce of the Paradise and Doucin. It is not, however, as I have previously stated, so well adapted to the very strong growing varieties, but the Doucin, a sort of compromise between the Paradise of the French and the Crab, may be used for them with the greatest advantage. Also in cold localities where the very choice dessert sorts do not always succeed it may be used for the best as well as the hardier varieties of Apples. Those who are liberal enough to plant for generations unborn may and will employ the Crab, a stock more troublesome and difficult of management than the French or English Paradise, but others who cannot wait for fruit from strong growers need not despair, as I believe the Doucin will make an excellent stock for the Blenheim Orange. Other dwarfing and early basket-filling stocks, I have no doubt, will be found, but aided by the French Paradise for small bushes and closely pinched cordons, the Doucin for trees which never become too large for gardens and the coming spade-tilled orchard, and the Crabs for resisting stock, all our finest Apples may be grown and grown well by those who know what they are about, but the quantity now wanted, I am afraid, is far distant if the education of the masses is not undertaken by men of experience. W. C.

SHORT NOTES.—FRUIT.

Peach Rivers' Early York.—Mr. Coleman does not include this kind amongst the varieties in his article on p. 230. I have grown it for many years and find it a most useful early variety, of good constitution, free-bearing, and very good flavour if the fruit is gathered before it is fully ripened on the tree. It is free from mildew, a failing to which the old Early York is very liable. My tree of Rivers' variety is growing upon a west wall.—J. H.

Fruit prospects.—These are not very cheering here. The severe frost on March 1, 2, and 3 played sad havoc with Apricots, which were in full bloom, and protected with glass coping and thick blinds hanging down to the ground in front of the trees. The cold was most severe. We registered here 22° of frost. Peach

trees in full flower in cold houses felt the cold, but I do not think any of the blooms have been destroyed. Peaches and Apricots are very early in bloom this season in this neighbourhood. I also observe that the Broccoli has suffered very much.—JOHN CROOK, *Forde Abbey, Somerset*.

Preserving choice fruits.—Can any reader of *THE GARDEN* inform me what is the best mode of preserving choice fruits, such as fine varieties of Apricots, Peaches, and Plums—not making them into jam, but so that they may be used during the winter and spring months for dessert as nearly as possible in the same condition as when gathered?—X.

INDOOR PEACHES.

It is said that a chronicle of failure in any department is as important as the record of successful culture. And when an early failure is reasoned out, grappled with, and the matter brought to a successful issue, it may perhaps be worth a note. The result, I may mention at the outset, quite bears out the conclusion arrived at by several writers, viz., that the state of the border and consequent root action are much more important factors towards successful indoor Peach culture than any questions of artificial fertilisation. Some six years ago an old lean-to greenhouse, no longer required for such a purpose, was transformed into a couple of Peach houses by the removal of old brick beds, paths and staging. This left us a depth of 18 inches from the door-sill, and after throwing a layer of broken rubble and brickbats over the bottom the border was made up with the top spit from the park where a new carriage drive was being made. I was not so well up in the character of the natural soil as at present, and the said top spit from the park did not answer my expectations. The trees (treated on extension lines, to fill the trellis as quickly as possible) grew away at a great pace, and by the end of the third season had completely furnished the house. There was a capital show of bloom early the next season. This was treated in the orthodox manner to secure a good set, but nearly all fell and the crop was very scanty. I had by this time seen enough of our local soil to doubt its unaided capability to grow Peaches well, and determined to overhaul the border the following autumn. Foliage and wood being well ripened, early in September I was able to commence operations, and was not long in realising the situation. The top spit, from which I hoped much, had degenerated into stuff very little better than sand; there was not the slightest hold in it; in fact, it ran through the fingers like a lot of silver sand. Bad enough in itself, the evil was aggravated from the fact that it seemed impossible to get any moisture into this compost; the water was in and through nearly as quickly as through a sieve. A good heap of stuff had been prepared, consisting of one-half clayey loam and one-half stiff road sidings. Quite three parts of the original soil was removed, and the remaining portion thoroughly incorporated with the new soil, the border being trenched right through the houses, care being taken to preserve the roots (which were, on the whole, much better than I expected to find them) from injury. Careful examination the following spring showed the roots in an active state, and the new soil retentive of moisture. The crop was a considerable improvement on that of the previous year, the growth short-jointed, firm and sturdy, and the foliage firm and good. This year we are reaping the full benefit of the work performed in the autumn of 1888; there is a capital set on all the trees, and the fruit is swelling away well. There has been no change in the treatment of the trees either in the matter of temperature or aid in setting, so I think I may fairly give the credit of the improvement in the constitution of the trees to the more suitable soil, at once strong and lasting, and well adapted for the absorption and retention of moisture. I may mention that there is no attempt at artificial fertilisation unless the weather proves very unfavourable. A good application of the syringe on a bright day when the pollen is well developed is my plan for securing a good set. E. BURRELL.

Claremont.

PEAR BEURRE DIEL.

GIVING precedence to our familiar gable-end friend the Jargonelle, the next best known Pear, I believe, is the Belgian Beurré Diel. One tree at least is met with in almost every garden, large and small, throughout the country, and although the fruit, to my thinking, has been greatly over-rated by pomologists, its noble presence when ripe, backed up by great fertility, has fascinated growers into granting security of tenure to magnificent trees in our gardens and orchards. A few years ago a fair representative collection of Pears was considered incomplete without a dish of Beurré Diel, often of immense size and tempting colour, and some specimens I have tasted, caught just right, have been most excellent; so good indeed, that one would regret its absence from the tent or fruit room. Of this, however, we have little to fear, this variety having headed the list at the Chiswick Conference in 1885, when no less than 194 dishes were exhibited, twenty-three experts

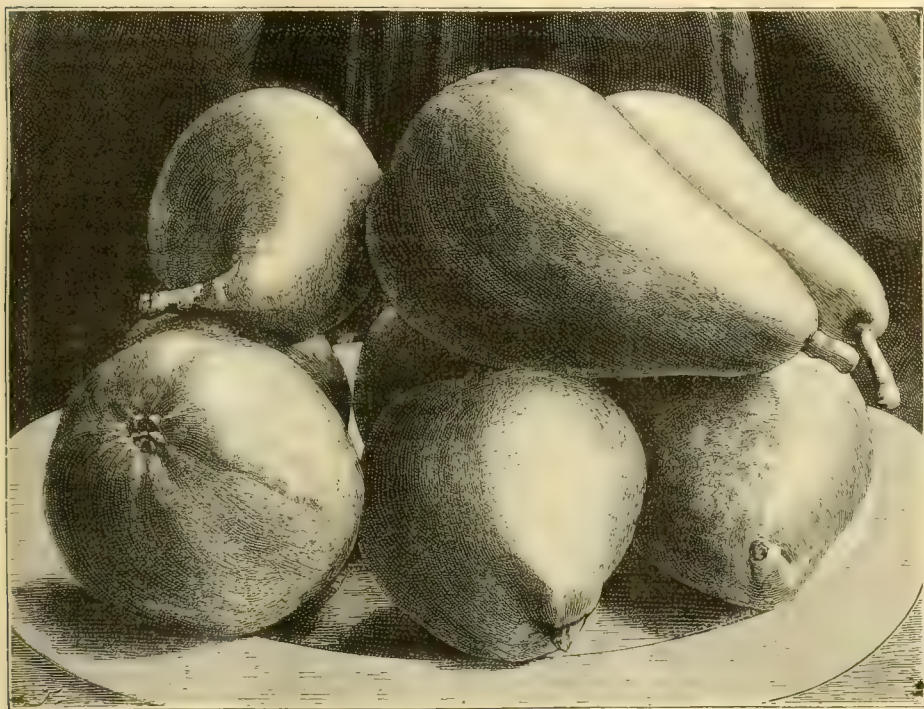
always the best for eating, they should not pin their faith too closely to lofty brick walls, as I believe a plank fence 6 feet in height, and through which currents of air can pass, will give equally good, if not better results in average Pear districts.

Wending our way north of the Trent, the south or west wall, as a rule, is indispensable, and approaching the border our plodding neighbours for some time past have been growing immense crops of enormous fruit in large, airy glasshouses, principally upon pyramids and cordons planted out in well-drained borders. The luxury of glass does not fall into the laps of the masses, but notwithstanding the fact that men like Mr. Thomson, of Drumlaurig, agree with my repeated statements that it will pay, no one need despair after admiring the dish of beautiful fruit herewith figured from a garden at Macclesfield, in Cheshire. I do not know the weight of these Pears, neither have I heard how they were grown, but I do know the cli-

unnamed, dedicated it to his friend, Dr. Adrien Diel, of Dretz, in the Duchy of Nassau. There it retains its original name, here it is well known as Beurré Diel, whilst the magnificent fruit sent from the Continent and Jersey reaches the English market under the name of Beurré Magnifique.

The fruit, obovate, of the largest size when grown against a wall, and of medium size from bush or standard, is pale green at first, changes to yellow, and is covered with large russetty dots and blotches of brown russet; eye with short segments set in an uneven basin; stalk an inch long, stout and curved, inserted in an open uneven cavity; flesh yellowish white, tender, buttery, and melting. In season from the end of October to the beginning of December, a period now replete with very choice sorts.

The tree is a vigorous grower, attaining a large size, hardy, a most abundant bearer either as a standard or upon a wall. Fruit grown in the latter mode is often inferior in flavour to that produced by standards, dwarfs, and espaliers, though brighter and of larger size. Being so reliable as a cropper, surplus fruit of Beurré Diel is invaluable for cooking, a way in which dessert Pears are extensively used. W. C.



Pear Beurré Diel. From a photograph sent by T. F. Pimlott, Macclesfield.

voting in its favour for market purposes. These votes were given as a matter of course by growers who look upon the culture of all fruits from a commercial point, and not by those who regard quality as the true test of merit; hence their small value to readers of THE GARDEN to whom such November rivals as Marie Louise, Thompson's, Beurré Superfin, and Doyenné du Comice are familiar. By these and others of more recent introduction Beurré Diel just now is heavily handicapped, but still it holds its own, as few Pears of English growth form such a noble dish upon the dessert table, and if I mistake not, the modern method of working and training Quince cordons on warm sunny borders and against boarded fences will ensure that uniformly good quality not always obtained from old trees worked upon deep-rooting free stocks. This being so, I would strongly urge all planters to thoroughly test the Quince, a stock upon which Beurré Diel grows well, and, bearing in mind that the heaviest fruits are not

mate of Cheshire is far from good, and that these Pears are abundantly large for general use and true to character. In Pear houses in the north Beurré Diel frequently draws the scale at 20 ozs., and a good gardener north of York has shown specimens weighing 26 ozs.; but these weights, of course, are exceptional, and only adapted for special purposes. They show, nevertheless, that "where there's a will there's a way," and followed up, Pear growing in England, as yet in its infancy, has a promising future before it.

Craving indulgence for these stimulating remarks, I must now proceed, or rather conclude, by describing the subject of this illustration, known in this country under many synonyms. A lamented friend says it was discovered at the end of the last century at the Castle of Percke, near Vilvorde, now known as the manor of Trois Jours, that until 1819 it was known as Beurré des Trois Jours, when Van Mons obtained grafts, and, believing the variety to be

APPLES AND PEARS FOR WICKLOW.

I HAVE a wall 100 yards long and 7 feet high. I want to grow on it Apples and Pears in equal quantity and that will give a succession for the table. I should be glad of the names of a few suitable varieties and the stocks they should be worked on. The fruit trees planted about twenty years ago are nearly all killed with canker. The soil is of a red gravelly nature. Is it not rather late now to plant?—WICKLOW.

* * Upon a south wall 100 yards in length and 7 feet in height you may plant 100 cordon Apples on the French Paradise stock and an equal number of Pears on the Quince. If the trees are obtained from a first-rate nursery and the proprietor will pack them safely, you may plant this year, otherwise they may be selected at once, marked as sold, and stand where they are until next October. The latter course would most likely answer best, as you must make suitable preparations, not only for a good start, but also for future success. The cause of past failure must be due to your red gravelly soil, which should be removed and replaced with sound calcareous loam, that from an old pasture and suitable for Strawberries or Roses being best. A border 18 inches in depth and 2 feet in width will grow these home-rooting trees for several years, but it must be well drained to prevent water from stagnating, concreted if there is danger of the roots getting down into a crude sub-soil, and, as a matter of course, carefully mulched to keep in moisture and draw the feeders to the surface during the summer. Train the trees quite upright until they reach the top of the wall, then turn them to an oblique position at an angle of 45° and keep them closely pinched to prevent the fruiting spurs from getting away from the heat-absorbing and reflecting brickwork.

Commencing with Apples, the Irish Peach and Kerry Pippin should be planted for giving an early supply; Cox's Orange Pippin should follow in quantity, as it is possible, I may say certainly, the best Paradise Apple in cultivation, so good indeed that I should plant fifty a yard apart and fill in with the others for removal to another site, provided the Orange Pippin proved a success. The old Ribston Pippin is another excellent cordon Apple, as it commences bearing very early and seldom cankers on the dwarfing stock. Claygate Pearmain is a superb keeping Apple, very hardy, and forms a good substitute where the Ribston fails. Mannington's and Adams' Pearmain are first-rate dessert varieties. Court of Wick is hardy, prolific, and excellent. Wyken Pippin, Northern Spy, Cockle, and Sturmer Pippin complete the

dozen from which early, midseason, and late Apples of best quality may be expected so long as the supply lasts.

Of Pears on the Quince stock, and omitting Jargonelle, which does best when allowed to extend and turn sharp angles on large buildings, Beurré Giffard, Williams' Bon Chrétien, and Fondante d'Automne, russety, and in best form from pyramids and bushes, plant Beurré Superfin, Doyenné du Comice, Marie Louise, Thompson's, Glou Morceau, Winter Nelis, Knight's Monarch, Josephine de Malines, and Bergamotte d'Espéren in equal quantities. Place the trees 18 inches apart, keeping the different varieties together for the convenience of protecting the blossoms from frost, and the birds' special favourites from injury by netting in the autumn. Train upright at first, pinch closely, and turn the heads to the west when they reach the coping.—W. C.

WINTER MOTH IN ORCHARDS.

MR. CRUMP (GARDEN, March 1, p. 199) states that he has had his attention drawn to my criticism on his remarks respecting the liming of orchard trees for the destruction of moth, &c., and then endeavours to show that the using of dry lime in the way he does instead of in the liquid form, as recommended by me, is by far the better of the two. In the first place, he says he supposes that two men provided with a long pair of steps and a ladder would dust over a given number of trees in about the same time as it would take two other men to prepare and apply the liquid mixture, while as to good results, he goes on to state there is no comparison, the lime having parted with its caustic properties and potency. I contend that instead of the lime having done either, that it possesses both and all its virtues in their most active form, as it goes on hot and adheres so tightly to the bark as to form quite a thick coating, which covers all the bark around the trunk, branches, and buds, where it stays on till the last begin to expand and growth takes place in the spring. I would ask, Is it possible for lime in a dry state to cover trees as the liquid does? while as to the men up ladders and steps putting the powder on, I pity them, for their eyes and olfactory organs must be sorely tried. As to the value of the lime that falls to the ground, surely any wanted or desired there could be more easily applied by a man standing on *terra firma*, but some of the liquid, of course, also falls to the earth and there answers the same purpose as the dry, but in a more available form.

With regard to the time it takes to put the lime on, Mr. Crump has mentioned two days for 100 trees, stating that he employed two men to do the dusting, and one man and a boy to slake and prepare the lime. Against this I only had one man at the job. He started on a Friday morning at 9 o'clock and finished 139 trees by 5 o'clock on the Saturday following, taking in all about sixteen hours. This man slaked and strained his own lime as he went on by putting a bushel or so at a time in a large old copper we had out of use, and from this he dipped, after stirring, with a bowl, and having strained it through a sieve direct into the engine, at once pumped it on. The trees dealt with are of various sizes, some being 20 feet high and nearly as much through, but most of them are in full bearing order. S. D.

Planting out fruit trees under glass.—The chief items necessary for the production of Pears, Plums, Cherries, Apricots, and Apples of the largest size and finest quality are glass, the means of giving plenty of air, and a well drained border, where the planting out system is adopted. These fruits are, however, sometimes very successfully grown in pots, as evinced by the heavy crops of exceptionally large fruit I saw on some plants of Pears and Plums in an orchard house at Croxteth Park a few years ago. As pot plants necessarily require more time, experience, and attention in their management, I have adopted the planting out system as the one entailing least labour and most likely to yield the best results. Some five

years since I decided to devote an unheated lean-to house, 50 feet long by 9 feet wide, to the growth of hardy fruits, and as the inside border had never been provided with proper drainage my first task was to take it out to the depth of 3 feet and cover the bottom with a foot of stones. On these stones I placed a layer of turf, Grass-side downwards, and then refilled the remaining portion of the border with the following in mixture: turf that had been stacked for a year, road scrapings, lime rubbish, and ashes from a heap of burnt garden refuse. After making the whole fairly firm I planted a number of small bush plants of Pears, Cherries, Apples, and Plums along the front of the house, and Apricots and Plums to cover the back wall. Air was admitted in abundance at all times, unless frosty weather prevailed, and the plants copiously supplied with water, and so well did the soil and treatment seem to agree with their requirements, that I was enabled to gather a very nice crop of all the varieties of fruit except Apricots the year after being planted. Every year since the yield has been exceptionally encouraging, and proves that much may be got out of little space when proper means are taken to secure it.—R. C. H.

FRUIT NOTES.

DURING the past autumn and winter much useful information upon the culture of hardy fruits, especially Apples, has, or might have been, gleaned from the discussion in THE GARDEN and other journals. During the late planting season I have noticed, as I travelled about, an increased activity in fruit tree planting, and this I take to be a good sign. It is, however, grievous to think that hundreds of the trees that have been planted will not do much good through careless work. Not a few planters still work in the most primitive manner—dig a hole scarcely large enough to hold the roots, into which the trees are thrust, and then left without a bit of mulch or a stake to support them against the force of the wind. I do not want to make too much of the question of growing for profit, for getting along by fruit-growing in this country is not easy work in these days of keen competition; therefore, I am not speaking of the question of profit in the narrow sense in which it is usually employed, for I contend it is just as profitable to consume the fruit at home—to a certain extent, at any rate—as it is to send it to market. And at the present moment there is room for thousands of tons of fruit, both in a fresh condition and also in the shape of home-made jams, even in the homes of those who have gardens and room to plant fruit trees. And if this is so—and the fact is, I think, indisputable—there is plenty of scope yet for the raisers and planters of fruit trees.

I do not despair of seeing own-rooted Apples and other fruit trees that will not require root-pruning, or very little pruning of any kind. When that day comes there will be fewer complaints of fruit failures, for a tree raised from a cutting or a layer does not rush down deep into the earth at the first onset as the seedling stocks do. I have had Apple trees from cuttings twenty years old and that had rarely missed a crop. They were, of course, of free bearing sorts, and every Apple was a picture, not the poor samples too often seen on the big trees, of no use only to feed hogs and make cider, and very inferior cider too at the best. It is often said that no one can learn anything by reading, and though there may be some glimmering of truth in this, it is very far from being the whole truth, and it might be more forcibly put in another way, that no one could learn to grow fruit without reading. The man who trusts to his own practice and his own ideas will soon find himself in a narrow circle,

with all the intelligence of the world shut off from him. Now-a-days it is absolutely necessary that all must read and work connectively; let each do his best, but let us know what others are doing, and I hope the day will come, and that speedily, when every man with a bit of ground to cultivate will be able either to have his gardening journal or to see it at the village reading room, for, in spite of all the discussion upon this subject of fruit growing, the surface of the stream of popular intelligence is only just a little rippled; the deep, sluggish water is yet untouched. But the thought that was uppermost in my mind when I took up my pen was to suggest that something more might be said upon the best way of keeping, say, late Apples and Pears, so as to have them in good condition as long as possible. They must be well grown to keep well, that will, I think, be readily admitted; they must also be gathered just at the right time; gathered too soon they will shrivel, and if left too long they fall and are bruised. This question of gathering and storing is of almost equal importance to the cultural one. It may be taken for granted that a poor man cannot afford to build an elaborate fruit room, but if he goes in for late Apples he must have a suitable place of some kind to keep them in, unless he buries them in the ground with his Potatoes. E. H.

RENOVATING OLD ORCHARDS.

THE grafting of healthy trees of worthless or unsaleable kinds with such as are in constant demand ought to be now occupying the attention of those who may be the owners of such, and that they are numerous enough needs no proof, for if existing orchards of mature age are examined it will be found that many do not pay for the space they occupy, solely from being planted with kinds that are either very shy croppers, or that are of no market value when they do happen to bear a crop. As the best time for re-grafting is now at hand, it may be well to call attention to one or two matters connected with the operation, which, although they may appear trivial in themselves, doubtless exercise a deal of influence on the progress of the grafts. I allude more especially to the mode of heading down the tree ready for grafting, and to the question of retaining the spray-like growths, as advocated by Mr. Coleman, or trimming the stock up quite bare, as advised by "A. D." There are, doubtless, two sides to this as to most other questions, but from my own experience (extending over several years) of the fruit orchards about Maidstone, I should decidedly advocate Mr. Coleman's plan, as the small limbs soon heal over, and do not leave a trace of dead wood in the centre of the living grafts to prove a source of trouble at a future time. Then as to the question of leaving the spray-like growth on the stock until the grafts make growth enough to utilise all the flow of sap, I must say that the merits of this plan are pretty generally recognised and acted on in Kentish orchards, and although I had previously been in the habit of trimming up stocks as advised by "A. D.," yet I soon changed my tactics on seeing the excellent results attained by re-grafting, especially with such kinds as Stone's, Wellington, and Northern Greening. These may be found by hundreds double-grafted on The Goff and other very strong growers that are in many cases planted specially with the object of being re-grafted as soon as a head of branches sufficiently large is formed for the purpose. Some varieties, of which Stone's is a familiar example, take a long time to form a good head in any other way. Grafting, although a very simple process to those who have spent much time in the hardy fruit garden, is difficult to those who rely on book learning for their guidance, and many owners of worthless trees are deterred from undertaking the work of renovating their orchard trees from fear that the operation of re-grafting might prove a failure. Plenty of gardeners to grow

Orchids or fruits under glass can be had, but when the question of orchard management arises, the majority know very little, and it is in spreading knowledge of this kind that our future horticultural schools or colleges may find ample scope for their energies. One might write books on grafting and kindred subjects without being able to impart as much learning as he could in half an hour by object lessons.

J. GROOM.

Gosport.

FIGS UNDER GLASS CASTING THEIR FRUIT.

I SHALL feel greatly obliged if any writer in THE GARDEN would kindly give me a hint or two concerning some Figs under my care. The house is a lean-to, the end house of a range of six, and a brick wall forms one end and the back. The trees are trained up said back and end, and on a curved trellis in the centre of the house. The difficulty is this: When the Figs are the size of Walnuts they cease swelling, turn yellow, and finally drop off. The kind grown is mostly Brown Turkey.—H. W.

*. Although Fig trees revel in an abundance of light, the form of the house in question is not unfavourable to the production of good fruit, as the bearing shoots, I gather, are within a reasonable distance from the roof. The cause of dropping when the fruit is the size of a Walnut, no uncommon occurrence, therefore must be sought for in another direction; but without seeing the borders or learning how they are drained and made, their mean temperature when the trees are in growth, and other matters of detail, it is simply impossible to say with any degree of certainty why these particular trees do not perfect their fruit. Under these circumstances, it may be well to give, in brief outline, conditions most favourable to dropping, followed by the best mode of restoring the trees to health. The Fig, it must be borne in mind, is a native of sunny lands, in which the roots as well as the shoots have the benefit of a high temperature, and there, provided they get plenty of moisture, they do not cast their fruit. Those high figures here are neither absolutely necessary nor desirable, as the heat in our forcing houses must be regulated by length of days and the amount of light—not that 90° to 100°, after being shut up on a fine afternoon, will do any harm, always provided we give proper rest through the night and the root-run is not too foul and cold. The Fig is not an early tree; it requires a temperature equal to that we give to the Vine to bring it into leaf, and, being a gluttonous feeder, it makes very strong wood which does not always ripen in our glass-houses, especially where the borders are shaded from the sun and lie wet and cold. The conditions, then, most favourable to dropping are cold, constantly wet, badly-drained borders of unlimited extent; gross, soft, sappy, unripe wood; a cold, damp atmosphere through the season of rest, and more rich food than the trees can assimilate when the Figs are in flower. Extreme drought, as a matter of course, will cause dropping where the roots are treated to a perfect system of bottom-heat; but the majority of cases, especially in glass-houses where the borders lie against the foundations of the walls, are due to a mean temperature much too low. If any of these predisposing conditions fit "H. W.'s" case, he may get over his difficulty by fastening the screws he finds loose, first, by lifting the trees bodily, concreting, draining abundantly, and relaying in elevated borders of limited extent. Some provide for each tree a limited or prescribed space by building division walls of brick, but unless heated by means of hot water they retain moisture and are always cold; others give each tree a bank of calcareous compost resting on ample drainage, and kept in position by warm elastic walls of turf. Then in order to keep the trees in good bearing condition they pare down these walls, roots included, every autumn and re-build with fresh turf. The unoccupied portions of the border area, left open and quite dry all the winter, are filled with fermenting materials, when forcing is commenced. Water at a temperature equal to the mean of the house or higher is given to these blocks *ad lib.*, and under this treatment the root

temperature is raised to 70° by the time the flowering stage is reached. The wood, moreover, checked by carrying good crops to maturity and annual root-pruning, is short-jointed, hard, and ripe early in the season; consequently by being kept cold and dry the trees have a full season of rest. Fig trees may be root-pruned at any time during the season of rest, but the most suitable period is that which intervenes between the finishing of the crop and the fall of the leaf; then, if the compost, limited in quantity, poor rather than rich, and kept dry until the buds begin to swell, be well mulched and copiously supplied with warm liquid throughout the season of growth there will be little danger of their casting their fruit. So important is full control over the roots and the maintenance of warmth in well drained compost, that I have grown Figs for years in a house similar to that described by "H. W." with stem roots only, packed with bits of mossy turf against the back wall. These roots, clinging like the roots of an Orchid, are allowed to get dry when the leaves fall, and they remain so throughout the winter, but barrels of warm diluted liquid, poured in at the top, out at the bottom and away, are given when we are feeding the fruit. Trees treated in this way give such magnificent crops that I should have no hesitation in packing the stems now trained against the back and end wall of "H. W.'s" house, and when the roots are established those in the original border, especially if cold, wet, and beyond control, not only might, but would be better cut away. Our nearest approach to an Italian Fig climate may be found in a high and dry corner facing south-west in a walled kitchen garden or stable yard, and there, although the root-run is hot, dry, and poor, the short stumpy pieces of wood forming the border not only show thousands of fruit, but ripen good crops almost every year. Some humane persons give them a bit of mulching and an occasional barrel of water, whilst others assert that they are quite capable of taking care of themselves and do best when left alone. If we compare these conditions with those so frequently met with in Fig houses enclosed by four cold brick walls, with badly drained, sunken borders shaded from all sun, we may readily arrive at the conclusion that the latter are more suitable for Willows or aquatics than a southern fruit which requires quite as much heat, light, and air as the Vine.—W. COLEMAN.

The weather and the fruit crops.—The weather with us here, in East Anglia, has set in severe at last, as on the two closing nights of February the glass registered 13° of frost, and to-day (March 1) it has been snowing heavily, which is, perhaps, fortunate, and would have been even more so had it come a little before, as the covering might have saved many things that have suffered from frost. The air has been still, and that of course has favoured plants and vegetables. It is to be hoped that no great harm will be done, but Apricots, with all the care that can be taken, must suffer, as they are now almost in full bloom. We have a thick cloth run along with rings on wires stretched under the coping and near the ground, but 13° of frost will, I fear, get behind that. Peaches are not forward enough as yet to take any harm. Pears have been throwing their scales, and look at a dangerous point with the soft bud exposed, but keen cutting winds are often more fatal than frost, and we can only hope that we shall be spared the infliction of these. The cold is not altogether to be regretted, as it will keep things back, and perhaps be the means of so checking the opening of fruit blossoms that we may get a good set and crop.—J. SHEPPARD, *Woolverstone*.

Late Pears for profit.—I much question if it will ever pay to go to the expense of putting up board screens for the purpose of growing late Pears, as we cannot get away from the foreign competition that we have now to contend with. There are exceptionally favoured spots, however, in this country where the soil is well suited to late Pear culture, and where the land is sloping to the south, and so shut in from the cold sides by hills and trees, that no wind and scarcely any spring frosts ever reach them.

Such places might, with great advantage to the owners, be utilised for the work. Going no further than just across the river from here, there are many acres of just such land as I have mentioned, and which is only let at a cheap rate for agricultural purposes, but which, I should think, would be worth at least treble for gardening, as not only Pears, but Tomatoes and early Potatoes or produce of other kinds might be grown there. The recommendation of such positions as that referred to is that not only is any sort of screen beyond what already exists unnecessary, but Pears may be fully exposed on all sides, which is highly important in getting high-class fruit, for it is a well-known fact that Pears from espalier trained trees or from thinly trained pyramids are superior in texture and flavour to those obtained from trees on walls that only get the full light and sun on one side.—J. SHEPPARD, *Woolverstone, Ipswich*.

EFFECTS OF OVER-CROPPING VINES.

In the course of Mr. Hudson's highly instructive paper on "The Vine" the following passage occurs: "No plant with which I am acquainted is so disposed to exhaust itself by its prolific fruit-bearing character as the Vine. I wonder sometimes what would be the result if we left all the bunches that show upon young Vines. That they would not arrive at perfection is quite certain; in all probability they would not be better than wild Grapes" (see THE GARDEN, p. 114). Mr. Hudson evidently has not met with a case of reckless over-cropping, but makes a very shrewd calculation as to what would happen wherever it is allowed to occur. In the course of my career I have met with several instances where the Vines have been allowed to fruit to their utmost extent, but am only able to give the ultimate effect on one of them. In a garden with which I was once connected two new vineries were built, and good inside borders formed for each. For about five years the Vines were well attended to. They made excellent progress from the first, and were in good bearing order to the full length of the rafters, when a break up in the establishment occurred. In the place of the head gardener, an inexperienced outsider or labourer was put in charge of the place, and on visiting the place out of curiosity during the following summer, a most extraordinary crop of Grapes met my astonished view. Never before nor since have I seen so many bunches of Grapes in two houses, and what an alteration in the appearance of the varieties. What should have been oval-berried varieties, these including Foster's Seedling, Madresfield Court, and Alicante, had perfectly round berries; those that should have been black were hardly even red in colour; the white varieties were grass-green in colour, while all the berries were miserably small, and the bunches loose and shapeless. It would have been impossible to recognise any one of the varieties, and a more inferior lot of Grapes could not well have been grown. Having long since lost all touch with the place, I am quite unable to state what was the fate of those Vines, but should say that the first experienced gardener who took charge of them again would replace them with others as quickly as possible, Vines pruned on the "natural system" not being very easily got back to the single rod and spur method of training and pruning.

Another set of Vines that had been much over-cropped for several years was quite recently put under my care. I had frequently warned the owner that he was much overdoing it, and that sooner or later the Vines would completely break down, and this actually happened last season. For the previous eight years they had been gradually declining, and that, too, in spite of very liberal treatment as far as the roots were concerned. At one time too bunches were left on every spur, then the time came when these did not put in an appearance, but even this refusal on the part of the Vines to form more bunches did not result in a recovery of vigour, and, as before stated, a total collapse at last took place. Whether one season's complete rest will restore them somewhat remains to be seen, but they are now breaking fairly strong and even. There are very few gardeners

in a fairly good position who have not been often consulted by ladies and gentlemen owning Vines as to what ought to be done to these at different times, and most of them will agree with me that it is a most difficult matter to persuade them how very unwise it is to over-crop. We are all more or less prone to err in the same direction, it being a common expression that each gardener should thin his neighbour's crops, but if we do sometimes err in respect to over-cropping, we do not go so far in the suicidal course as to ruin our Vines past recovery. Not only is a moderately heavy crop, or say not more than the Vines can well support, the most profitable in the end, both as regards quality and market value of the fruit, but it is the only safe one in the long run; at any rate, in all cases where the market grower's practice of rooting up exhausted Vines every few years and replanting young canes cannot well be adopted.

What Mr. Hudson has to say concerning the number of bunches, or weight of crop Vines ought to carry, is well worthy of careful perusal. As he points out, the greatest judgment must be exercised in the matter, so much depending upon circumstances. What might appear a light crop to some who have been accustomed to see Vines carrying a much greater weight of fruit is in reality quite as much as the Vines are capable of supporting and maturing without injury to themselves, and all credit is, therefore, due to those who have the courage to sufficiently reduce the number of bunches. It goes "against the grain" with many to freely cut away bunches, but as it often happens those who are somewhat chary in this respect find, when too late, or after much mischief has been done, that they have reserved too many. Not till the final swelling and colouring of the berries take place can some growers fully realise the extent of their error, and although reducing the number of the bunches at that late date may benefit the Vines somewhat, it is usually too late to enable them to well "finish" the crop. What last season promised to be one of the best crops I had yet seen was completely marred by over-cropping. I saw the bunches when in flower, and again when coloured or rather ripe, and a remarkable crop of spoiled Grapes it was. In several instances bunches of Gros Colman, Alicante, Madresfield Court must have weighed from 3 pounds to 4 pounds, and they were touching each other all down the rods. Another similarly heavy crop, for the Vines appear capable of producing it, and the downward career will be rapid. These Vines are rooting in a moderately large border formed solely of strong turfy loam and crushed bones. As far as my experience goes, those planted in a strong or rather clayey loam are not so quickly affected by over-cropping as those rooting in a light, spongy, loamy compost, the greatest judgment in cropping being absolutely necessary in the latter case.

W. IGGULDEN.

PRUNING BUSH FRUITS.

It would almost seem as if the life of a Gooseberry or Currant bush might be indefinitely prolonged by the mere act of hard pruning every few years in such a way that the old bush would be in time practically changed into a new one. Gardeners generally are very strong upon the need for having all bush fruit trees upon clean single stems. Everybody has them so for a time; but presently there comes a break or two from the base, and if these be not ruthlessly cut away they later become incorporated into the bush, and as others of a similar nature succeed, the old wood and the one clean single stem gradually disappear and an entirely new bush has been created. That is just the process which goes on so largely in our market gardens. In process of time the bushes become almost clusters of growths; in fact, were not this method tolerated, the originally planted bushes would disappear altogether in time, and would have to be replaced by newly-planted ones. There are not many growers who, for the sake of a fad about single stems, will have the courage to destroy acres of productive bushes just because they are largely made up of suckers. It is too serious a matter, and

especially so when these sucker-made bushes are producing many hundreds of bushels of fruit. I was looking over a big fruit orchard the other day, the whole of the bottom of which is planted with Gooseberry and Currant bushes. The bulk were put down twenty-one years ago, and marvellous crops have been produced since. As the soil is somewhat stiff and at times heavy with water, the ground prior to planting was slightly ridged, and on these ridges the bushes were placed. The result has been of the most satisfactory kind, as not a bush has died, and all even now are in rude health. Even during the past winter, so regularly every few years does the process of renovation go on, that there have been cut out from the breadths many wagon-loads of thinnings, branches cut away close to the ground giving light and room to the abundant new growths which come up from the base. I can see no reason whatever why, with this course of treatment, this breadth of bushes, several acres in extent, should not be as fruitful twenty years hence as now if this drastic course of treatment be followed. During the winter a dressing of fresh London manure is laid about the roots of each bush after the pruning is done, then follow the digging forks, which turn over the intervening soil roughly, but not deeply. This work is paid for by

both of which suffer when the sun is too powerful, especially in exposed positions, where the north and east winds prevail long, these rendering the leaves very thin. If a little shade can be given, it certainly assists and does no harm. I should say in lean-to houses the Vines will stand it better, but in span-roofed vineries they get more light and sun and for a longer time. I shaded Gros Maroc last year, and the result was all I could wish. The bunches coloured well and the wood ripened satisfactorily.—J. F. WILKINSON.

STOVE AND GREENHOUSE.

MASSANGEAS.

THIS is a sub-genus of *Caraguata* of Lindl., and it contains a few very handsome plants, which are conspicuous for their beauty all the year round. It is to such species I wish to draw the attention of my readers in order to induce them to commence their culture. The following plants, all nearly allied and similar in aspect, are deserving of a foremost place in every stove in the country. They require to be treated



Massangea hieroglyphica.

the piece and is rapidly done. There is no forking just about the roots, but the soil from the centre is laid up about the ridges to cover the manure and maintain the ridge. Later the hoe is plied vigorously over the soil, and the surface, before so rough, is levelled. The keeping of the surface fairly free from weeds is of the first importance, and that is helped later by throwing in a mulching of long manure between the rows of bushes when practicable. The treatment may seem to be rough, but it is effectual, and there is ample feeding. Having regard to the heavy crops taken from the bushes, liberal feeding is essential and pays. Many valuable lessons in hardy fruit culture may be learned in our London market gardens. A. D.

Shading Gros Colman.—I have been very much interested in the discussion on the above Grape. I have been a successful grower of Gros Colman for twelve years, and find that to do it well shading is necessary in a bright season, especially where the Vines are getting old and bearing heavy crops. Mr. Riddell's treatment is more suitable for Madresfield Court when beginning to colour.—N. B.

—I agree with Mr. Stratton that a little shade is necessary for both Gros Colman and Gros Maroc,

in a similar manner to that recommended for Tillandsias, to which they are nearly related.

M. HIEROGLYPHICA.—This plant (see illustration) was first introduced into cultivation by Mr. Wm. Bull, of Chelsea, and I cannot help thinking he had this species somehow mixed up with the next one. It forms a dense rosette, the leaves strap-shaped, sheathing at the base, the ground colour yellowish-green, marked with conspicuous irregular-shaped transverse bands of blackish-purple, which render them very handsome. I have not seen the flowers of this variety, so cannot say if they are handsome or not, but it is a singularly beautiful plant without any bloom. It comes from Southern Brazil.

M. MUSAICA is another very beautiful variety similar in habit to the last, but with broader and more obtuse leaves. The ground colour of the leaves is deep green, more or less tinged with purple, and they are conspicuously marked with irregular reddish-brown lines. The spike is erect, nearly as long as the leaves; the bracts are numerous, clothing the stem, deep red, the flowers small yellowish-white faintly tipped with lilac, in some plants blue. It comes from New Granada.

M. LINDENI.—This plant resembles *M. musaica* in the markings. As a flowering plant, however, it does not rank high, and I would advise the spike

to be cut off when well above the foliage, saving when seeds are wanted. The leaves are strap-shaped, slightly recurved at the tips, the ground colour being pale green or yellowish-green, transversely banded with narrow lines of vivid green and reddish-brown; the spike is clothed with bracts about an inch long marked exactly like the leaves. It was introduced by M. Linden, of Brussels, whose name it bears, but it is included sometimes in the genus *Schlumbergeria*, which Baker, however, makes a sub-genus of *Caraguata*.

M. MORRENIANA.—This belongs to the same set as the last-named plant. The leaves are each about 2 feet or more long, narrow, and plain green on the upper side, the under surface being curiously covered with narrow transverse lines of rusty-brown; the spike is erect, the bracts reddish-brown, and the corolla yellow. It was introduced by M. Linden from Peru. G.

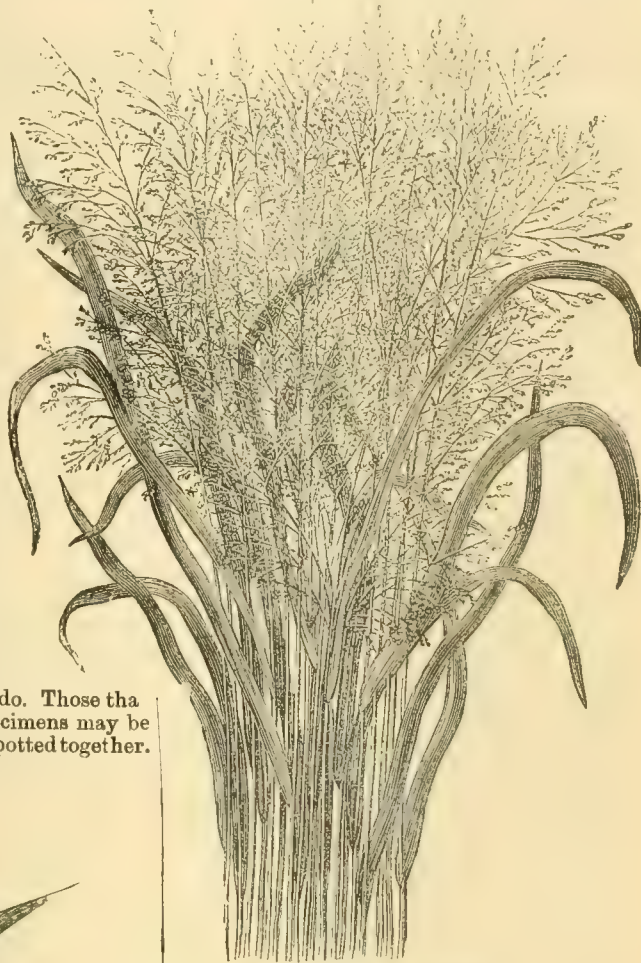
ORNAMENTAL GRASSES.

MANY of the common Grasses have long been used in the arrangement of cut flowers, and very effective they are, for they give a lightness which cannot be produced by the use of any other material. Some of the Grasses are not only useful in a cut state, but are equally valuable as pot plants, and for both purposes they should be used much more extensively than they are at the present time. For ordinary decoration they are as effective as Palms and other choice stove plants. Some of the small growing sorts may also be used in preference to the small Ferns which have found so much favour during the last few years. Indeed, some of the leading florists have already begun to use Grasses in preference to Ferns for some purposes. In the arrangement of plants for effect it not unfrequently happens that individuality is lost through crowding up valuable plants to-

giving them a place in any important decorative arrangement; yet I cannot conceive a greater error, for it is undoubtedly a great gain to be able to produce a pleasing effect at a little cost, besides which, the choicer plants, many of which are often greatly damaged by exposure, may remain to be admired in more congenial quarters.

Although the Grasses do not require a great amount of care and attention to grow them on into clean healthy specimens, they must have a fairly good position, and must not be allowed to suffer for want of water. All the Grasses like an open sunny position, and the hardier sorts may be grown in an intermediate temperature, where they will make longer leaves; and as it is the foliage which is of the most value in those sorts recommended for pot culture, this is of great importance. Except where otherwise recommended, the Grasses should be potted in good, rich, loamy soil, and may be liberally supplied with manure water as soon as they are well established. With the exception of the variegated varieties, all the most useful sorts should be obtained from seed, for although divisions may be easily made, they do not form such nice plants as seedlings do. Those that are required to form compact specimens may be grown in clumps of several plants potted together.

graceful foliage; the inflorescence is also very attractive. This may be obtained from seed, but the variegated forms should be increased by division, the best time for dividing them being in the spring, just as they begin to start into growth.



Panicum virgatum.

CAREX JAPONICA is a very pretty little Grass, with bright green foliage; the leaves are narrow and grow erect, curving over at the points. It is very useful for small fancy pots or wherever small fine-foliaged plants are required. It is much used for mixing with early forced bulbs when they have not much of their own foliage. It is also very pretty for vases. At a meeting of the Royal Horticultural Society last autumn a very pretty variegated *Carex* was shown. No specific name was given, but it appears to be closely allied to the above. It is of very slender growth, and the leaves are more recurved than in the above. Of the first-named the seed should be sown in the spring and during the summer the plants may be grown in a cold pit, and if placed in a little warmth in the autumn they will make useful little plants for use during the winter.

PANICUM SULCATUM.—A beautiful Palm-like Grass, which grows very rapidly. It attains to about 2 feet in height and has rather broad recurved leaves. For ordinary decoration this is as effective as Palms.

P. PLICATUM may also be recommended; it is of rather more slender growth than the above.

PANICUM VIRGATUM, a hardy species, is, as will be seen from the illustration, when in flower a very handsome Grass. If sown in the open ground it may be lifted and potted up, when it will be found very useful.

PHALARIS ARUNDINACEA VARIEGATA, the common Ribbon Grass, may be cultivated in pots, and in



Panicum plicatum.

gether; whereas if plenty of fresh green dwarf plants were at hand to form a groundwork, fewer valuable plants would be required, and those used would show off to greater advantage. Grasses are not only valuable as plants for groundwork, but some of the sorts are very elegant, and when grown under favourable conditions are very suitable for table decoration and other purposes where effect is considered before costly material. I know there are those who consider that Grasses are much too common to be worthy of notice, and would not think of

EULALIA JAPONICA VARIEGATA.—This is one of the prettiest of the variegated Grasses, the long, narrow, gracefully recurved leaves being regularly striped with pure white. This makes a most effective table plant. Although quite hardy, it should be grown in a little warmth, where the variegation comes brighter and more distinct. In *E. j. zebrina* the variegation is very distinct, as instead of being along the leaves it is in the form of broad bands of creamy white at regular intervals, both stems and leaves being marked in the same way. The ordinary green form is also a desirable Grass, on account of the bright green

early spring it is very pretty when grown under glass, but it should not have too much heat. There is a variety called *elegantissima* which is perhaps the more desirable, being more slender and not so stiff in habit. This Grass may be taken up from the open ground and potted as it is wanted, and either as a pot plant or for cutting from, it is very useful.

DACTYLIS GLOMERATA ELEGANTISSIMA may also be treated in the same way, and as an edging it is very pretty.

CYPERUS ALTERNIFOLIUS.—This, though extensively grown for market, is not nearly so often seen in private establishments as it deserves to be, for either as a small plant for table or as a large specimen it is very effective. When treated liberally it may be grown from 4 feet to 5 feet high. The variegated form is also very elegant, but this should be grown in light peaty soil, as when potted in a rich compost it loses the beautiful variegation.

ISOLEPIS GRACILIS.—As an edging this is one of the most valuable plants we have; it should be grown in a stove temperature and must be well exposed to the light. This may be readily increased by division. It should be potted in rich loamy soil.

OPLISMENUS BURMANNI VARIEGATUS, better known as *Panicum variegatum*, is a very tender Grass, and can only be used in the stove, except during the summer time, when it will last fairly well in the greenhouse. This should be propagated from cuttings and grown in light sandy soil.

Many of the annual Grasses may be grown in pots and are very pretty when in flower, but it is a little difficult to have them in good condition just at the time they are most wanted.

F. H.

Medinilla Curtisi.—This is widely removed from the showy *M. magnifica* and *M. amabilis*, being altogether a smaller growing plant and a more recent introduction than either of them. Its usual flowering season appears to be during the end of the summer and in the autumn, but we have recently had it blooming very freely. It forms a low-growing much-branched shrub, with ovate oblong-shaped leaves of a bright green colour with reddish midribs. The flowers are borne in large terminal and lateral panicles, the flower-stalks being of a coral-red colour. The individual blooms are about half an inch in diameter, and from their numbers they make a goodly show. It is of easy culture, requiring, like the other members of the genus, the temperature of a stove. This species is a native of Sumatra, from whence it was introduced by Messrs. Veitch, who distributed it in 1884.—T.

Symplocarpus fetidus, or *Pothos fetida*.—This which you note as now flowering at Kew in the open air has been grown here as a pot plant for many years, which is the best way to enjoy the strange flowers, the odour of which is very offensive. I obtained the plant forty years ago from Messrs. Rollisson at the then Tooting Nurseries. By the way, the breaking up of these celebrated nurseries was a deplorable event to plant collectors, as they teemed always with rarities not obtainable elsewhere. It seems to be of very slow increase, as through all these years it has never given me an offset. It sometimes seeds, but mice always find them out and devour them before maturity. It is rarely seen now in catalogues, although it is well worth growing by lovers of vegetable oddities. The stemless flowers sitting on the soil appear before the leaves, and the hooded brown-spotted spathe enclosing the round spadix covered with tiny spines or points is very curious.—J. M., *Charmouth, Dorset*.

Lisianthus princeps.—What has become of this plant, which Dr. Lindley described as one of the noblest plants in existence? Mr. Williams, of Holloway, was selling seeds of it some few years ago. Did anyone raise any plants? I have now some dried flowers before me received from New Grenada, in the neighbourhood of Pamplona, at considerable elevation, by which I should imagine it would grow in quite a cool house with *Masdevallias*. It grows some 2 feet or more high, and bears at the ends of the shoots clusters of tubular flowers each

some 4 inches or 5 inches long and of a bright rich scarlet, which passes into golden yellow at the ends, and it has a shallow spreading limb of light bright green. It appears to be a plant of surpassing beauty, and I should much like to hear if it is now to be found in the country in a living state.—H. G.

THE YELLOW GROUND CARNATION AND PICOTEE.

DURING the last few years much interest has been manifested in the yellow ground class or section of this "elegant and noble flower," as Dr. John Hill wrote of it 120 years ago. Dr. Hill was a great admirer of the *Carnation*, and he certainly knew something of its culture; moreover in his day the flakes and bizzars were of a high order of merit. He also grew the *Picotee*, and I turned eagerly to his well-known work, the "Eden, or a complete body of Gardening," to see if he had anything to say about the yellow *Carnation* and *Picotee*, but he does not mention it. We may take it, therefore, for granted that it was not known in England in 1773, but it must have been introduced about the end of the last century or early in the present one, for Mr. Thomas Hogg, of Paddington, obtained information about its cultivation in the early years of the present century. But it was evidently not a plant for persons of small means, for he mentions its culture by empresses, queens, and princesses only, and that the plants themselves came from Germany. Mr. Hogg was also informed that the yellow ground *Picotee* was grown freely in the island of Madeira, and that the varieties were beautiful; "some were plain, others again were marked with red or black spots, and others curiously mottled." Hogg describes them in his book (published 1839) as consisting of many varieties, such as "yellow and purple, light and dark, yellow and dark red or claret colour, yellow and scarlet, yellow and pink, and plain yellow of various shades." Hogg was very confident in his methods of culture, composts, &c., but writing of the yellow *Carnation* and *Picotee* he says: "I confess I am at a loss to say what compost is proper to grow it in, and yet after all the fault does not rest with the soil, but the climate, which, take it the year round, is too harsh and moist for this delicate exotic."

All the information we can glean leads us to the conclusion that the yellow *Picotee* was at its first introduction to England a very delicate plant indeed, but the coloured plates put in as evidence show conclusively that the colours were a deep yellow, the markings richly coloured and the flowers of excellent form. The one in Hogg's book at p. 58 is the worst of them, but it is a bad drawing, the flower fringed and badly marked, but the colours are good. The yellow *Carnations* and *Picotees* now in cultivation are of even more vigorous growth than the white ground varieties, but the colours of the flowers warn us that we must not depend upon the plants having the same constitutional vigour. Those of us who are constantly working amongst the plants speedily become acquainted with their peculiar characteristics, especially in the colour of the leaves and their relation to the colour of the flowers. I have had every one of my plants through my hands during the present week and made a special study of the foliage. There are amongst them something like a hundred varieties of yellow grounds, and every one of them shows a yellow tinge in the leaves, so that there is no difficulty in selecting the yellow ground varieties merely by the leaves alone. As a rule, too, they are of a distinct form, broad and upright, but another type is to be found with more slender, graceful leaves. These are more recent, and are seedlings from *Ne Plus Ultra*, a fine yellow ground *Picotee*, raised some fifteen years ago by Mr. Charles Turner, of Slough; it is still vigorous, and shows conclusively that when well grown the yellow grounds are not more likely to degenerate than the white. Indeed, we have stronger evidence still in the variety *Prince of Orange*, the parent of all the best yellow grounds. It must have been in cultivation for thirty years. I have grown it for nearly a quarter of a century, and it

still gives us very fine flowers. In reference to this matter of leaf colour, one can distinguish the flakes and bizzars that have sported to self by the deeper green colour of the leaves; the flake is in the leaf, as well as in the flower, not so apparent to the ordinary observer as the flame or feather in a *Tulip* leaf, but easily discernible to the careful student.

The culture of our modern varieties of yellow ground *Carnations* and *Picotees* does not differ much from that of any other section, but it does not take long to find out that those varieties with most yellow in the leaves are the more tender, and the leaves suffer much from long-continued damp in winter unless the plants are placed in airy glass frames or houses. When this is necessary of course the plants must be removed from the class of hardy subjects and be what Hogg terms them, "delicate exotics." I have been trying to get a hardy strain that will stand the winter out of doors and have succeeded. It is much better, I think, to throw away all weakly growing seedlings, or such as will not retain their leaves in a healthy condition during winter. I had something like a dozen new seedlings to prove this winter, and planted from six to a dozen pairs of each, and as this was not a trying winter, it was easy to see which varieties ought to be saved or rejected. It is worth while, I think, to go to some extra trouble to obtain a bed of healthy *Carnations* and *Picotees* out of doors, even if they are varieties that do not pass through the winter well when fully exposed. All such ought to be wintered in cold frames and be planted out in the open garden from the middle to the end of March. The plants must all be potted up that are required for this purpose early in October, so that they are rather more than five months in pots under glass. No artificial heat is required, merely the glass shelter from heavy rains. Some of us can well remember the trouble and expense that used to be incurred by amateurs of small means to winter their zonal *Pelargoniums* and other tender plants for bedding out, but no *Carnations* require anything like such care. They should be carefully planted without disturbing the roots, as much interference with the roots of *Carnations* in March is fatal to their well-being. They like a clayey soil, but the plants ought to have a portion of open sandy loam around their roots to start them into growth at the beginning. Inquiries have come this year from amateurs who find that their *Carnations* have not done well last winter out of doors planted in damp clayey loam. This is not to be wondered at if they were turned out in the open ground without any kind of preparation in the first place. Our soil is heavy and damp, but we have not had any losses amongst our *Carnations* or *Picotees* out of doors because the ground is prepared for them by raising the beds for the plants from 6 inches to 1 foot above the surrounding level, and we also drained the ground. Further, when the plants are set out in the autumn we usually place some light soil such as is used for potting around the roots of each plant. The plants start readily into this, and the soil being porous the water does not hang about them, the raised beds preventing this. I may add here that we could not cultivate *Tea Roses* in the open garden until we adopted the system of raised beds, with the addition of some good compost to start the plants in.

J. DOUGLAS.

Clematis hexasepala.—This is a New Zealand species, and which, although the flowers are not so large as those of *C. indivisa*, is well worth attention. It has been one of the admired objects in a cool house at Newlands, Sittingbourne. It appears to be a somewhat common plant in the Middle Island, from whence I have frequently received flowers in a dried state. The leaves are dark green, and the flowers, which are freely produced, are pure white. It is a plant which everyone should have to decorate a cool house. It grows well in sandy loam, and the pots should be well drained.—W. H. G.

Megasea Stracheyi.—This beautiful *Megasea* is perfectly hardy, but it also forms a very useful subject for flowering under glass early in the year, when the flowers open much brighter than they do out of doors. Good-sized clumps make a fine display if

they are lifted carefully in the autumn, potted into suitable sized pots and placed in a frame, where soon after the advent of the new year they will commence to throw up their blossoms. The individual blooms are rather large and white, with a reddish centre. This *Megasea*, which is a native of Northern India, is very distinct from the other species belonging to the same section.—H. P.

Correas.—Were it not for the sparse leafage of *Correa cardinalis* it would be an even more desirable plant than it is, and yet if it had more foliage, the brilliant tubular-shaped flowers would not show off so well as they do. These the plant bears in the greatest abundance, and as this *Correa* blooms in the winter it has a special value, and is worth growing by anyone who has a greenhouse. Although, perhaps, a little straggling in habit for a pot, it looks well on a stage, but better still on a pillar or tied up loosely under a rafter, as there the branches depend and make a fine show. If planted out, the border should be prepared by being drained, and the plant put out in fibry peat and loam, in about equal proportions, with a good dash of coarse sand to keep the whole open. After flowering, all that is necessary is just to stop any shoots that appear to be taking an undue lead, to assist growth by an occasional syringing, and to watch and ward off green fly, which is the only insect the plant is subject to when the young leaves are tender and soft. *C. bicolor* is also a desirable variety, and is more robust than the one just referred to, and is good either as a pot plant or for the same use as the other. *C. cardinalis* is generally grafted on this kind, and always does better than when on its own roots. The flowers of *C. bicolor* are short and more distended at the mouth than those of *cardinalis*, the cream and red colours blending one into the other.—S. D.

Rhododendron Nuttalli.—This *Rhododendron* is very attractive just now owing to the bright tints the young foliage assumes. Unlike some of the Himalayan *Rhododendrons*, the strap-like scales that surround the leaf-buds and hang down when growth commences are not brightly coloured, but green, this, however, being atoned for by the rich hue of the expanding foliage. The upper part of the young leaves is densely covered with small rosy purple-coloured scales, which gives them quite a velvety appearance, varying in tint according to the standpoint from which they are viewed. On the lower half of the leaf these scales are much less numerous and of a rusty brown colour. The rich hue of the young leaves is a good deal influenced by the position in which the plant is placed. This peculiarity may be often seen even on the same plant. For planting out in a large conservatory *R. Nuttalli* is one of the finest of the Himalayan *Rhododendrons*. The individual blooms are very large, pure white, except a yellowish base to the tube, that is when they have been opened a few days, as when first expanded they are of a uniform creamy tint. Instead of being arranged in a compact truss or cluster, as in many species, the flowers are disposed in a horizontal tier, usually resting on the collar-like arrangement of noble foliage that surrounds the bloom. This *Rhododendron*, grand though it is, seems to be much less common as a stock plant in our nurseries than many other Himalayan species, the cause, perhaps, being that the seed is more difficult to obtain, though cuttings of the weak or medium shoots will strike root without much difficulty.—H. P.

Akebia quinata.—In some parts of England this *Akebia* will grow and flower well out-of-doors, and in many others it will pass the winter with little injury, but, generally speaking, it is as a greenhouse plant that this pretty Chinese climber is seen at its best. It is a slender-growing twiner, which we are told by Fortune festoons the trees and hedgerows in some districts of China as the Honeysuckle does with us. In the greenhouse at this season the bright green divided leaves are very cheerful, while the curious yet pretty blossoms are just commencing to expand. Their colour, a kind of vinous purple, is very different from that of any other greenhouse climber now in bloom. This *Akebia* must not be formally trained or tied, but as far as

possible should be allowed to grow at will. In this way the slender shoots will dispose themselves in graceful confusion. Should wires or any other means of support be at hand, this *Akebia* will attach itself to them without any trouble, and soon cover a considerable space; indeed this last is necessary, as should it be pruned and tied in or curtailed in any way flowers will be sought for in vain. Like most climbers, it should be planted out, and if associated with the white star-like flowered *Clematis indivisa* a pleasing combination is the result, especially when they flower together, but as a rule the blooms of the *Clematis* are nearly over before those of the *Akebia* commence to expand. This last, however, is more continuous blooming than the *Clematis*, as it will often bloom for nearly three months, and then sometimes produce a second crop of flowers later on. The foliage of the *Clematis* too is, during a damp winter, frequently attacked by mildew, which never seems to affect the *Akebia*. This last is readily propagated by cuttings of the young growing shoots, put in at any time during the spring or summer months, rejecting the very strongest ones for the purpose, as those of medium vigour strike root more readily. Cuttings of the roots also grow well.—H. P.

RHODODENDRON CILIATUM.

THIS little Sikkim species of *Rhododendron* will bear forcing prematurely into bloom as readily as an *Azalea*, and for pot culture it is well suited, as the plant is naturally of a close compact habit, while every leading shoot may be depended upon to produce a cluster of blush-coloured blossoms. Out of doors later in the season and more exposed, the flowers are usually of a deeper colour; but in this respect they vary a good deal, no doubt owing to many of the plants having been raised from seed. This species is hardy in most districts, but it is of course only as an indoor plant that it is now seen in bloom. *R. ciliatum* has been largely used by the hybridist, there being many valuable varieties claiming parentage from this particular species. One of the oldest is *R. Princess Alice*, obtained many years ago by Messrs. Veitch from the intercrossing of *R. Edgeworthi* and *R. ciliatum*. This at first attracted considerable attention, principally owing to the delicious perfume of the blossoms, in which respect we have many now quite equal if not superior to it. A totally distinct variety is *Countess of Haddington*, the result of crossing *R. ciliatum* with the primrose-flowered and straggling-growing *R. Dalhousiae*. In this the individual blooms are large, bell-shaped, and pinkish in colour. They are also very sweetly-scented. The Moulmein *R. Veitchianum* crossed with *R. ciliatum* produced *R. exoniense*, a pretty and distinct variety, which is of a dwarf, much-branched habit, the foliage being more like that of *R. Veitchianum* than its other parent; but the young leaves show the hairy character of *R. ciliatum*. Even in the shape of dwarf bushes it flowers so freely that the plant is quite a mass of its beautiful waxy white blossoms. Lastly, Messrs. Veitch announced a variety two years since under the name of *La Belle*, as a cross between *R. Forsterianum* (itself a hybrid from *R. Edgeworthi* and *R. Veitchianum*) and *R. ciliatum*, the flowers of which are borne in large, compact clusters, and of the purest white, except a small yellowish blotch at the base of the upper segment. A very valuable hardy *Rhododendron* also claims parentage from the Himalayan *R. ciliatum*, viz.—*R. præcox*, which was obtained by crossing the last-named with the European *R. dahuricum*, whose purplish blossoms are borne early in the year. *R. præcox* also flowers at a time when its blossoms are liable to be injured by spring frosts, and it is therefore frequently used under glass. In all the varieties claiming parentage from *R. ciliatum*, the dwarf free-flowering character of the type is seen.

A beautiful *Acacia* is *A. armata*, especially when smothered with fragrant bloom, as two specimens of it were last week in the garden of Camden Wood, Chislehurst. *A. armata* is an old introduction, and, unlike the free-growing *dealbata* that

ascends to 20 or more feet in height, this does not usually go beyond 10 feet. The specimens at Chislehurst are not much more than half that height, as they have each been restricted to a 24-inch pot, but make lovely plants for the conservatory, every branchlet carrying a wealth of deep yellow, small globular heads of flower that will fill a large house with a strong pleasant perfume, and that are in rich contrast to the abundance of small deep green leaves. The plants are about six years old, so the growth is by no means slow. The *Acacias* have fallen into disfavour of recent years, but by ignoring such a delightful class we lose much. One might go into half the conservatories or greenhouses in England and not find a single representative, much less two flower-laden specimens of *A. armata* as beautiful as those in the conservatory at Camden Wood.

Calliandra Tweedei.—This has very showy blossoms, which are freely borne on plants not more than 1 yard high. The inflorescence is a good deal like that of some of the Australian Bottle-brush plants, but the *Calliandra* is nearly allied to the *Acacias* and *Mimosas*, to which in foliage it bears considerable resemblance. *C. Tweedei* forms a freely branched bush with tender green pinnate foliage, while the most conspicuous part of the inflorescence is the globular clusters of crimson stamens. It is of easy culture, succeeding well under the treatment usually given to the general run of stove plants, but it should not be too heavily shaded during the summer; otherwise the spring display of blossoms may in vain be looked for. It has been known in this country for the last half century, but is still quite a rare plant, though if a stock was obtained and a few flowering specimens exhibited, I venture to suggest that an increased demand for it would result. It is propagated during the summer months by cuttings of the current season's shoots, which must not be taken till they have lost their succulent character. These shoots should not be allowed to become too woody, otherwise they remain a long time before roots are produced. Plunge them in a close propagating case in the stove with a little bottom-heat.—T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Sonerila margaritacea.—This is well grown in Mr. Vanner's garden at Chislehurst, peat and Moss being the soil used.

Dracæna Doucetti.—This is a new and graceful *Dracæna*, very distinct, the leaves narrow, deep green margined with yellow. It is in the way of *D. australis*. An excellent table plant.

Amaryllis Dr. Masters.—No variety has the beautiful shape or rich self colour of this. It is deep crimson with a darker shade in the centre. Several plants of it were in full flower recently in Mr. Vanner's garden at Chislehurst.

Aotus gracillima is a graceful flower belonging to the *Pea* family, and a dainty gem for the greenhouse. The slender wiry stems are often more than a foot in length, and bend gracefully with the profusion of small yellow and crimson *Pea*-shaped flowers. It is easily raised by cuttings or seed, and requires the same culture as an *Epacris*.

Phaleria laurifolia.—This is a beautiful stove flower, little seen, but pure white, and with a strong *Daphne*-like fragrance. The blooms, borne in terminal heads, remind one of those of *Bouvardia longiflora*. The plant may be raised from either seeds or cuttings, and does well in a soil composed of loam and peat.

Nepenthes Northiana is well grown by Mr. Robbins, gardener to Mr. Vanner, Camden Wood, Chislehurst. A plant there is carrying several pitchers, each about 8 inches in length, while some were fully 11½ inches. They are winged in front, the colour deep green, richly blotched with crimson. It is a distinct and beautiful kind, not often seen in such good health as here.

Winter-flowering zonal Pelargoniums.—Where large specimens are required from 2 feet to 3 feet across, they cannot be had in six months; but for vigour, persistent blooming, and taking up limited space—an important consideration in winter—I must still prefer my plan of striking the cuttings in June and giving one shift to that of "H." (p. 77). I wrote from my

own experience, and if "H." or G. Potts, Junr., will visit any of the establishments around London, where zonals are a speciality, I am satisfied they will find my system, and not theirs, in vogue—except for large specimens—and that young, vigorous plants in comparatively small pots, systematically fed with liquid manure, give the most satisfaction. Of course a minimum temperature of 50° Fahr. is indispensable in winter.—W. J. MURPHY, *Colonel*.

Arisæma præcox, or ringens, is a quaint Japanese species and almost hardy. The spike is erect, but arches over suddenly, and we thus lose the beautiful glossy purple colouring and silvery white lines that give such interest to *speciosa*. A plant of it may be seen at Kew, where also there is a noble group of *A. speciosa*, one of the best of the strange genus.

Gladiolus tristis, or sulphureus of gardens, is a beautiful flower, exquisitely graceful, like a lovely Grass, and yet, though introduced from Natal in 1745, it is as rare as if sent over yesterday. There is a group of it in the greenhouse at Kew, or rather of the variety concolor, in which the flowers are creamy white with a tinge of yellow down each of the pointed segments. Such a slender flower should be much grown in greenhouses.

Kalanchoe carnea.—How is it we hear so little about this novelty? Thousands of gardeners most probably gave it a trial for the first time last year, yet none of them have come forward to testify to its merits. With me, I am sorry to state, it has proved a wretched failure, and unless I am much mistaken this will be the general verdict. At the outset the seedlings came up rather thickly or suspiciously so for a choice novelty, but we grew the greater portion of them and soon had several dozen plants well established in 6-inch pots. In the autumn they were kept for several weeks on a greenhouse shelf, and the temperature of this house ought to have been sufficient to bring them into flower. It was not, and the greater portion of the stock were taken to a light forcing house where the temperature ranged from 55° to 65°. We did not get them into flower by mid-winter, but this was no loss, more flowers being wanted a month later. But what a disappointment! Our trusses of flowers are little better than so many bunches of seed-pods, so short-lived and free seeding are they. There has never been anything approaching a good show from the whole batch, and before this is in print the bulk of the plants will be on the rubbish heap. I never saw anything more susceptible of injury from insects. Either green-fly or thrips if once established in the points of the shoots completely paralyse the plants.—W. I. M.

Arum Lilies (another method of cultivation).—"A. D." (p. 222) gives an interesting and instructive mode of procedure with this Lily. His note reminds me of a very fine lot of plants which I saw a few days ago in the gardens at Moat Mount, Mill Hill, Hendon. Mr. W. Ferris, the head gardener, informed me how he had managed these plants so successfully. His plan is to turn them out every spring as soon as no further good return in spathes can be expected, and when the colder weather has given place to that of a more congenial character. In doing this, he shakes them entirely out of the soil in which they have grown during the past winter and removes at the same time all young suckers and offsets, thus growing them upon the single crown principle. Trenches after the manner of those for Celery are prepared within the partial shade of some Apple trees near them. Into these the crowns are planted, just as in the case of Celery, and assorted into their respective sizes. In dry weather water is given, but a too vigorous growth is not encouraged. Early in September the plants are lifted, any suckers that have been made in the meantime being taken off, and then each plant is potted, chiefly into 6-inch pots. The soil used in potting is a stiff loam, with no important addition made to it. No luxuriant growth is made before the plants show their first flowers, which they commence to do about the time the Chrysanthemums are fading; thus the energies of the plants are not expended in excessive leaf development in advance of the flower. Two or more batches of plants to prolong the flowering season can thus be grown without taking up much more room than that

occupied by the pots themselves. This mode of culture commends itself wherever the stock needs to be increased, or where moderate-sized plants are required for decorations in small pots either in the conservatory or for vases in the rooms of the house. Large plants with several flowers upon each look well and are undoubtedly most useful in association with other objects, but they cannot be so easily adapted to various uses nor can they be grown so closely together to produce the same amount of bloom in the majority of cases as the smaller plants. At one time I had an extra stock of this *Arum* and put some into a pond where they lived and flowered, in one instance I remember for some two or three years, until an unusually severe winter proved too much for them.—J. H.

Forced bulbs.—The demand for forced bulbs decreased as the foreign supplies of early flowers in the spring increased, and the sale of the bulbs even has depreciated to some extent. It is not difficult to account for this change. Bunches of Hyacinth spikes are to be bought for a paltry sum, and while these are to be had of such good quality and at the present ridiculously cheap price, the culture of the flower will suffer. A large quantity of pot Hyacinths are, however, sent into the market, and in the nursery of Messrs. H. Williams & Son, East Finchley, the other day there were several houses filled with nothing but a few of the leading varieties, some carrying a single spike, others three and four, and a few even more than this. The sorts chosen are Gertrude, a charming rose-carmine coloured flower with a close spike; Giganteus, blush, large spike; Lord Macaulay, bright carmine, one of the best; Voltaire, white, shaded rose; Grand Maître, porcelain blue; and Charles Dickens, rich blue. In the same nursery Tulips are grown largely, the bulbs being thickly placed in rather deep boxes, which are placed in a well-heated house. It is remarkable the quantity of bloom that may be cut now from bulbs so treated. The chief varieties are Yellow Prince, rich yellow; Duchesse de Parme, rich scarlet, margined with gold, and the Pottebakkers, especially the white form.

Winter-flowering Begonias.—There are several beautiful evergreen Begonias flowering freely now in the stove at Kew, and which remind us of a class that is greatly neglected. We drew attention recently to a few good types in bloom with Messrs. Cannell & Sons at Swanley, but the range of types is large. A gracefulness of habit, freedom of flowering, and delicate tints of colour are to be found in this race, as those at Kew and elsewhere will show. A pretty pink-flowered kind is *B. foliosa*, the plant graceful in growth and the leaves deep green. *B. Haageana*, white, tinted with pink, was beautiful; but one of the best is *lucida*, which is climbing up one of the pillars, and suggests a good use for it. A bare iron pillar need never disfigure the inside of a plant house while we have such beautiful climbers as this to hide its horrid coldness and formality. The plant is vigorous, leaves bright green, dense, and the flowers almost white. *B. pruinata* has fine bold leaves and a mass of white flowers; while *B. malabarica* should have a good place. It is an excellent pot plant, the flowers rich pink. Very beautiful also is *B. Lapeyrousi*, a compact grower, with dark green leaves and pink flowers. Of course, the bold-growing *B. manicata* and *B. semperflorens gigantea carminea*, one of the commonest, were in bloom.

Moss on lawn.—I should be very grateful if you would kindly tell me what is the best remedy for getting rid of Moss from a lawn. My lawn has become very much overgrown during the past year by Moss, which has spread much more than before, and threatens to ruin the ground for lawn tennis. I want, however, to have tennis as usual this year, and I shall be much obliged if you will let me hear what is the best, most effective, and promptest remedy to adopt.—G. R. T. [Sulphate of iron, the use of which was described in THE GARDEN, Aug. 11, 1888 (p. 129), has been found efficacious in removing Moss from lawns. Care must be taken that too strong a dose is not given, otherwise the

Grass may suffer. Weak applications are necessary for lawns of young Grass, and stronger ones where the turf is older and of denser growth. The average quantity is 264 lb. per acre, or 6½ lb. for 100 square yards. The best plan is to give two applications at the rate above mentioned. The best way to use the sulphate is in solution, as it can most easily be distributed in this way. The solution should be made with soft or rain water, at the rate of 1 lb. of sulphate to two gallons of water. It should be made just before it is to be used, as it loses strength by being kept. If the water contains much lime it is also deteriorated in quality, and a greater proportion of the sulphate must be used. It may be also applied mixed with from six to eight times its own quantity of soil, sand or any compost. The way to do this is to spread on the ground a layer of soil, over this a layer of sulphate, followed by another layer of sand, and so on until all the material has been used up. Thoroughly mix this, and apply it to the surface of the Grass. It may be applied at any season of the year, as, from experiments that have been conducted on the Continent, success followed whenever applied. The sulphate is known to be acting effectively when the Moss turns black, after which it withers away and turns to powder. If this does not happen, a second application is necessary. Of course, after the Moss is destroyed it will be necessary to apply a top-dressing of some rich material.—ED.]

GARDEN FLORA.

PLATE 744.

MICHAELMAS DAISIES.

(WITH A COLOURED PLATE OF ASTER ACRIUS.*)

SINCE the re-arranging of this extensive and useful genus in the "Genera Plantarum," everything, so far at least as regards species and sections, has been made easy to the cultivator who takes a pride in having his plants properly named and classified. Unfortunately, in a large group like the Aster (amongst the largest in the hardy flower garden), the classification or proper naming of what may for convenience be called florists' varieties is an almost impossible task, many of the species, notably *A. Novi-Belgii*, being extremely variable from seed. In large collections of these Michaelmas Daisies a very large proportion will be found to be forms or varieties of this species. *A. Novi-Belgii*, on account of its having been so long cultivated in English gardens, and from having produced so many varieties differing in habit, size, and number of flowers, ligules, &c., was one of the standing puzzles of the late Dr. Asa Gray, who was well known to have had a thorough knowledge of this huge Order of Composites. Many of the species besides *A. Novi-Belgii* have changed much under cultivation, and will yet be found very puzzling to the beginner who may be acquainted chiefly with the picked varieties known in the trade, and even these are a source of much trouble, no two dealers having corresponding names for the same forms. The usual method of growing these charming and ever graceful plants in that execrable muddle, the so-called mixed border, will, we sincerely hope, soon be a thing of the past. Asters, from their very nature, habit, mode and time of flowering,

* Drawn for THE GARDEN, at Gravetye Manor, by H. G. Moon, September 28, 1889. Lithographed and printed by Guillaume Severeyns.



ASTER. A. R. BLUE STARWORT

tell us unmistakably that they require very different treatment from that indicated above. To see an Aster with its long, feathery branches propped up with stakes and twine is an abomination, a parody on good taste, and will not, we hope, be much longer tolerated. This rough and careless treatment of hardy flowers other than Asters has helped in no small measure to keep them in the background. The first time I saw an Aster really at home was in a bit of neglected plantation bordering the river Thames; the many-flowered gracefully hanging stems set off with a background of dark green undergrowth formed one of the most charming pictures I ever remember to have seen. There are doubtless many thousands of dull, flowerless wastes awaiting the enlivening effects of a few Asters or other strong hardy flowers. A variety known in gardens as Robert Parker, and waving its large clouds of pale lavender flowers, above the dense masses of dark green-leaved Rhododendrons, was a sight never to be forgotten. *A. niveus* and *grandiflorus*, both of gardens and the best of the tall growing species, were treated in this bold and novel way. The dwarfer kinds, such as the subject of our coloured plate, *A. canus*, *pyrenæus*, *Amellus*, *spectabilis*, *Herveyi*, *vimineus*, &c., if grown in large groups form a beautiful autumn picture with their varied habits and many-tinted flowers.

Grouping seems to be the only satisfactory way of dealing with Asters, and, if possible, each species or variety should be planted alone. There are something like 200 species known, inhabiting chiefly North America, Temperate Asia, Japan, China, Siberia, Himalayas, &c., but it is from the New World that the most useful of those known to us in gardens come. Perhaps fifty would be a safe guess as to the number at present in cultivation in England, and these reduced to the choicest leave us with little more than twenty-five really distinct forms worthy of culture. The notion that Asters and other hardy plants once planted will go on for years with no attention is a very erroneous one. To see these beautiful flowers at their best they must be well attended to. Asters are voracious feeders, and unless the soil be good and kept in good order by annual dressings or periodical renovation, the result will be poor. This will be more important when the groups are in the vicinity of shrubberies or large trees by which the soil will be continually robbed. For large bold groups such species as the New York Aster (*A. Novi-Belgii*) and its numerous varieties, the New England (*A. Novæ-Angliæ*), *Curtisi*, *Tradescanti*, a few of the forms of *longifolius*, *paniculatus* with its numerous huge heads of fine purple or pale violet flowers, and many others will be found very suitable. Other groups may be made of the charming *A. cordifolius* (*elegans* of gardens), *Drummondii*, *sagittifolius*, and *Shortii*, with their feathery sprays of pale violet or lavender flowers, small, but numerous. They have a fine upright habit and with a little support, such as may be afforded by shrubs, they are

effectually protected against damage by winds, &c. Other and more exposed positions will be found for the sturdy varieties of *A. diffusus*, *vimineus*, *ericoides*, *nemorialis*, *spectabilis*, *Amellus*, *sibiricus*, and many others. The Asters may very well be grouped with other flowers, but it will be found best to use them by themselves.

The Galatella section to which our coloured plate belongs is a very interesting one, and may be used with great advantage in the flower garden. Their habit is quite different from that of the majority of North American Asters for instance, being sturdy, upright, rarely requiring support of any kind, and developing huge heads of the most lovely bright lilac or purple flowers. *A. acris* is a common plant in gardens, but as it is usually grown in such small pieces, it is difficult to form an idea of its real beauty. As a bedding plant alone, or in company with others, it has a very fine effect, lasting in bloom almost as long as many of the popular bedding plants. There are numerous forms classed under this species, such as *linifolius*, *hyssopifolius*, *punctatus*, and *dracunculoides*; all of these differ more or less from the type in habit, &c. The form we have seen called *linifolius* we prefer to the others, as it flowers more freely and has a sturdier and more compact habit. *A. acris*, as it stands exposure well, may be used advantageously on the rockery at points where bold, bright groups are desired. *A. canus*, the hoary Aster, is practically a dwarf hoary form of *A. acris*, and may be used much in the same way as that species. *A. dahuricus*, with its pale lilac flowers, and *trinervis*, with bright lilac heads, also belong to this group, and will be found quite distinct. They are mostly European. Besides grouping in the flower garden, many of the stronger American kinds might be effectively planted in the wild garden, where they might be allowed to run together at will and would certainly make an interesting feature. A few of the very dwarf sorts, such as *A. alpinus*, *a. speciosus*, *Reevesi*, *Thomsoni*, *Amellus*, *bellidiastrum*, and the charming Himalayan *Stracheyi*, are more suited for the rockery than the bed or border, where they would run the risk of being overrun and exterminated. Once begin grouping hardy flowers in this manner and a hundred different ways will present themselves to the operator. Some such treatment is really required to do these charming flowers anything like justice. D. K.

The margined Primrose (*P. marginata*), in the absence of *P. denticulata*, is always first amongst the hardy species to bloom. It is one of the most attractive of the whole family in or out of flower. The sturdy, stunted, Pine-like habit of growth, the bunches of silvery grey leaves, with a distinct silver streak all round, make up a very effective whole. The plants are just now crowned with huge bunches of lilac and rosy-purple flowers of various shades; they are much earlier this year than usual. It is one of the Primroses that does best in a London garden and requires a sunny position in poor gritty soil. It should be periodically looked to and transplanted, lowering it a little if required, as it often emits roots a little above the soil. In winter the damp and heavy rains affect it most, although we have

grown this species in the open air in a London garden for many years without covering.—K.

KITCHEN GARDEN.

SIMPLEST METHOD OF CELERY CULTURE.

WHEN the simplest methods of culture result in the production of vegetables of superior quality, then ought they to be followed as much as possible. Not unfrequently the more elaborate systems are most often adopted, and these are clung to with great persistence on the ground that they answer very well, there being, therefore, no real necessity to try any fresh plan. In the case of Celery the orthodox practice among private gardeners is to raise the requisite number of plants in either pans, boxes, or frames, and then to prick them out on shallow beds of manure and soil resting on a hard bottom. When everything is done at the right time, that is to say, when the seedlings are not kept too long crowded together, while later on the well-prepared plants are transferred to the trenches before they have spoilt each other, other conditions being also favourable, then is success assured. Unfortunately, more often than not the final planting out is from some cause deferred till the plants have become far too leggy, and failure often follows.

An alternative more simple and less risky practice, and which may well, therefore, be given a trial even by those who have previously succeeded in producing abundance of good Celery somewhat on the lines just briefly indicated, is that most in vogue among market gardeners. I first gave it a trial thirteen years ago, and although I do not profess to have closely followed it ever since, I can truthfully assert that it is by far the best, unless Celery is wanted extra early or for any special purpose. It merely consists in raising the requisite number of plants in the sturdiest manner possible, these being dibbled direct into the trenches before they are too large to experience a severe check. What is needed at the outset is a good sized shallow hot-bed and a rough frame of some kind. Now is about the best time to sow seeds for the main crop, and another three weeks later for very late supplies. The hot-bed ought to be surfaced over with 6 inches of light, sifted soil, this being well moistened prior to sowing the seed thinly and broadcast. It is advisable to divide the varieties with strips of wood or laths, and to lightly cover the seed with fine soil. It is a good plan to cover with mats, the seeds coming up more quickly and evenly in the dark, the moisture also being conserved. The young plants must not be coddled in any way, and if they are at all thick, thinning out should be early resorted to, the aim being to prepare a large number of the sturdiest plants ready for the trenches some time in May or June.

It is possible to raise a capital lot of plants and yet fail to do well with them. This method of culture necessitates an earlier preparation of the trenches than usual, and the cultivator must therefore look well ahead in the arrangement of his crops. Very few can devote a breadth of ground for the best part of the year wholly to Celery, nor is there any need for this to be done. For instance, either Broccoli or Brussels Sprouts may be closely followed by Celery, and the trenches for the latter being disposed not less than 4 feet apart the ridges may be closely cropped with Kidney Beans and Lettuces. The two latter succeed remarkably well in these apparently poor positions, or even

better than they do in what might appear more favourable sites. If another foot of space is allowed between the trenches, then might a good row of medium height Peas be grown midway between the trenches, failures rarely, if ever, occurring when Peas are thus located. In any case, or wherever the Celery is to be grown, it is of the greatest importance that the trenches be got out early or soon enough for the soil to become well pulverised and the manure somewhat sweetened, rank manure and lumpy soil being prejudicial to a good start. Very deep trenches are not to be recommended in any case, nor are those with perpendicular sides the best. In the former, the Celery roots, and which soon leave the original narrow trenches, have only some of the coldest and poorest soil to support them, while the most exposed sides are the first to become hard and dry, the consequent shrinkage being injurious to the occupants of the trench. A depth of from 6 inches to 8 inches is ample for the trenches, and as a matter of fact Celery succeeds better when planted on the surface than it does sunk to various depths.

When many of the Celery plants are from 4 inches to 5 inches in height, the strongest of them ought to be carefully drawn from the seed-bed and planted with either a dibble or trowel where they are to attain their full size. If the plants are properly fixed and watered in, they will flag but little even in quite clear weather, and even if they do, it is a very simple matter to lightly shade them by laying branches of trees or Pea stakes across the trenches for a few days. The plants should be freshened up by overhead waterings on sunny days, but root saturation with cold water must be avoided, or otherwise progress will be very slow. Once well established, these early-put-out plants are far more independent of the watering-pot than is the case with those grown in the ordinary fashion, and this is a great point in favour of the system of culture I am advocating. Plants that have been temporarily pricked out on a shallow bed are necessarily much root-pruned prior to their removal to the trenches, and this effectually checks the natural tendency of the roots to ramble. Those pricked out direct into the trenches spread their roots quickly in all directions, not a tithe of them being found in the trenches, and it must be a very dry season indeed if they suffer much from drought. Were this otherwise, Celery grown in the open fields several acres in extent would fare very badly. Some of the most solid Celery I ever lifted, and which was also most superior as regards quality, was grown on ground that had been well manured and double-dug for the preceding crop, and so strongly were the plants rooted that it was hard work to dig them out.

It does not follow that the plants may early be dibbled out into shallow trenches and soon left to take care of themselves. When neglected or unduly let alone the natural habit of Celery is to gradually open out, the bulk of the leaves assuming an horizontal position. Once the leaf-stalks are well set they cannot again be got into an erect form without cracking and splitting many of them, and the aim of the cultivator should be to prevent this spreading of leaves. When growing strongly the plants ought to have all quite small or old leaves and all suckers removed from them, weeds being cleared away at the same time, after which a thin mulching of fine soil will serve to keep the leaves upright (this being repeated occasionally) and also to keep the roots on the surface active. Soot, special manures, or liquid manure, it is almost needless to add, may be

applied with advantage just prior to top-dressing with soil, the two former being washed in with soft water if need be.

W. IGGULDEN.

FORCING ASPARAGUS IN PERMANENT BEDS.

ALTHOUGH an old system, it ought to be practised where a large quantity of this favourite vegetable is required. Especially is this the case where the kitchen garden space is limited. Those who wish to have Asparagus from Christmas or even a month or six weeks previous, will find the lifting and placing in frames or pits an expensive process, as after lifted roots have once been forced, they are worthless, while a period of three or four years' growth has been required to fit them for forcing. Much finer produce can be obtained by the old system of forcing in permanent beds. I have at times seen the roots placed in the hotbeds in a way that it is impossible to obtain good results; the heat has been too violent, and sufficient air has not been left on the frames or pits. In the end much of the produce was spoiled, being weak and spindly. For the last few years I have adopted the permanent bed system, and was very pleased to find my able predecessor had for many years followed the same plan on a rather large scale, as this vegetable is required for the first six months of the year, that is from Christmas till midsummer. For the first early dishes we lift a number of plants and place them on a bed of leaves. The permanent beds are 4 feet wide and 4 feet deep, with pigeon-hole walls $4\frac{1}{2}$ inches thick and about 30 feet long. Two rows of Asparagus are planted in each bed. The bottom is well drained, and a good light compost used. The beds are in the forcing part of the garden, where Seakale, Rhubarb, &c., grow, as it is necessary to keep the leaves and litter away from the kitchen garden to preserve neatness. The alleys between the beds are from 2½ feet to 3 feet wide. The latter width is best, as it gives more space for the heating material. We have very little manure, and what we have is required for other purposes, so that the chief fermenting material is tree leaves. These give a steady lasting heat, which is not so injurious to the roots as hot stable manure. We have an abundance of leaves at our command, and as this is the case in most large gardens, they are easily got rid of, and are put to a useful purpose. For early forcing it is necessary to get the leaves as soon as possible, and to commence filling up the alley. The leaves must be rammed down as the work proceeds, and a small quantity of litter placed over all to keep them from blowing about and to retain the heat. The beds are one course of bricks lower than the walls, thus allowing of some light material or warm manure to be placed on them if very early forcing is done; also for the liquid manure, which should be given the beds through the summer. Wooden sliding shutters are placed over the beds as soon as the leaves are all placed in the alleys. These beds come into bearing in January, or from six weeks to two months after the leaves are put in, and produce a quantity of finer Asparagus than we can get from lifted roots. If the weather is severe, some long litter or Bracken should be placed over the shutters. We have another lot of beds for succession, and the latest lot is not covered with shutters. These plants have not been forced, only the alleys filled with heating material, and some short litter or, what is better, decayed manure to keep the spring frosts from the young growth. The produce from these last beds comes in a few weeks earlier than that from the open ground. All these beds are cut hard and gone over every day when in bearing, but no cutting is done after the beds in the open ground come into bearing. The seed should not be allowed to ripen. After cutting the produce, a good mulching of decayed manure is given, and during the summer several good soakings of liquid manure and salt. The alleys are not emptied of the old fermenting material, which retains the moisture through the summer months and keeps the beds moist, till the new is ready to be placed in position. The leaves when decayed in the autumn are useful in a variety of ways and are always ready for use, either for potting or other purposes, having been

thoroughly saturated with the liquid manure. The beds last many years, and the first cost is the greatest objection, but that is not great.

Syon House.

G. WYTHES.

BLANCHING RHUBARB.

No vegetable is more easily grown than Rhubarb. Few kinds perhaps get less cultivation bestowed upon it; few that have to rough it so much; and yet in spite of the treatment, it is perhaps one of the most liberal producing plants in our kitchen gardens. Even if in the autumn the crowns are smothered in a mass of stout stems and huge leafage, yet that is but the precursor of fine crowns and a big supply of stalks the following spring, if the roots have some little attention in pushing on the crowns to early growth. Where there is a large stock of Rhubarb roots nothing is easier than to lift a few roots from time to time, block them with a little intervening soil into some warm corner indoors, and a good supply of stalks is had for several months. Not all have so many roots to spare; not all have the time to perform the needful work, or indeed garden space to grow sufficient roots. The roots must then be covered up as best they can outdoors, and so encourage early growth. The market growers seem to be content to cover up the crowns with litter; it helps early development and assists blanching a little. When the stock is limited to a dozen or score of roots, a few tubs with the bottoms upward and turned over some of the roots will promote growth readily. A little long manure, litter or Fern placed round the tubs is also helpful. A few short stakes fixed in round the roots with litter stacked round them, leaving the centre open, but still protected at the top, also assist early growth. Roots lifted and replanted always break earlier than do fully established roots, but it is hardly worth taking so much trouble unless making new plantations, and then the roots should be divided so that the stock may be increased and crowns enlarged. Roots put within doors and hard pulled after blanching, if split up and replanted in deeply worked soil heavily manured, will recuperate in a year and be very strong in two years. Where roots are so treated every year an ample stock is maintained. It is not difficult to induce old roots in the open ground to start extra early by opening trenches 2 feet wide and as much deep on either side of the row of roots and filling them up with half-fermented long fresh stable manure. With the crowns protected from cold and light, there will be found ample pullings in a very short time. Undoubtedly Rhubarb stalks which have been but moderately blanched outdoors are of better flavour than are those forced into growth in a close shed or cellar. Still, grown almost anyhow, such Rhubarb is welcome at this time of the year, and we shall never tire of it, at least whilst sugar is so cheap. Very appreciably blanching seems to tone the acidity or astringency of Rhubarb, but it would be uneatable without plenty of sugar. There are several varieties of Rhubarb, but the Early Champagne and Victoria seem to satisfy all ordinary requirements. Both show a rich red hue in the stems, and when so much trouble has been taken to promote colour in Rhubarb, it is annoying to find cooks stripping the stalks of their flavour and colour by removing the skin or rind of the stems. Such a practice should never be tolerated. We have the Rhubarb season at hand now, and although just at present it is scarce and dear, there will be abundance soon.

A. D.

Tomatoes.—A recent bulletin of the New Jersey Experiment Station by E. B. Voorhees, chemist, gives the result of a series of investigations relative to the Tomato, its yields, chemical composition, and the results with fertilisers. We give a condensed statement of some of the facts. The number of canneries supplied by this crop is stated at seventy-three in the State of New Jersey, and 15,000 acres are devoted to raising Tomatoes. The average yield is 8 tons to 10 tons an acre, and the lowest selling price at the canneries is 26s. a ton. For the general market at least 2000 acres are occupied, the average

yield 6 tons an acre, and the average selling price is a basket of 30 lbs. The annual value of the crop to the farmers of New Jersey amounts to over £200,000. For money value of the staple crops of the State, Tomatoes rank above Oats, Rye, and Buckwheat, and below hay, corn, and Potatoes; and with Wheat. Experience indicates that barn manure and especially commercial fertilisers increase the yield at the expense of maturity; but the best effect with manure results from its application the previous autumn. Tomato growers for both canneries and the general market are benefited by large yields, but not equally by early maturity. A gain of one week in ripening for the general market is often the difference between 5s. and 1s. a basket; while a week may make little difference to the canneries. Of the fertilisers used, nitrate of soda increased the yield at the expense of maturity when large quantities were applied at one operation; but it did not effect this increase at the expense of maturity when small quantities were applied, or larger quantities in two applications. The best effect was secured from nitrate of soda when there was enough phosphoric acid and potash, or when these were added as required.—*American Cultivator*.

THE PARSNIP.

THIS is the season for sowing Parsnips, though some prefer to have the seeds in the ground in January. This nutritious vegetable is largely regarded as essentially the subject for the poor man's garden, because it is easily grown, yields a heavy crop, and can be kept in the soil all the winter and dug as required. Probably with the development in the varieties of Peas and other choice vegetables the consumption of Parsnips has declined somewhat; still, it must be admitted that the Parsnip is wholesome as well as hardy, for it is not so liable to be injured by frost as the Carrot.

There are two types of the Parsnip in cultivation—the long, and the round or Turnip-rooted. Of the former there are fine selections which have been regarded as varieties, but which are not strictly so. By means of careful and persistent selection stocks have been obtained remarkable for handsome shape and tender flesh, and examples of these can frequently be seen on exhibition tables. We often hear of "buttery" Parsnips, the flesh soft and melting, and with a kind of rich fatness akin to butter.

The Parsnip is not particularly fastidious as to soil, but, to employ a hackneyed expression, it delights in a deep and fairly rich one. Experienced gardeners tell us that it is best not to grow it on land that has immediately before received a heavy dressing of manure, as the roots are liable to become cankered or affected by grub; therefore it is best to grow it on soil previously occupied by some other crop for which it had been manured, such as Onions or Lettuce. I have known gardeners grow wonderfully fine Parsnips by trenching the ground in November, doing it to a depth of 3 feet or so, and placing at the bottom of each trench a liberal supply of farmyard manure. They sow early in February, or as soon as the state of the soil will admit of its being done, and this because it is held that the Parsnip requires a long season to come to full maturity. The beds are made 5 feet wide, though it may now be said that most gardeners grow a plantation of Parsnips and do not trouble to lay it out in beds. It is best to sow in drills, which should be at least from 1 foot to 15 inches apart. When the final thinning out takes place, the plants should be at least 12 inches apart. The seeds germinate freely when covered to a depth of half an inch. When the final thinning out is done, all that remains to be done is to keep the soil clear of weeds and to hoe the surface occasionally, taking care not to injure the roots.

As to lifting, it is found by experience that the quality of the roots decreases if they are lifted and stored. On the other hand, they are liable to some injury on the surface when left in the ground, and after a time of severe frost following upon rain I have seen the tops of the roots very

much rotted. The true type of the Hollow-crowned Parsnip is said to bury itself a little below the soil; hence it is a favourite with the London market gardeners, who do not commence to dig their Parsnips until November. From that time until the middle of February Parsnips are in fine marketable condition. The Student Parsnip is of superior flavour and excellent for garden culture.

In some seed lists the large Guernsey Parsnip finds a place. In the Channel Islands, the South of France, parts of the south of England, and elsewhere the Parsnip is largely cultivated for cattle feeding. The Guernsey Parsnip is regarded as being larger and thicker towards the top than the ordinary long Parsnip of our gardens. Large quantities of Parsnips are grown for seed in Essex and Bedfordshire, and a field of seeding Parsnips is a remarkable sight, both when the plants are crowned with the huge inflorescence and when the seeds are ripening.

R. D.

CULTURE OF SEAKALE.

THIS is the time to make plantations of this valuable and much sought-after vegetable. The best results are secured from plants growing in a light rich soil from 2 feet to 3 feet deep, liberally manured and trenched to that depth. The plant is propagated by means of seed and extremities of the roots cut into lengths of about 4 inches. The latter method of working up a stock of Seakale plants (where the thongs or root cuttings can be procured) is far more expeditious and preferable to that of doing so by seed. Where the plants or stools of Seakale are taken up for forcing in pots in Mushroom houses and such like places, after they have shed their leaves in November, the roots are cut into the lengths indicated in the process of potting up the desired number of stools, and placed in a box intermixed with sand preparatory to planting in March.

PLANTING.—When the condition of the ground will admit, the cuttings should be dibbled in in rows 18 inches apart, and at from 10 inches to 12 inches from plant to plant in the rows, and about 1 inch under the surface of the soil. Then lay on a mulching of rotten manure between the rows and plants to the thickness of 1 inch or 2 inches. The only after attention necessary until the plants are ready for being forced in November or December is to keep them free from weeds and remove any flower-stems as soon as they appear. Root cuttings treated as described will furnish nice strong plants for forcing next winter. In raising plants from seed, sow thinly in drills 2 inches deep and 12 inches asunder. Thin the seedlings out to 6 inches apart in the rows, and then mulch with rotten manure as recommended above. Plants thus raised will come in for transplanting next year after the crown buds have been removed. However, if there is no scarcity of kitchen garden space, the seed can be sown in drills 18 inches apart at once, and the plants be subsequently thinned out to 10 inches or 12 inches in the row.

FORCING.—Having tried various methods of forcing Seakale, I have practised the following for several years as being the most efficient, simple, and economical way of securing the best results. This consists of improvised boxes about 8 feet long, 1 foot wide, and of the same depth, the ends being 1 inch above the sides, as a means of keeping the board (of the same length and width as the individual boxes) forming the lid in position when covered with from 2 feet to 3 feet thick of fermenting leaves. Where a good succession of Seakale is required from Christmas to the end of April or the middle of May sufficient boxes should be at hand to cover a given number of rows of plants at intervals of a fortnight or three weeks. When the leaves have decayed in the ordinary way in autumn they should be removed to the rubbish heap, and a shovelful of wood ashes be placed around each plant as a protection from severe frosts. If wood ashes are not at hand, coal ashes will answer the purpose. In either case it will be advisable to remove the covering of ashes from the crown of the plants before placing the boxes over them for forcing. As the season advances, say from March

and onwards, only sufficient leaves or leaf-mould to exclude light and air need be placed over the boxes. Thus covered, provided the plants have been properly grown in a good open situation away from the shade of trees, solid well-blanching heads of crisp Kale may be looked for a month or five weeks from the time of covering. After the plants or crowns have started into growth they should be looked over once or twice a week, and all Kale of table size (about 6 inches high) cut and stood on end in a vessel containing half-an-inch of water in a cool room out of the reach of frost till required for use. It is an easy matter to ascertain the progress of growth by removing the leaves and lids from a few of the boxes in the middle of the rows, afterwards carefully replacing the same. Of course advantage should be taken of the warmest part of a fine day to perform this operation. In choosing a piece of ground for planting with Seakale to be forced in the manner indicated, the question of the easiest way of conveying thereto the necessary quantity of leaves for covering the boxes when forcing time arrives should not be forgotten. When the Seakale has all been cut from each successive lot of boxes, the latter will then be set at liberty for placing over a fresh row or more of plants, covering those from which the crop had been taken with a few inches thick of leaves. These should be removed altogether in due time, and a good dressing of short manure be laid on between the rows and forked into the ground, afterwards removing weeds and any flower-stems that happen to spring from the plants during the summer and early autumn months. Thus treated, the same plants will annually produce Kale of the best quality.

H. W. WARD.

Longford Castle Gardens, Salisbury.

Parsley.—I have never seen Parsley which has been growing where sown that has shown rot or some form of decay so much as this winter. I do not know whether to regard it as a plant epidemic or as an incident of the season. I hope it is but the latter, and incline to that view because plants lifted and dibbled out into fresh soil early in the winter have stood well. The feature of the rot has been the disappearance of the hearts of the plants, leaving for a time only dubious stems and some few outer leaves. Later, side shoots have broken out, and from these no doubt leafage will be fairly abundant. Still the matter creates some uneasiness, because here Parsley has nearly always proved to be hardy and good. If I may judge from present results, I should henceforth invariably transplant in the autumn, not so much to benefit the plants as to save them from destruction. Very likely the winter has been a hard one for many ordinary hardy plants; still we have had less of our particularly heavy fog than usual. Fog accompanied with hoar-frost is a terrible enemy to many very hardy plants, destroying leafage wholesale. In the present case the mischief seems to have originated in the root-stems rather than in the foliage. As our soil is very stiff and retentive of moisture, there is reason to assume that Nature is the primary cause of this collapse, although we have had much winter weather previously, and Parsley has stood through the ordeal.—A. D.

Blanching Seakale.—I should regard straw as a peculiarly objectionable substance wherewith to blanch outdoor Seakale. It may be cheap and plentiful in some places, but everywhere it would be productive of vermin, presenting a favourite cover for slugs, snails, and all sorts of creatures found in and about soil. But sodden straw is exceedingly undesirable, and because so retentive of moisture, it is cold and clammy, and preventive of growth rather than helpful to it. Even long litter from stable manure, dried and well shaken up first, would be better material than long straw, but both are far less desirable than are fine soil, ashes, or cocoa fibre refuse. Soil has the merit of costing nothing, and once ridged over the crowns is fairly dry let the weather be wet. Now a mass of straw, laid on at least 12 inches thick—for less would hardly suffice to exclude light and air—would, when saturated with heavy rains, be

beaten down to 6 inches thick, and would be so complex and intricate a material, that it would be difficult to separate the blanched Kale from it. Very simple, and in the long run cheap, are rough slabs of wood 9 inches deep fixed upon either side of the rows of Kale, assuming, of course, that the Sea Kale be so grown and covered with a slab along the top. These latter may be in lengths of some 6 feet to 8 feet, and could then be lifted off a sufficient length to furnish the required quantity of Kale. The side boards might be kept in place by means of a few short stakes driven into the soil. Boards of this kind would endure for several years. They would be serviceable for many purposes, and would answer admirably for the blanching of Endive.—A. D.

THE WEEK'S WORK.

KITCHEN GARDEN.

POTATO PLANTING.—It is not often the ground is to be found in such admirable condition for planting, and when it can be well done thus early, I am disposed to advise that it be proceeded with, especially where there is much of it to be completed without any extra manual labour being allowed. Not unfrequently the sets are better off in the ground than in the warm cellars, rooms and sheds where they are stored, the formation of one or more sprouts than are needed having a decided weakening effect on them. Should the dry weather continue when these lines appear in print, the hint ought to be taken to proceed with the planting of late varieties only, the middle or end of April being quite soon enough to put out the Ashleaf and other quick-growing sorts. The late varieties being slow in reaching the surface, there is much less danger of these being crippled by spring frosts. All Potatoes delight in a well-manured, freely-worked soil, and nothing is gained by crowding them together. Cut sets should be limed, or otherwise slugs will perhaps spoil many of them.

EARLY TURNIPS.—Those who are not in a position to raise a few bunches of Turnips under glass must sow seed early in the open, and even those who are forcing them somewhat will also do well to sow for a successional crop. Early Turnips, as a rule, fail badly on a south border, but succeed fairly well on a well-prepared east border, and it is in that position they should be tried now. The Early Milan is the quickest to bulb, and the drills for this short-topped form may be drawn 12 inches apart. Sow at the same time a pinch of Snowball, and, if available, the Early Paris Market, the drills for these being 15 inches apart. The two last-named varieties are recommended to be sown on account of their superior table quality, and they also afford a good succession to the Early Milan. Where chaffinches are troublesome, the seeds must be either damped and rolled in red lead prior to being sown, or the beds will require to be netted over, or otherwise the seed will be abstracted just when germinating.

SPRING-SOWN ONIONS.—Rarely has the ground been got into such a capital condition for seed-sowing as this spring, and if the Onions are not sown too early, a good plant ought to result. It is not absolutely necessary to confine the selection to the White Spanish forms, but these are usually preferred, as being the best keepers. The most valuable of all are the James' Keeping and Brown Globe, these keeping longer than any other well-known varieties, and one at least of them ought, therefore, to be very extensively sown. Giant Zittau also keeps well, and is a profitable form for any garden. Banbury, Bedfordshire Champion, Main Crop, Nuneham Park, Deptford, Danvers', and Reading are all roughly classed as White Spanish forms, any one of them sown with the late keepers being ample for most gardens. Those who relish the tender and mildly-flavoured white-skinned Tripolis may sow a few rows of either White Naples, Large White Italian, or the small Queen. They will grow rapidly, attain a good size and form, but will keep badly—the better plan, therefore, being to use them during the summer and early autumn months. There is

always a good demand for pickling Onions, and the only sure method of obtaining abundance of small, hard, and well-formed bulbs is to sow seed rather thickly on very solid and very poor ground. The best are frequently grown on the poor subsoil brought to the surface during the process of trenching ground for the first time. The silver-skinned varieties are to be preferred, and the seed may be sown now or early in April.

TRANSPLANTING TRIPOLI ONIONS.—There is no real necessity for transplanting autumn-sown Onions of any kind, but as they are often raised somewhat thickly it must either be done or the plants freely thinned out. In any case, a portion of the plants may well be left where they are to bulb in quickly, the rest being put out on firm rich ground. The thinnings should be carefully raised out of the ground, so as to preserve a good number of roots. The latter must not be cramped into a deep hole formed with a dibber, the wiser plan being to plant in shallow and rather wide drills, the roots being spread out flatly and firmly covered with not more than an inch of fine soil. The Queen family being of neat habit may be put out 4 inches apart, in rows 9 inches apart, while the plants of stronger growers may be disposed 6 inches and the rows 12 inches apart. More room can be given later on to those which promise to attain extra large dimensions.

LEEKS.—For all ordinary purposes the stock of Leeks for planting may well be raised in the open ground, the present being a good time to sow the seed. Either the Musselburgh, London Flag, or Ayton Castle are quite good enough for the purpose, a half-ounce packet of seed being ample for most gardens. As it is desirable that strong plants be early obtained, the seed ought to be sown on rather strong land, patches of ground among fruit bushes not being at all suitable. Sow the seed rather thinly in shallow drills drawn about 4 inches apart, and cover with fine soil. In all cases where extra fine Leeks are required for exhibition comparatively early in the season, the seed of one of the reputed large-stemmed varieties ought to have been sown in heat last month, the plants being treated in most respects similar to show Celery.

HERBS.—Tarragon has started into active growth much earlier than usual, and a hand-light placed over a patch will forward this considerably. We mulch annually with rotten manure, and find it advisable to lift and replant a portion of the bed every second year. The present is also a good time for lifting and replanting Thyme, the starvation system not answering well in this case. The plants grow most strongly when put out in rows 12 inches apart. A mulching of rotten manure or good leaf soil greatly benefits the old beds. Common and Lemon Thyme, both of which are in great demand, may be readily raised from seed, this being sown not later than the first week in April. Sow in shallow drills on a warm border and cover with fine sandy soil. Some of the seedlings may eventually be transplanted elsewhere and the remainder left undisturbed. Seedlings are preferable to plants obtained either by striking tops in handlights or dividing old stocks. There are a few kinds of herbs that are rarely asked for, but Sage is not among the number. The latter, again, is the most easily raised from seed, this being sown now in a box or pan and placed in gentle heat, in preference to sowing on a warm border in April. The seedlings should be eventually hardened off and planted out 12 inches apart each way. Pennyroyal pays for being divided and replanted in fresh soil occasionally. Winter Savory may be divided readily, and should be replanted in rows 1 foot apart. A stock of plants could also be obtained by sowing seed early in April. Summer Savory has to be raised annually. The seed should be sown now or soon in shallow drills 9 inches apart, the seedlings being eventually thinned to a distance of 6 inches apart. Pot Marjoram can be increased or renovated by being lifted, divided, and replanted, or a fresh stock may be raised from seed. Sweet Marjoram is raised from seed, this being either sown in gentle heat or on a warm border as

advised in the case of summer Savory. Sweet and Bush Basil also being annuals should be raised in gentle heat and planted on a warm border in June. Sow Fennel now on a border in drills 15 inches apart, and thin out to a distance of not less than 12 inches apart. Borage requires a considerable amount of space, but only a very few plants are needed at one time. Sow a pinch of seed now, again in May, and if need be a third time, early in July. W. I.

FORCED FRUITS.

WITH the occupants of all forcing houses now on the move, the busy gardener who wishes to keep abreast of the work will find his time fully occupied, and next to doing things well will obtain the best results by the performance of the most trifling details in season. Passing through a set of vineries, Grapes in the earliest house will now be swelling away after the first thinning. Laterals and sub-laterals, in order to prevent waste of vital force, will require tying down combined with a certain amount of pinching every alternate morning, and the roots being principally, if not entirely inside, the Vines will derive the greatest benefit from a thorough watering with warm clarified liquid. The air temperature may range from 65° at night to 75° by day, 80° from sun-heat, and 85° after closing with plenty of moisture.

SUCCESSION HOUSES may be raised to 60° at night when the bunches are well formed, with a corresponding rise by day, and the better to draw them out to their fullest length a run to 80° will be none too high on fine afternoons, always provided they fall to the minimum during the hours of darkness. As these houses contain several varieties, those reputed shy should be fertilised when in flower; hence the importance of saving Hamburgh pollen where this best of all male parents is not likely to be in flower when wanted.

EARLY MUSCATS in about the same stage may be kept a little warmer than the preceding, not that the old-fashioned high and dry treatment is at all necessary, as Grape growers now well know a profusion of healthy and active roots in warm, sweet inside borders is the best and safest fertilising agent. The brush, nevertheless, must be used on fine days, and the better to preserve the freshness of the delicate organs the floors and walls should be well damped with tepid water when air is on, and the temperature approaches the maximum.

LATE MUSCATS we always allow to swell with the season, giving just sufficient warmth to prevent the temperature in March from falling below 45°, but Lady Downe's we encourage by early closing with sun-heat, a little fire, and good daily syringing. The advantages are three-fold, as a minimum of fuel at this time is of more value than treble the quantity in the autumn; the Grapes pass the scalding period before the weather becomes intensely hot, and having a longer growing season, perfect quality is a strong factor in favour of their keeping in the Grape room.

POT VINES, cut back in December and started last month, will now be fit for staking out preparatory to repotting into 7-inch pots, with the view to one shift into those they will occupy until the next year's crop is ripe. If two shoots have started, they may be retained as aids to root action, but when growing freely the weakest must be taken away and the strongest retained to form the fruiting cane. If a little moist bottom-heat can be given after staking out and again after the final shift much time will be gained, a very important matter in the preparation of pot Vines for early forcing, as the canes will be fit for going to rest by the end of August, but once in full and free growth a position on the surface of the bed, and not too far from the glass, will suit them best throughout the summer. An important point in successful preparation is the selection of sound, good loam enriched and made porous by the addition of crushed bones for the first as well as the second potting, especially the first, as these 7-inch balls will filter hundreds of gallons of liquid in the

course of the year, when any ingredient in the form of animal manure may render the whole mass sour and pasty. The Vine, all know, is a greedy feeder, but the absence of rotten manure can always be compensated by liquid stimulants when the roots are active and the leaves perspiring freely.

EYES OF THE CURRENT YEAR.—February being the favourite month for putting in eyes, the bottom-heat for the present must be kept very steady, and being deeply plunged the lightest dewing over with the syringe on fine days will keep the closely compressed soil quite wet enough. When the shoots, at the expense of stored sap, have pushed an inch or so they will come to a stand above, but they will be busy below the surface of the soil, and this being the critical stage the bottom-heat must be maintained until the roots touch the sides of the pots, when the management will be as simple as that of any other cutting. In due course the tiny joints will be found extending and the fresh appearance of the two or three small leaves will show that they are Vines on their own roots; but until this independence is perceptible there must be no attempt at potting on, as three-fourths of the young Vines started properly in private gardens are killed by too much water, sudden falling away of bottom-heat, and shifting too early. W. C.

PLANT HOUSES.

GREENHOUSE CLIMBERS, REPOTTING.—Most of the smaller growing greenhouse climbers can be kept for a long time in pots, provided they are regularly supplied with manure water during their growing season. In all cases where climbers are grown in this way, it is well not to use larger pots than necessary. But when young they should be liberally treated in regard to root room. Where larger pots are needed, the work should be attended to before much top growth has been made. Drain well. This is essential even with the commonest quick-growing plants that are destroyed after they have once flowered. Make the new soil quite as solid as that contained in the old balls, as unless this is done it is useless to expect the plants to do well.

CLIMBERS, PLANTING OUT.—Where large conservatories or greenhouses exist, provision should always be made for planting out at least a portion of the plants intended to furnish the roof. If strong, vigorous growing subjects have their roots confined to small pots, they quickly get stunted despite manurial stimulants. In the formation of beds or borders for climbers of this description account should be taken of the more or less vigorous character of the sorts of plants that are to be used. In no case should more root room be given than is necessary to support the kinds that are to be introduced, otherwise where any of a strong, rampant nature are used the vigorous growth made will injure most of the plants that have to stand beneath them, unless the knife is used to an objectionable extent. The drainage must be sufficient to prevent its becoming foul through the soil getting washed down into it. Any defect in this respect can only be remedied by taking up the plants, which often means their destruction. In all cases see that those to be turned out in such borders are of sufficient size. Where the ordinary trade-sized climbers in 6-inch pots are planted out they often fail to thrive through the soil getting sour before they can get established.

PRUNING GREENHOUSE CLIMBERS.—Whatever pruning is required should at once be attended to. This refers to those plants that flower from the current season's growth, or that have already bloomed from the ripened wood made last year, such as Acacias and others of similar description. In pruning climbers take into account the nature of each particular kind, and use the knife more or less freely as it is necessary.

PALMS, POTTING.—Except where the houses are exceptionally large, Palms are much better grown in pots or tubs than planted out, and these should be smaller than are often used. Much less root-room will suffice than is frequently supposed. In

the case of the stronger free-growing kinds especially it is a mistake to give larger pots than necessary. It is more needful not to lose sight of this matter, as Palms will not bear their roots reducing with a view to their being put in smaller pots, as with many kinds of plants. Most Palms will thrive in nearly any kind of soil, from that which is almost as heavy as clay to peat. But where rich loam of a close, somewhat adhesive character, such as is met with in most parts of Kent, can be had, it is preferable to either, add peat or loam of a lighter nature. Most of the species need a plentiful supply of water, especially during the spring and summer when growing freely; consequently the drainage should be sufficient to prevent the soil getting washed down into

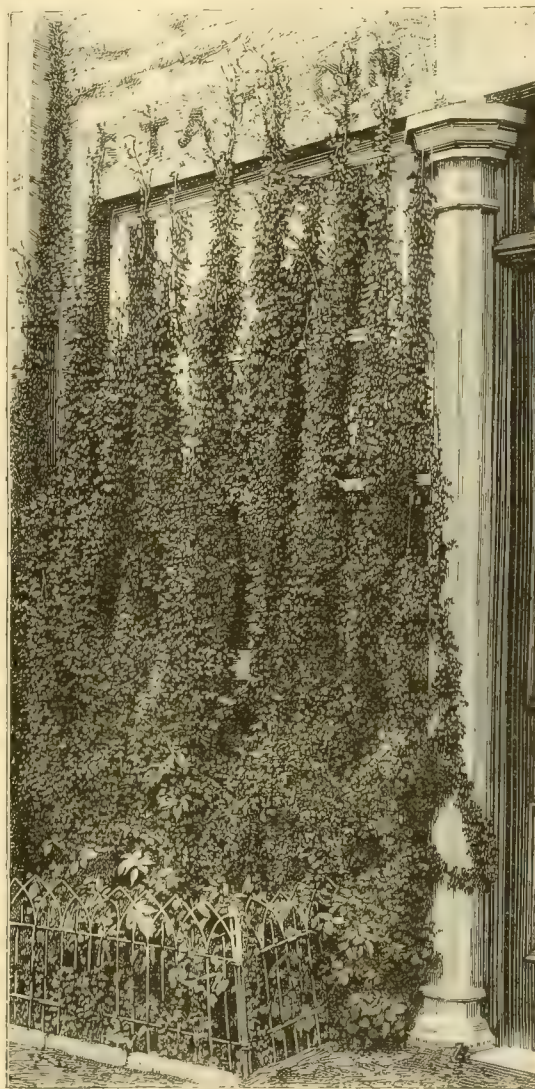
between the base of the leaf-stalks and the stems, so that it is impossible to eradicate them without injuring the plants. T. B.

FLOWER GARDEN.

FLAME NASTURTIUM.

(*TROPEOLUM SPECIOSUM*.)

This is one of the most beautiful of all hardy creeping plants, producing long and elegant annual shoots, clothed with lobed leaves, from the axils of which spring brilliant vermilion flowers; these are most striking in appearance, especially if seen wandering among Ivy leaves, or verdure of any kind, or climbing up the face of some high rock or bank in the rock garden. Notwithstanding its beauty and perfect hardiness, it is very little known or grown, especially in the south of England. It enjoys a deep, rich, and rather moist soil; if not naturally good, add to it leaf-mould, peat, fibry loam, and sand. It seems to flourish best in cool places and in situations near the sea. The young plants should be put out in spring, and the roots inserted 6 inches or 8 inches deep in the soil. They should then receive a good watering, and in hot summer weather a mulching of decomposed manure or leaf-mould will be of great benefit. When established the plants may be allowed to ramble at will, as then they look far more graceful than where formal-looking supports are given them. They will cling naturally to almost anything. They may be propagated by division or seed. The latter should be sown as soon as it is ripe, in light loam, leaf-mould, and sand, in a pan or box, and be placed in a pit or frame. Keep the soil moist, but not wet, until the plants make their appearance in spring. The careful division of the old roots is, however, much the best and easiest method of propagating this *Tropeolum*.



The Flame Nasturtium (*Tropeolum speciosum*).

it. It is well not to use any manure, as all that will be required for the sustenance of the plants is better applied in liquid form during the time that the growth is most active. Palms that are in a vigorous condition usually push such quantities of roots down among the drainage, that it is difficult to get the crocks away without breaking the roots; it is often better not to remove the drainage where this can be done without putting the plants in pots that are larger than it is desirable to use. After potting, keep them a few degrees warmer for a few weeks than they have been previously. If they are troubled with brown scale or mealy bug, the insects should be got rid of by careful sponging. When Palms are affected with white scale the best course is to burn them, as the insects get down

peaty beds, where it is frequently used in the north as an edging. When the soil is too rich and the plant in great luxuriance it will bloom but sparingly; but on the starved side it flowers so freely as to almost hide the foliage. The flowers are followed in autumn by bunches of fruit with long feathery appendages, which give it a very attractive appearance. *D. Drummondii*, with its large pale yellow flowers, a native of North America, and *D. minima* of gardens, a very dwarf form of the Mountain Avens, are both useful and desirable additions for the rockery, where they will be found to do well trailing over soft, weather-beaten limestone in the absence of a peat bed.—K.

The Yellow Fumitory (*Corydalis lutea*) attracted our attention the other day on an old rot-

ten brick wall, where it has established itself, and forms, we were told, one of the chief features of an interesting garden all through the summer months. No plant could be more suited for such spots. Old walls, the more rotten and crumbly the better, old roofs and rocky or stony banks are just the spots where this Fumitory loves to make a home. Once established, and the easiest way is to scatter a few seeds about the loose joints, it gives no trouble, and not many years will pass before it has possessed itself of the entire place. It proves a source of interest and beauty in winter as well as in summer, the glaucous Fern-like leaves peeping from every crevice and corner giving a furnished appearance in the dull season, and when full grown in summer covered with its loose bunches of yellow flowers presenting a lovely and attractive picture.—K.

The double Cornflower.—It does not naturally follow that the doubling of a flower renders it more beautiful or more useful, and it is just open to doubt whether it will prove so in the case of the foregoing Continental novelty. The blossoms of the small-flowered *Cyanus minor*, and especially of the blue variety, are much prized for floral decorations, and there is a simple beauty in their flowers that commands admiration that may not be given to those of the double type. The florets in these forms may be compared to those of *Gaillardia Lorenziana*, those forming the disc having developed into tubular, funnel-shaped ones, with from five to eight lobes, and thus forming globular flower-heads. In the single-flowered varieties we find such colours as blue, white, pink, light and dark red, with some combinations of more recent development, such as dark red with light blue edges and white striped with red and blue. The double form is to be seen in all those colours, and those who favour the doubling of common flowers will find them in the case of *Cyanus minor* in considerable variation. It is said that from 60 to 70 per cent. of the seedlings will come double from seeds.—R. D.

Wallflowers.—The passing winter does not seem to have been so far specially favourable to the production of early bloom on the Wallflower plants. It has been open, but too dull and restful. Only on very early-planted breadths, and these in fairly warm situations, has there been bloom seen, but cuttings have been rare. Planting very early in the summer often leads to the production of plants so large and gross as to render them liable to injury from frost, and whole breadths have often been destroyed wholesale, and yet it is the early cuttings of winter-produced bloom which pay best. Later, when Wallflowers are in everywhere, and enormous quantities of bloom are being sent to market, the returns oftentimes hardly pay for the cost of cutting and marketing. We have nowhere earlier or more deeply-coloured Wallflowers than are grown about London, and bunches are sent to remote places during the season. Still, because of its hardy and common character, the flower must ever be cheap as well as plentiful. Generally, the large growers sow now. I have seen it sown so early as January, but that is not wise. If sown during March, plenty of fine plants are furnished to dibble out at the end of May or early in June, and such plants grow into fine robust heads by the winter. A breadth of several acres closely planted would present a remarkable spectacle if permitted to bloom fully; but of course the flowers are cut fast, and, with the exception of the select plants left for seed, a good head of bloom never is seen. With more open weather, a rapid blooming development may be looked for, and next month cutting will be in full swing.—A. D.

Alpine Pinks.—The great beauty of these flowers for rockeries is admitted, and everyone wants to try them, yet although there are considerably over fifty of what may be termed purely alpine kinds, a very small percentage indeed will be found in cultivation. Transylvania seems to be rich in these alpine Pinks, and although there have been several expeditions lately, we have heard of no Pinks unless *D. gelidus* having been sent from there. With *D. neglectus*, *alpinus*, *glacialis*, *casius*, *sylvestris*, we can hardly say we are badly off for alpine Pinks, yet many of those yet to be introduced are

said to surpass both in beauty, form and profuseness those already known to us. They are all, with the exception perhaps of *D. alpinus*, which will not do everywhere, comparatively easily managed, and will be found to grow and flower well on the rockery in poor rather than rich gritty soil.—K.

HELLEBORES.

THE large importations of these exquisite plants annually received from the various sources in North Germany, Austria, Tyrol, and Italy, especially from the last, are continually revealing some very charming forms, distinct and quite as beautiful as any of the old cultivated ones. From Italy alone we are told that, with a single exception, all the named kinds grown in gardens have been matched, and, as before stated, new forms added to the already long list. This is such a charming class of plants flowering at a time when most other things are at a standstill, and withal so easily managed, that should the list increase tenfold, there will be little room for complaint. With the Christmas Roses, as with many other plants, every grower has his particular mode of treatment, some recommending plenty of good manure, others pure good loam, and so on. The puzzling thing is that all grow them nearly equally well. The great fault against the Lenten Roses being grown as market flowers is the short time the flowers keep fresh after being cut, but when the Christmas Roses are grown in the open border they share the same fault, though in a much less degree. This is a curious fact well known to growers of these flowers for market, and which compel them to open the flowers indoors so as to ensure their giving satisfaction to the buyer. If the Lenten Roses, many of the hybrid forms of which are very beautiful, were lifted and opened indoors, the flowers would probably last much longer in a cut state, and as they are produced in great abundance they would certainly recompense the extra trouble required. There is quite an army of species belonging to this Lenten, or late flowering group, the majority of which, however, are useless as cut-flower plants, and indeed as garden plants at all. *H. graveolens*, *Bocconi*, and many others of this set, although they have handsome foliage, the flowers are so near in colour as to be barely distinguishable unless at close quarters. *H. abchasicus*, or as it is usually called *H. atrorubens*, is a plant that certainly requires the protection of a cold frame or house, because when grown in the open and just when the plants are at their best it has been ruined by the east winds in our London garden for the past nine years, the flowers and young stems having been utterly destroyed. The hybrids, most of which have the guttatus, orientalis, and colchicus blood in them, are perfectly hardy, and although unprotected they have never suffered in the least with cold. *H. colchicus* is one of the latest to open, the large wine purple flowers being very beautiful, especially when grown in large groups. These plants soon attain large dimensions, and where space can be had under a deciduous tree of any kind with shelter from the north and east they will be found to do well. Behind a north wall is also most suitable, and in such quarters we have seen them do exceptionally well, forming large, handsome groups. In addition to the hybrids the following will prove a good selection: *H. orientalis*, guttatus, colchicus, purpurascens, intermedius, antiquorum, and olympicus. These with the hybrids will give ample variety for ordinary gardens. K.

Helleborus viridis.—In reference to a paragraph about this plant on p. 225, we wish to state that "A Gloucestershire Parson" gave the plant

about which he wrote the name of *H. corsicus* (*ilicifolius*), and that by a mistake of ours it was called *viridis*. The plant was bought in Holland under the syn. *ilicifolius*.

THE FLOWER GARDEN.

ADVANTAGE should be taken of dry days and workable soil to transfer all hardy plants to the positions they are to occupy in the summer bedding arrangements, for not only will they be furnishing the ground, but this kind of work, which can be done at any time during the present month when the weather will permit, will be a great help in May when so many things require attention. Thus beds that are presently to be filled with specimen Fuchsias and Heliotropes or with Begonias, as advocated in previous notes, may be traced out, and the intervening spaces required as a carpet for the larger subjects filled in with Stonecrop, Chamomile, silvery Veronicas, or tufted Pansies, as the case may require. The tufted Pansies can also be planted in all mixed beds which they are to occupy in company with variegated or tricolor Geraniums, the Centaureas and Cinerarias for purple shades, or such things as Heliotrope and Verbena venosa for white shades. It is whilst making these early arrangements that one feels at a loss for a dwarf hardy plant with dark foliage of the habit and colour of some of the brighter Alternantheras or Iresine Wallisi, and anyone who can introduce such a plant is likely both to earn the gratitude of all flower gardeners and to realise a handsome sum by his introduction. This is also a good time to overhaul the stock of all old specimen Heliotropes, Lemon Verbenas, unique and Ivy-leaved Geraniums, Fuchsias, &c., removing all dead wood and superfluous shoots and tying in young growth so as to well cover the trellis. A portion of the top soil can be removed at the same time and a top-dressing given of good loam, with which a little soot and liquid manure powder have been incorporated. Old trained plants of this description are a little stiff and formal, but they lose this early in the summer under liberal treatment, and there are many nooks and corners of the pleasure ground in which they can be used. Heliotropes and the Aloysia are generally great favourites, and are specially welcome in close proximity to the mansion in such a position that the perfume can find its way through the open windows. It has become quite a fashion of late years to employ groups of flower and foliage in different parts of the garden, Palms and similar inmates of the conservatory being prominent during the summer in such arrangements. Other things, such as Cannas, Eucalypti in variety, Greivilleas, Melianthus major, &c., for foliage, and some scarlet Gladioli, Dahlias, Hyacinths, and Francoas for flower should receive attention. The Francoas especially are admirably adapted for this work, and their graceful spikes will break and enliven even the most formal group. Big old plants are most serviceable. Francoas are also useful for grouping round vases and pillars, and are indeed very effective in almost every feature of sub-tropical gardening. E. BURRELL.

Claremont.

Saxifraga granulata.—It is pleasing to see so exhaustive an article from Mr. Tallack on plants for shady places. I quite agree with him in his value for such spots of many of the plants. *Saxifraga granulata* grows here in a most luxuriant way in enormous patches under trees of different kinds. I may mention one in particular, viz., a large Lime tree. Its branches, many feet in diameter, come down and touch the Grass. Under this tree this Saxifrage grows and flowers freely. I have cultivated this Saxifrage in borders on the sandy soil of North Hampshire, but I never could get it to thrive as it does here, nor does it look half as beautiful as when growing on Grass. I observed recently a large bunch of Dog's-tooth Violets growing under a shrub where it could not have had a drop of moisture, while the shrub was in leaf.—J. C. F.

The Madonna Lily (*Lilium candidum*).—The notes from "J. C. B." in THE GARDEN for March 10 are most interesting, and show how unreliable this *Lilium* is in some soils. Some plants here in front

of my cottage, which has a west aspect, suffered just in the way described by "J. C. B." At the present time the plants are looking well, the leaves, long and green, giving a grand promise for an abundant bloom this season. Again, this Lily will thrive in places where least expected. It cannot be that it needs good soil, seeing the bulbs in front of my cottage are growing at the foot of a wall which is covered with strong-growing creepers, which rob the soil of every bit of manure or moisture. Some clumps thrive well here in a newly-made shrub bed, which had an enormous amount of old garden refuse added. When residing in the neighbourhood of Aldershot, I was pleased to see how well this *Lilium* grew in the gardens of the officers and men in the camp, where large clumps could be seen growing and flowering freely; while in the cottage gardens in the surrounding villages *L. candidum* may be seen doing equally well. I have never seen such grand bulbs as I did when in that district. There the bulbs were left alone for many years. In the garden then under my charge, the soil of which was hot and gravelly, *L. candidum* would not thrive; while near by, in a cottager's garden which was composed of a damp, boggy soil, it grew splendidly.—J. C. F.

EDGINGS TO GARDEN WALKS.

NOTHING adds more to the appearance of a garden than nice tidy edgings to walks. As the present is the best time for putting edgings into good order, a few words respecting the most suitable plants and material to use for the purpose of forming them may be useful. For kitchen gardens dead edgings are perhaps the most preferable, as when walks are so bounded they are more easily kept free from weeds, which can be destroyed by any of the weed killers, or salt applied in the spring, and the gravel after will remain bright and clean for the season. Large pebbles are good if well bedded, as they do not look stiff and formal, and flints are also suitable. With either, plants may be grown immediately behind, as there, on higher ground, they are far enough removed to be safe from the action of the weed eradicators, unless very heavy rain should closely follow their application and flood the walks over. Used in connection with flint or pebbles, I have seen splendid edgings of *Gentiana acaulis*. This, I think, is one of the best ways to cultivate the plant referred to, as when seen in long broad lines in bloom it is most striking, and must arrest attention and command admiration. The soil that suits the *Gentian* best is rather a stiff loam, but with the aid of pebbles or flints it will succeed very well in light land, and by pulling the tufts apart and planting the crowns singly, stock may be rapidly increased if division takes place in the spring. Daisies also look remarkably well as edgings to garden walks, and may be planted in conjunction with or without the stones, but they do best with, and either used mixed, the red and white together, or separate in different lines, they make a fine show early in spring. The Thrifts, too, flower at the same season or a little later, and last in bloom a long time, and are very pleasing, owing to their great wealth of soft pink blossoms. The old *Armeria maritima* is the closest and freest, but the newer varieties, such as *A. grandiflora*, *A. cephalotes rubra*, and *A. plantaginea rosea* are much bigger and bolder, and throw up very long spikes. If plants of a more useful nature be desired for edgings to kitchen garden walks, they may be found in the Strawberry and Parsley, and both are very handy when so grown, as they are then so convenient for picking. The great thing in all cases is to keep the soil off the gravel, and that the lines of stones, if properly laid, will do, and all or any of the plants mentioned can easily and effectively be used behind. For flower beds and borders stones are just as serviceable, as they are the very thing for many of the alpine to nestle on, and Arabis, Saxifrages, and all creeping and prostrate subjects of that class run over and cling to them in a manner that shows that they like the support the stones afford. Although we have all this wealth, and more to choose from, Box still holds the sway, and when well kept by timely and

proper trimming it always has a nice neat appearance, and is very little trouble to manage. The soil that suits Box best is that which is moderately light and has some chalk or calcareous matter in it, as then the Box not only grows freely, but retains a fine healthy green colour. There are several varieties of this plant, some having coarse large leaves, and others small and of dwarf, compact habit, and it need hardly be said that the latter should be chosen for edging, and when it gets too thick or high it is necessary to take it up and relay it. The best time in the whole year to do this is now, when it may be pulled apart, and just a little trimmed at top and bottom, and then replanted at once. The readiest way of doing this so as to get it straight and even is to make the ground perfectly level and smooth along the sides of the walk, and then strain a line quite tight and cut a sloping trench in front of sufficient depth to take the roots and stems of the Box, which may then be laid quickly in and earth drawn to fill the trench and cover the parts. This done, the next thing is to tread the soil firmly and rake smooth, when the job will be complete, and any regravelling can be carried out after.

I find that the best time to clip Box is about the middle of May, just after it has started to grow, when it breaks again and makes very close stubby shoots that look fresh the rest of the season. Turf edgings are also of great use in gardens, and have a good effect in front of flower borders, as they form a pleasing contrast to the flowers and are easily kept, as the mowing machine may be quickly run over and the Grass cut without involving much time or labour. The width these Grass verges should be will depend in a great measure on the dimensions of the beds or borders at the back of them, or what they surround, but it is a good plan to limit them to the capacity of the machine, so that it will cover and take them by going once over. In places such as under trees, in shrubby walks, where Grass will not succeed well, Ivy forms a fair substitute, and is well adapted for such situations, but here again the kinds should not be coarse unless there is much space to cover.

S. D.

ORCHIDS.

ARPOPHYLLUMS.

FROM J. Roberts I am in receipt of some flowers which appear to be those of *A. giganteum*, although they are produced somewhat before their usual time. This is a small genus, the various species comprising it consisting of plants with slender stem-like pseudo-bulbs, each bearing a single leathery leaf on the top. From a small sheath at the base of the leaf springs a densely-flowered cylindrical spike of blooms, which in the mass are very beautiful, but which singly have somewhat the appearance of Prescottia flowers, and have little beauty. The principal known species are natives of Mexico and New Grenada. One species, *A. alpinum*, is said to grow in Mexico at 10,000 feet altitude, on the branches of the Mexican Alder, and in a region where Oaks will not grow. As may be imagined, therefore, these plants all require cool treatment. I have known *A. giganteum* to be grown in a Cattleya house for years where it never flowered, but when removed to the *Odontoglossum* house and placed in a light place, some six or eight capital spikes were produced the first year. It continued to flower well, although the pseudo-bulbs and leaves were reduced somewhat in size, and it did not grow quite so luxuriantly as when in the warmer position. The plants all require the pots to be nearly filled with drainage, using for soil good fibrous peat and some light turfy loam, which should be made very firm, but not elevated much above the rims of the pots. The plants having a creeping rhizome should

at all times be kept clear upon the surface. Arpophyllums require an abundant supply of water through the summer months, but in the winter less will be necessary. I like to treat them at this season about the same as *Odontoglossum crispum*. The plants do not require much soil, neither do they require repotting annually, but they should always be resurfaced about the month of March. The following are some of the species which are in cultivation:—

A. GIGANTEUM.—I have had plants of this species which grew nearly 3 feet in length. Naturally this is an epiphyte, but it succeeds best under pot culture. The leaves being strap-shaped, thick, and fleshy in texture are, if the plant is grown as an epiphyte, very liable to injury every time the specimens are dipped. The pseudo-bulbs, which are thin and slender, are covered with sheaths, which turn to a brown or deep straw colour with age, and the leaves are deep mottled green and persistent, each some 18 inches or 2 feet long and about 2 inches broad; the spike rises from the top of the bulb and the base of the leaf, and is a foot or more long. The flowers are very densely set, the colour being rosy lilac, the lip somewhat darker. This is the strongest and most robust kind I know, but *A. cardinale* grows nearly as tall. It comes from Mexico and Guatemala.

A. CARDINALE.—This plant I have only seen upon the Continent. It is more erect in its growth than *A. giganteum*, and consequently is not so graceful; its spikes of bloom are, however, shorter, but the flowers are thickly borne, and differ from those of *giganteum* in having a fringed lip, which is of a deep rosy carmine, the outer portion of the flower being pale rose. Its flowers, on the one or two occasions on which I have seen them, have been in beauty about the end of spring and the beginning of summer. It is said to come from New Grenada.

A. SPICATUM.—This is a smaller plant than the previously named kinds and is very rare; indeed, I know of only one collection where it is to be found, and that is Sir Trevor Lawrence's at Burford Lodge, Dorking. Another plant used to exist in the collection at Kew, but I do not know if it is still there. I saw this plant flowering in Sir Trevor Lawrence's collection before Christmas. The spike is small, not nearly half as long as the leaf, the flowers in the bud being deep rose, but when open the sepals and petals are pale rosy lilac, the lip only being deep rose. All these plants are well deserving the attention of growers, and I am much obliged to J. Roberts for the consignment of flowers he sends me; it is a somewhat out of the way Orchid, and not likely to be known by ordinary Orchid men, simply because they have confined their attention to more showy kinds.

W. H. GOWER.

Scuticaria Hadweni.—This is the name of a flower which I have received from J. MacNaughton. I have seen it blooming in the months of May and June, and again in the autumn in October, and now it comes again in the month of March. In general appearance the plant resembles the Shoe-lace plant (*S. Steeli*), but the terete leaves are much shorter; the flowers also are borne upon a longer peduncle and stand erect. The sepals and petals are about equal and spreading, the ground colour yellowish-green, on which are numerous irregular spots and blotches of chocolate-brown; lip large, hooded, white, more or less spotted with pink. The plant, I believe, is found about Rio Janeiro, and requires the warmth of the Cattleya house. It should be grown upon a hanging block of wood, and it appears to me to bloom just about the time it starts into fresh growth. It is a very showy and desirable

Orchid, and I am much obliged to the sender for such a rarity, as I had not seen it for a long time.—W. G.

Odontoglossum Rossi Amesianum.—This is a remarkably high coloured form of Rossi, and the flowers I recently received from Mr. Blair have the sepals and petals very deeply marked with dark chestnut, the basal half of the petals being quite covered, leaving the upper half pure white, whilst the sepals are covered entirely, saving a few streaks; the lip is large, cordate, and pure white. This is one of the very finest forms of Rossi, and it should be largely grown for spring flowering. It enjoys the cool house, but likes more light than *O. Alexandræ*.—G.

An Orchid very little seen is *Lycaste Baringtoniæ*, which is remarkable for its freedom of flowering. There are two or three specimens of it in the Orchid house at Kew one mass of bloom, and the wonder is such a species, introduced just 100 years ago from Jamaica, should be restricted to a few collections. The flowers are carried on short spikes that proceed from the base of the pseudo-bulbs, and at first are of a distinct greenish tinge, but change with age to pure ivory white, while they last in condition several weeks. They are of about the same size as those of *L. lanipes*, and very beautiful when seen in a thick mass on the plants. It is of free growth, and should be in every collection, even if small.

Cypripedium Elliottianum.—This beautiful species, recently introduced by Mr. Sander, of St. Albans, is now flowering with Messrs. Seeger & Tropp in their nurseries at Dulwich. The plant has sufficiently recovered from its importation to become well established, and it is carrying a spike bearing a pair of flowers. The scape bears bright coloured bracts, which are white, with a tinge of green, and boldly streaked with chocolate; the sepals and petals are ivory-white, suffused with a tinge of yellow, the latter standing out at right angles; lip brownish-purple, and with a curious beak-like staminode. It seems to require some time to recover after having been imported. It succeeds best in the East India house.—W. H. G.

Cœlogyne Lemoniana sporting.—About twelve years ago I bought a plant, amongst other Orchids, which was then in a 6 inch pot, but now in a large pan a yard through. Three years ago it threw up a spike of the Chatsworth variety. The growth which produced it was marked, and in due time was taken off and placed in a small pan. Last year it sported again. I examined the growth very minutely and found it attached to a growth which was producing a spike of the true variety. I was convinced that there were not two varieties in the pot originally. These were marked and taken off. Strange to say, it has sported again on each side of the plant. The flowers of sports are of about the same size and substance, but vary a little in shade of colour on the lip.—A. EVANS, *Lythe Hill, Haslemere*.

Orchids at Camden Wood, Chislehurst.—Amongst good collections of Orchids in private gardens that of Mr. Vanner's at Chislehurst is one of the most interesting. There are several choice kinds, and amongst the *Cypripediums* is the hybrid *C. Lathamianum*, of which notes have recently appeared. The best of the forms is that with the flowers compact and neat, more in the style of those of *Spicerianum*, which is one of the parents. The colours are bright, and the brown on the lip and petals shining as if varnished. *C. Leeannum superbum* and many others not in bloom, including an excellent plant of *C. Morgana*, are in this choice collection of Lady's Slippers. *Angræcum citratum* was flowering freely, also several *Phalenopsis*, including one of the finest coloured forms of *P. Sanderiana* we have seen, the whole of the flower richly coloured with rose. *Dendrobium splendissimum*, *Calanthe virginalis*, the deeply coloured *C. Regneri*, *Cymbidium Lowianum*, represented by a good type, and a rich series of *Cattleya Trianae*, of which we have made a note elsewhere, gave a warm glow of colour to the house. *Lycaste Skinneri alba* is well grown here. One plant now past its best had twelve of the massive ivory white

flowers, and other forms showed the interesting variation of colour that marks the lips of this Orchid. Other things in full beauty were *Odontoglossum Edwardsi*, *Rossi majus* in several forms, the colours varying considerably, and a good variety of *O. maculatum*, besides the welcome little roseum and *baphicanthum*, a supposed natural hybrid between *crispum* and *odoratum*; the flowers are about 2 inches across and sulphur-yellow, blotched with a reddish brown colour. The rich health of the plants is a credit to Mr. Robbins, the Orchid grower.

ANGULOAS.

ALTHOUGH these plants cannot be classed amongst the most graceful of Orchids, there are few more striking in appearance or remarkable in structure. The fleshy texture of their large Tulip-like flowers, their strong aromatic fragrance, and the curious rocking lip all serve to render them the most noticeable of Orchids when in bloom. To those who are commencing the cultivation of Orchids few genera are more suitable. There are, perhaps, none more easy to grow, and the bold, luxuriant foliage of itself makes them ornamental at all times. Some six or seven species have been introduced, but at least half of these are so rare as not to be obtainable. The headquarters of the genus is Colombia. The pseudo-bulbs are each 4 inches to 8 inches high, oblong in outline, bearing a few large deep green leaves on the top. The erect flower-spikes are 8 inches to a foot high, and spring from the base of the pseudo-bulb along with the new growth, and sometimes as many as six or eight are clustered round each; normally, they are one-flowered, but on strong plants I have occasionally had twin-flowered scapes.

All the Anguloas require terrestrial treatment. They should be grown in well-drained pots or pans, and being gross feeding plants should not, when fully established, be stinted for root room. Imported pieces, however, are better placed in rather small pots in a compost of peat fibre and Sphagnum, and care must be taken not to overwater them. For established plants our practice is to add a proportion of one-third loam fibre to the compost. It is advisable to elevate the plants above the rim of the pots, because in spring the young pushing growths are liable to decay if water lodges about them. Repotting may be done about the present time, and any loose or sour soil should be carefully picked or syringed off. During the period of most active growth Anguloas enjoy an abundant supply of moisture, and occasional applications of manure water are beneficial. Even in winter the plants must not be allowed to remain very dry, although there is perhaps a greater danger of giving them too much. At any rate the pseudo-bulbs must not be allowed to shrink. We grow Anguloas in the shadiest corner of the house, the temperature of which is slightly higher than that of the *Odontoglossum* house. For many years they have succeeded perfectly here. They will thrive quite as well in the coolest part of an intermediate house, removing them to a cold house when in flower.

A. Clowesi is so cheap and the lasting qualities of the flowers so great, that it ought to obtain a place in every garden where its requirements can be met. With us it grows to a larger size than any of the other species. The pseudo-bulbs have sometimes been 8 inches high by 3 inches wide, and the broad, plaited leaves over 2 feet in length. The flowers, cup-shaped and each about 2½ inches across, emit a strong, but not unpleasant odour. The sepals and petals are bright yellow and the lip is white, tinged

with orange. Owing to the manner in which the latter organ is balanced on a hinge, it rocks to and fro whenever the flower is moved, and the species has on this account been called the Cradle Orchid. This handsome species was originally found growing on the ground in the midst of a forest in Venezuela. It occurs most abundantly in Colombia. The flowers are usually at their best in July and August, but I have had them as early as May and as late as September.

A. Ruckeri is a very striking and handsome species. Although scarcely so robust, the habit of the plant and the shape of the flowers are the same as in *A. Clowesi*. The ground colour of the sepals and petals is tawny yellow, profusely spotted with crimson, the lip being entirely deep crimson. It blooms during July and August. The variety *sanguinea* occasionally appears amongst imported plants, but as yet it is scarce. The yellow of the type is altogether absent, and all the parts of the flower are deep blood-red. Both are natives of Colombia.

A. uniflora is the only other species at all common. The flowers are very distinct from those already described, being pure white, sometimes freckled with brown. In other respects it is similar to the preceding. It is a native of Colombia and Peru. W. B.

Pleurothallis.—The most prevalent idea, perhaps, respecting this genus is that it should be avoided. To one who has an acquaintance with the majority of the species—numbering altogether about 350—this is what might be expected. That it contains plants, however, not only of interest, but also of considerable beauty is shown by several species which flower from time to time at Kew. Just now *P. Barberiana*, a tiny species, not more than an inch high, but with exceedingly pretty flowers, is now in bloom. The flowers, borne on slender, filiform stalks, 4 inches high, are white, spotted with purple, the curious, inflated lip being entirely purple. Another species in bloom is *P. ornata*. It is no larger than *P. Barberiana*, the flowers being bright purple. Although so small it is a remarkable plant. The outer margin of the sepals bears numerous club-shaped appendages, which are so slightly attached, that they whirl about on the slightest breath of air passing over the flowers. Another curious species is *P. immersa*. In this the flowers, which are three-quarters of an inch long, are borne on a long slender spike of about 20 inches and are wholly of a dark, dull purple. The scape appears to rise out of the centre of the leaf, this being due to its union with the midrib for half its length. It requires a cross section of the leaf to show this, the scape being enclosed in the epidermis—as the specific name implies. The finest of all the varieties of *Pleurothallis* is *P. insignis*, now coming into bloom. The flowers are 6 inches deep, the long, narrow, tapering sepals being of a light transparent green, striped with purple, and the singular lip having a circular tuft of hairs on the apex.—W. B.

SHORT NOTES.—ORCHIDS.

Cypripedium bellatulum.—One of the finest forms of this Lady's Slipper we have seen was recently in bloom at Kew. The flower measured close upon 4 inches across, the petals of great width and substance, and spotted with rich purple on a clear white ground.

Paphinia grandis should, according to the books, flower in the autumn, but a plant is now in bloom in the Royal Gardens, Kew. It is a noble Brazilian species, the flower about twice the size of that of *P. cristata*, and proceeds from the base of the pseudo-bulbs. It is large, and magnificently coloured on the inner side of the sepals and petals with deep crimson, the upper portion wholly of this colour, but the lower half creamy white, spotted with the same deep shade; the lip is also deeply coloured. The flower hangs down

by the side of the basket, and does not expand fully to show its rich beauty within, but it is a species that should be in every good collection.

Spathoglottis Kimballiana.—This is a new *Spathoglottis*, introduced, we believe, by Messrs. Sander & Co., of St. Albans, and now flowering in Mr. Vanner's collection at Chislehurst. The flower is like that of a *Phalanopsis* in expression, clear yellow, except a few lines of reddish-crimson on the inner face of the lateral lobes of the lip. It is a graceful and beautiful flower.

Treatment of Odontoglossums.—Will you get me the opinion of some of your practical readers as to the behaviour of *Odontoglossums* in a lean-to on a north wall, where no sun will hardly ever reach them; and also whether other cool Orchids would bear similar housing? They are doing well in the cool end of a span-roof, but want of room is the only reason for transferring them with cool Ferns to another house. —JOHN PUGET (Colonel).

Orchis Robertiana.—I cannot quite agree with the remarks of Mr. W. C. Atkinson on p. 235 respecting *O. Robertiana*. It is one of my greatest favourites, on account of the large, well-shaped, though rather dull coloured flowers, which are also very sweetly scented. I admit it is not so pretty as *O. foliosa* or *maculata superba*, but it is decidedly far more beautiful than *O. maculata*. *O. Robertiana*, or *Aceras longibracteata*, is one of the most distinct species of the Mediterranean region, and being of a vigorous constitution it can be easily acclimatised. It has elliptical leaves, each sometimes more than a foot long. The flowers are produced in spikes 1 foot to 2 feet long, resembling those of the well-known *O. fusca*, but of a dull purple and sweetly scented. —G. R.

Vanda suavis unhealthy.—I have some plants of *Vanda suavis* which until December were growing in a lean-to house where they were very crowded with other plants and a large number of baskets overhead. They appear to have grown very well, but the leaves are not firm and large numbers have fallen off. In December they were placed in a new span-roofed house much lighter than the lean-to and with thinner shading. The plants having ample room, some have flowered and others are showing bloom. The roots are plump and healthy, but during the last three weeks the lower leaves have turned yellow, and from two to seven pairs will evidently fall off. The temperature has ranged from 56° to 70° with sun. I should be obliged for any information as to the cause of this. —G. W.

Two singular Orchids now in bloom in the Orchard house at Kew are *Restrepia striata* and *Pleurothallis immersa*. They are both curiosities, the first having also a quiet, charming beauty essentially characteristic. The flower is in the way of antennifera, and beautifully striped with deep purple-crimson on an old gold ground colour—a lovely bit of intense colouring. But its small size renders it worthless where mere colour and display of bloom are required. The *Pleurothallis* bears a raceme of very deep purple-coloured flowers, almost black, and the stem is imbedded for about half its length in the leaf—not joined to it, but simply sunk in, so that it is easily removed; hence, we suppose, the specific name of *immersa*.

Cattleya Trianae at Camden Wood.—This beautiful Orchid is represented by several excellent varieties in the garden at Camden Wood, Chislehurst, where Mr. Robbins is very successful with this class of plants. There is a delightful series of colours in a good collection of *C. Trianae*, one named Marie having a crimson lip of unusual depth, the sepals and petals rose, the latter marked with a deeper stripe down the centre. One named Vanneriana, after Mr. Vanner, who resides here, is very distinct, the plant carrying several flowers, which are white, with just a suspicion of pink in the sepals and petals, the two lower sepals each having a rich yellow stripe down the centre; the lip is deep crimson in front, and orange-yellow of an intense shade at the entrance to the throat. A delicate form is appropriately called *delicata*, a very pretty thing, the flowers soft rose, deeper in the lip, made still more intense by the yellow colour at the entrance to the throat.

Odontoglossum Pescatorei.—A very large-flowered and richly spotted form comes from Mr. Blair, of Trentham. It is deserving of attention, as it may become a rival to the famous Pesca-

tori *Veitchianum*. The spots upon these *Odontoglossums* do not appear to be developed all at once, but should it not become more highly marked it is a very pretty plant, and well deserves a varietal name. We may see what another season's cultivation does for it, and if it does not improve in its spotting, some name will have to be devised for this plant in order to distinguish it from the ordinary forms of the plant, which does not appear to break into so many varieties as *O. Alexandræ*. —W. H. G.

Masdevallia Fraseri.—The flowers of this very elegant hybrid, raised between *M. ignea* and *M. Lindeni*, are not large, but they are very brilliant. The form of the bloom very much resembles that of the last-named parent, the sepals being of a rich magenta-crimson, with a slight tinge of orange, and it does not inherit from *M. ignea* the only objectionable feature of that flower, i.e., the depression of its dorsal sepal. This plant was recently flowering in Messrs. Seeger and Tropp's nursery at Dulwich. It was, I believe, raised by Mr. Fraser, of Aberdeen. —W. H. G.

Cattleya Trianae.—Quite a gay lot of flowers of this species comes to me from Mr. P. Blair, gardener to His Grace the Duke of Sutherland at Trentham. They are very beautiful, and show well that they have not been grown near London, being thick and fleshy in texture and very rich in colour. One form was heavily marked with a rich feathery streak of crimson-lake in the petals somewhat like *Backhousiana*. Mr. Blair also appears to have a form very near to the variety *delicata*, sent me some time ago by Mr. Brown, Arddarroch. It is not so large, however, and it is also more deeply marked with mauve in the lip. These forms show the necessity of names to mark the distinctions, or one would not be able to get the kind asked for. —W. H.

FERNS.

FILMY FERNS AT MALMAIS.

IN THE GARDEN, Feb. 22 (p. 173), appeared an illustration of a portion of Captain Belfield's far-famed house of *Todeas*, but although the engraving is beautifully done, it after all conveys but a poor idea of the extent and unique character of the collection. Nowhere else, probably, or, at any rate, as far as private enterprise and cultural skill are concerned, is there such a grand lot of plants to be seen, and what adds to the just pride of the owner is the fact that all were collected by himself. We are apt to associate these lovely Ferns with bell-glasses, Wardian cases, and other contrivances, and a whole house of large specimens comes rather as a surprise to many who have the privilege of seeing it for the first time. Altogether there are about fifty plants, the majority being of *Todea superba*, there being a comparatively few of *T. pellucida*. There are numbers of them from 5 feet to 6 feet in diameter. These fine specimens are growing in pots from 16 inches to 18 inches in diameter, and stand on other large inverted pots. Good room is given to all, an informal pathway winding among them, admitting of a most enjoyable view of every specimen in detail. The *Todea* compartment is in the middle of a range of span-roofed houses, being about 40 feet long, of good height, and the aspect decidedly cool or north-east. There is no mistake about the hardness of these remarkable Ferns. There are hot-water pipes in the house, but they are quite rusty from non-usage, accompanied with much moisture, and it is no uncommon thing for the *Todeas* to be charmingly hung with icicles, no harm accruing to the fronds thereby. All they appear to need is very frequent overhead syringing with pure water, this also obviating the necessity for watering at the roots often. —W. I.

Cyrtomium falcatum.—I can fully agree with the remarks made (p. 173) as to the usefulness of this Fern, which in my opinion stands out as distinct among its class as the Holly does among Evergreens. The *Cyrtomium* is always bright and

cheerful looking, as besides the deep rich green of its foliage, its surface is beautifully glossy, and this with the stout texture of the leaves accounts for the plant standing so well in rooms or other positions in dwellings. "F. H." omitted to state that the *Cyrtomium falcatum* is almost, if not quite hardy, as in ordinary sheltered places it will endure our winters, and may be made quite safe by a handful of half rotten leaves or Cocoa-nut fibre over the crown. For a cool fernery *C. falcatum* is unsurpassed by any Fern of its size, and will grow in deep shade or far away from the roof, but in a high temperature or when subject to dry air it is apt to get disfigured by thrips. —S. D.

Davallia bullata (the Squirrel's-foot Fern).—Amongst the dwarfed growing species of this useful genus of Ferns none are more adapted for general cultivation than this kind. For use in a cut state it is one of the best that can be grown, lasting, as it does, for a week or ten days in good condition, and under favourable conditions even longer still. Its fronds may be cut as soon as they have attained their full size and whilst still of a pleasing shade of pale green. This early cutting is rather an advantage than otherwise to established plants, for the fronds come up so thickly after the rest the plant has had during the winter as to cause them to damp off or to overcrowd each other. It does not require the temperature of a stove to grow it well. The plant I had of it was about 5 feet across; this was always grown in a Peach house that was started about the new year. Whilst at rest the plant stood in another house, the night temperature of which ranged from 40° to 45°. After it had well clothed itself with new foliage it was moved into this house again during the summer, and there it remained until again started. It is an excellent Fern for basket culture. If large specimens of it are needed, it may be considerably extended beyond the pot in which it is growing by means of wirework fixed around the pot. Upon this groundwork some coarse peat and Sphagnum Moss should be placed, and the rhizomes, after some finer soil has been added, can then be pegged outwards from the pot as far as they will extend, afterwards sprinkling some fine sandy soil over them to encourage fresh root action. Plants that are overgrown or have become too thick can be broken up or thinned out. This *Davallia* needs but little shade; in fact it is much better grown in fairly well exposed and not in too humid an atmosphere; in this way the fronds, although not quite so large, will be far more enduring. Those who have any plants of this Fern will do well to look after them and adopt the modes of culture just advised before the plants are too far advanced in growth to cause any check or injury afterwards. —J. H.

MR. WATSON ON GRAFTING.

MR. PARSONS' trenchant remarks on this subject are an overwhelming testimony against those ill-advised authorities who set out to convince English gardeners that they were being defrauded by the nurserymen who sold them grafted fruit trees instead of own-rooted ones. It was difficult to believe that those who condemned grafting of all kinds as a makeshift and a fraud were in earnest. The crusade against grafting in England collapsed suddenly. Probably the fruit conferences, held recently, carried conviction to the minds of the few who appear to have thought that they had but to cry out against grafting to get it condemned. —*Garden and Forest*.

. Not at all, Mr. Watson; not well begun yet. It will be time enough to say collapsed after fair and accurate trial of our standard fruits on their own roots side by side with those on every known stock. Those "ill-advised authorities" who began the crusade against grafting did not do so without count-

ing the cost after much observation of its evils and some extensive trials of their own, to be followed by many more.—W. R.

BOOKS.

A NATURALIST'S VOYAGE.*

THIS book is one of the best written by its celebrated author, and we have now the pleasure of seeing a finely printed library edition and issued, we believe, as many as fifty years after the first edition. As Mr. Murray remarks in his preface, the "difficulty of getting authentic and original representations of the various places visited has never been overcome until now." Most of the views are from sketches made on the spot by Mr. Pritchett, with Mr. Darwin's book by his side. It was a good idea to bring out this well printed and illustrated edition of a book that is one of the most famous of its kind ever penned, and for which there should be a large demand, as such a work of its entertaining and instructive character so richly deserves.

This record or journal of research into the natural history and geology of the countries visited by Mr. Darwin in his voyage round the world in H.M.S. *Beagle* may be read by everyone with profit, and to the geologist and lover of natural history the minute and accurate descriptions convey much valuable information in a style at once charming and simple. Until now no attempt has been made to produce an illustrated edition, but the thing is accomplished, and makes the reading of the work the more enjoyable from the profuse and excellent sketches of birds, insects, and tropical scenery. As it deals for the most part with natural history and geology, it has less practical value to the gardener than the naturalist and geologist, but in the vivid descriptions of the native scenery, the characters of the people, their habits and customs, he will find plenty to entertain; while the more elaborate descriptions of birds and insects are written with such charming simplicity—unlike the dry, technical records of some writers—that they will prove a never failing source of delight and instruction. As with others, on their first sight of the luxuriant vegetation of the tropics, it produced on Mr. Darwin a feeling of intense admiration. He depicts in clear graphic language his experience of the delight of a naturalist who for the first time has wandered by himself in a Brazilian forest. "To a person fond of natural history, such a day as this brings with it a deeper pleasure than he can ever hope to experience again," and the reader will find a good illustration of virgin forest depicting the wild tangle of growth; but though the jungle fills him with wonder and delight, there is a monotony in its evergreen luxuriance that forces comparison with the freshness and exquisite charm of an English spring. In writing of New South Wales, in which "the extreme uniformity of the vegetation is the most remarkable feature in the landscape," he shows his appreciation of the English spring:—

The inhabitants of this hemisphere and of the inter-tropical regions lose perhaps one of the most glorious, though to our eyes common, spectacles of the world—the first bursting into full foliage of the leafless tree; and to us, now welcoming the annual revelation of budding growth, the brightness and joyousness of spring never fail to excite pleasure, which is perpetuated as the leaves change to the full green of summer and the rich mellow tints of autumn. There is no weariness in the delightful variation the English landscape undergoes from January to December.

In the second chapter, which embraces Rio de Janeiro, an illustration is given of the Mandioca or Cassava, which is cultivated on the estate at Socógo of Senhor Manuel Figueireda, a relation of one of

Darwin's party. Coffee is the chief product of this portion of the country, but the Mandioca is also cultivated in quantity, and is remarkable for its great use.

Every part of this plant is useful; the leaves and stalks are eaten by the horses, and the roots are ground into a pulp which, when pressed dry and baked, forms the farinha, the principal article of sustenance in the Brazils. It is a curious though well-known fact that the juice of this most nutritious plant is highly poisonous.

In the woods of Socógo the Cabbage Palm luxuriates, and a neat illustration shows the characteristics of this majestic plant, which "waves its elegant head at the height of 40 feet or 50 feet above the ground."

The Botanic Gardens at Rio de Janeiro are briefly alluded to, but the simple description tells of the richness of the vegetation in this sunny clime. Here the Camphor, Pepper, Cinnamon and Clove trees give out a delightful aromatic perfume, and the Mango, Bread-fruit, and Jaca spread out their magnificent foliage, very different from the aspect of vegetation in the valley of the Rio Negro, where a "dry gravelly soil supports tufts of brown withered Grass, and low-natured bushes armed with spines." It was here that Darwin saw a famous tree, of which he gives a graphic description, that may interest those of our readers who have not read the book.

We came in sight of a famous tree, which the Indians reverence as the altar of Wallechu. It is situated on a high part of the plain, and hence is a landmark visible at a great distance. As soon as a tribe of Indians come in sight they offer their adorations by loud shouts. The tree itself is low, much branched and thorny. Just above the root it has a diameter of about 3 feet. It stands by itself without any neighbour, and was, indeed, the first tree we saw. Afterwards we met with a few others of the same kind, but they were far from common. Being winter, the tree had no leaves, but in their place numberless threads, by which the various offerings, such as cigars, bread, meat, pieces of cloth, &c., had been suspended. . . . To complete the scene the tree was surrounded by the bleached bones of horses which had been slaughtered as sacrifices. All Indians of every age and sex make their offerings; they then think that their horses will not tire, and that they themselves shall be prosperous.

On the journey to Mercedes, on the Rio Negro, immense beds of the Thistle, Pampas and Cardoon are met with—the Cardoon growing as high as the horse's back and the Thistle even over-topping the rider himself.

One of the most interesting chapters in the book is that which deals with the Patagonians, and in this region Darwin found a species of Cactus, named in honour of the great naturalist. A small outline cut shows it to have spikes of unusual length and sharpness. Tierra del Fuego and Chile are vividly described, and in ascending the Campana, or Bell Mountain, of Central Chile, noticed that—

In a few places there were Palms, and I was surprised to see one at an elevation of at least 4500 feet. They are excessively numerous in some parts of Chile, and valuable on account of a sort of treacle made from the sap. . . . A good tree will give ninety gallons. In Central Chile the Cactuses or Opuntias were often met with, and one of a spherical figure, which, including the spines, was 6 feet 4 inches in circumference. The height of the common cylindrical branching kind is from 12 feet to 15 feet, and the girth (with spines) of the branches between 3 feet and 4 feet.

One of the most important plants described and illustrated in the book is *Gunnera scabra*, called here the "franke," and which by reason of the luxuriance and breadth of its massive foliage is used with the best effects in English gardens, planted in some isolated spot, where its huge Rhubarb-like leaves are sheltered from storms of wind, which quickly tear and spoil their rich beauty. It is hardy, at least sufficiently so to stand an English winter, if a slight protection is given during spells of unusual cold by a layer of dry leaves placed amongst the stems, and with the foliage bent down to give shelter to the crowns. There was formerly a specimen in the herbaceous ground at Kew. In its native country Darwin no-

ticed some fine specimens growing on the sandstone cliffs, and mentions that the inhabitants eat the stalks, and tan leather with the roots and prepare a black dye from them. One measured nearly 8 feet in diameter, and, therefore, no less than 24 feet in circumference. The stalk exceeds a yard in height, and from four to five of the gigantic Rhubarb-like leaves are carried by each plant.

The Apple trees in Valdivia form an interesting paragraph. The town is in the midst of Apple orchards, and Darwin records, "I have never seen any country where Apple trees appeared to thrive so well as in this damp part of South America. On the borders of the roads there were many young trees evidently self-sown." A description then follows of the native method of forming Apple orchards, which appear to supply considerable food to the inhabitants of this fruit-embowered town, that vies with the neighbourhood of Mendoza, where vineyards flourish, and orchards of Figs, Peaches, and Olives abound. This must have proved a paradise of fruit, as "we bought Water Melons for a halfpenny apiece, and for the value of threepence, half a barrowful of Peaches."

Tahiti, with its luxuriant vegetation and luscious tropical fruits, was a source of keen delight to the great naturalist, and forms one of the best chapters in the book. Here,

In the midst of Bananas, Orange, Cocoa-nut and Bread-fruit trees, spots are cleared where Yams, Sweet Potatoes, the Sugar-cane, and Fine-apples are cultivated. Even the brush-wood is an imported fruit tree, namely, the Guava, which through its abundance has become as noxious as a weed.

The Bread-fruit is often noticed by Darwin, who dilates on the beauty of groves of the tree, as vigorous as the English Oak, and bearing a heavy burden of large nutritious fruit.

On every side were forests of Bananas, the fruit of which, though serving for food in various ways, lay in heaps decaying on the ground, and he considered the young leaves of the wild Arum better than Spinach, and the roots when well baked are good to eat.

It sounds strange to hear now the uncomplimentary remarks of Mr. Darwin on New Zealand, but of course, since the first issue of the book, a vast change has come over the continent of Australia and New Zealand. Speaking of the latter, he says,

I believe we were all glad to leave New Zealand. It is not a pleasant place . . . and the greater part of the English are the very refuse of society.

But he has a kindly word for Waimate and its Christian inhabitants and where he received a cordial welcome from the missionaries. The sight of English produce, crops of Barley and Wheat in full ear, was exceedingly pleasant.

One of the last places described is St. Helena, of which the vegetation is essentially British, brought about by the importations made from England. We can fancy the delight of the naturalist, far away from English shores, feasting his eyes on sloping banks of Gorse covered with bright yellow flowers.

Weeping Willows are common on the banks of the rivulets, and the hedges are made of the Blackberry, producing its well-known fruit. When we consider that the number of plants now found on the island is 746, and that out of these 52 alone are indigenous species, the rest having been imported and most of them from England, we see the reason of the British character of the vegetation.

Those who have not yet read this delightful summary of one of the most interesting voyages made round the world, should not fail to become at once acquainted with its rich contents, that appeal not only to the general reader, naturalist, and geologist, but to the gardener as well, as the brief review here given will amply prove.

Chinese Narciss, or Joss Flower.—In reply to an inquiry of W. C. Atkinson, I purchased in December, 1889, four bulbs of the above, and the roots placed in sand and water have flowered beautifully, some having single and others double flowers. Some of the bulbs have nine stems, each bearing from six to eight flowers. The roots did split, and the bowls sold with them were rather small, so I put the

* "A Naturalist's Voyage: Journal of researches into the natural history and geology of the countries visited during the voyage of H.M.S. *Beagle* round the world." Illustrated edition. By Charles Darwin, M.A., F.R.S. London: John Murray.

bulbs into a larger basin. The roots grown in soil were not quite so handsome. They have been greatly admired and the scent is delicious.—D. M. W.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MARCH 11.

THE first meeting of March was larger than anticipated from the unusual severity of the weather in the beginning of the month, and the exhibits generally were of an interesting character, not mere groups of things everyone knows who is acquainted with flowers.

A FIRST-CLASS CERTIFICATE went to each of the following:—

PHAIUS HYBRIDUS COOKSONI.—This is one of the finest hybrid Orchids of recent years, raised by Mr. Cookson, of Oakwood, Wylam-on-Tyne, and shown by Messrs. Sander and Co., of St. Albans. A full description of it is given in *THE GARDEN* of last week (p. 224) under the heading "Two Good Hybrid Orchids."

CYPRIPEDIUM NUMA.—Here we have a remarkably distinct hybrid between *C. Stonei* and *C. Lawrenceanum*, the flower fairly representing both parents, especially *Stonei*, the petals and lip showing with great clearness the characters of this beautiful species, but, unfortunately, the colours are scarcely well defined. There is the broad dorsal sepal of *Lawrenceanum*, but the longitudinal stripes are not brought out with the same vividness as in the parent, and the colouring on the petals is heavy; the lip is of a brighter shade of brown. It is a noteworthy hybrid, although wanting the colour-attraction that marks the exquisite gem, shown recently by the same firm under the name of *Niobe*. From Messrs. J. Veitch and Sons, Chelsea.

DENDROBIUM ASPASIA.—This deserves unqualified praise. It is a lovely hybrid between *D. Wardianum* and *D. aureum*, both noble parents. A small plant exhibited by Messrs. J. Veitch and Sons showed that it will bloom very freely, and in a mass the delightful colours of the flowers must be unusually beautiful. The sepals and petals are white, delicately tipped with rose; the lip broad, deep yellow, enriched with a velvety crimson central blotch, made more intense by the strong contrast of a rose tip at the apex.

DENDROBIUM SIGNATUM.—This is an interesting *Dendrobium*, but not one, we should think, likely to be much grown. The flowers are pale primrose in colour, and similar in shape to those of *D. luteolum*, the centre of the lip deepening to a stronger yellow, and blotched in the centre with lake-crimson colour; the leaves are of an unusually bright green. From Sir Trevor Lawrence, Bart.

LYCASTE SKINNERI (Young's var.).—This was one of the finest Orchids exhibited, and showed the remarkable diversity of colouring displayed in the lip of this *Lycaste*. We have rose colours of all shades, deep crimsons, but nothing so delightful as the clear salmon-pink shade on the lip of "Young's variety." This is deepest at the margin, the centre becoming paler, and there is a delicate suffusion of the same tint on the petals. The bold massive sepals are pure white, and the contrast with such an uncommon colour as this salmon-pink is peculiarly happy. The plant exhibited the same robustness and freedom as the type. It was shown by Mr. R. Young, Liverpool.

PHENIX REBELINI.—This dwarf Palm will, as it deserves to be, become largely grown, and was shown by Messrs. Sander and Co. and Mr. J. O'Brien, Harrow Hill. It is not unlike *P. rupicola*, and, as seen in a mass as exhibited by Messrs. Sander, has an exquisite gracefulness and beauty, the narrow rich green pinnae, each about 6 inches long, forming an elegant arching leaf, such as would make an excellent effect on the table. The plant from Mr. O'Brien had a bare stem crowned with a spreading mass of leaves, and without the elegance of the tufted mass from the St. Albans firm.

AMARYLLIS CHAMPION.—We may well ask what is to be the limit of size in the *Amaryllis* or *Hippeastrum*. This is certainly a giant of its race, each flower measuring almost a foot across, and with that remarkable breadth of segment and massiveness that stamp the *Amaryllis* of to-day. The colour is self rich scarlet, the green colouring appearing in the centre and extending very little into the body colour. It was shown in an interesting series of *Hippeastrums* from Messrs. J. Veitch and Sons, representing the various stages of the flower to illustrate the remarks made by Mr. H. Veitch on this plant. It was an example of the wonderful development of the flower in the hands of the florist.

CAMELLIA LA VESTALE.—This is a beautiful flower, with very much the character of the old *alba plena*, the petals smoother, and making, if possible, a fuller, more symmetrical bloom. It has the same freedom as the old favourite that everyone values. From Mr. C. Turner, Slough.

An award of merit was given to each of the following:—

ONCIDIUM LARKINIANUM.—A hybrid between *O. Gardnerianum* and *O. Marshallianum*. It is a handsome flower, smaller than that of the last named, but retaining its brilliant yellow-coloured lip, which brings out the rich brown colouring on the petals, the margin of which is also yellow; the sepals are smaller and of a paler brown. From Mr. J. Larkin.

CATTLEYA TRIANÆ MARGINATA.—There are many beautiful forms of this variable Orchid, but this is one of the finest, and a large mass of it would be remarkably brilliant. Several flowers were shown by Messrs. J. Laing and Sons, of Forest Hill, and in which the petals and sepals were both of the same self delicate rose colour; but the petals were about 3 inches in breadth, setting off the deep crimson-purple lip, finely margined with white, and soft yellow in the throat, giving way at the extreme base to rose colour intercepted by white lines.

ODONTOGLOSSUM PISCATOREI MELANOCENTRUM.—*O. Pescatorei* has never shown the same variability as *O. crispum*, but in this form we have a distinct and beautiful flower. The small plant of it exhibited by Mr. Tautz, Shepherd's Bush, carried a spike of twelve blooms, each of the characteristic rounded shape of the type and pure white, except in the centre, where there is a rich blotch of the deepest crimson, the column being of the same colour, except at the tip which is white. A small portion of the yellow crest not suffused with crimson gives life to the flower. It is a choice and valuable variety.

CATTLEYA TRIANÆ FULGENS.—This is another deep coloured variety, the lip intense purple, deepening at the entrance to the throat, within which there is the usual yellow colouring. The sepals and petals are bold and handsome, the colour rose. From Mr. H. B. Mildmay, Shoreham Place, Sevenoaks.

ORCHIDS were exhibited by several of the leading firms. Messrs. Sander and Co. had an excellent display of many kinds, amongst them large specimens smothered in bloom of *Dendrobium Wardianum* and *D. nobile*, two varieties of unusually deep colour, and showing their remarkable beauty when grown to a large size. One of the best forms of the old *D. lituiflorum* was called *superbum*, the flowers much larger than those of the type, and rich purple-rose colour in the sepals and petals; the lip bold, creamy white, except at the margin, where it is of the same purple-rose shade, and deep velvety lake-purple colour in the throat of the flower. *Phaius tuberosus* was well shown, and though usually considered difficult to grow well, flourishes vigorously at St. Albans, the plants being on rafts suspended near the roof of the Nymphæa house. *Oncidium heteranthum* was well represented, also *Lælia flava*, a beautiful flower, clear rich yellow, the sepals and petals narrow, about equal length and breadth, and the lip frilled. The raceme is very graceful. An uncommon plant is *Ipsa* or *Pachystoma speciosa*, in which the leaves are wanting, as is usual in the genus, but the flowers are bright, the

colour rich yellow, except on the inside of the lip, where there are a few crimson lines, the front lobe distinctly crested. A botanical certificate was given to *Cypripedium Schomburgkianum*, the flowers not unlike those of *Dominianum* and light brown in colour. There were several other interesting plants (silver medal).

A beautiful group came from Messrs. B. S. Williams and Son, Upper Holloway, for which a silver medal was also given. The delightful *Odontoglossum cirrhosum* was finely shown, some of the forms having broader sepals and petals than usual. There is scarcely a more beautiful species than this, and we are glad it is again fairly common. A splendid variety of *O. crispum* is *Warneri*, the flower of great massiveness and width, white, and blotched with deep chestnut-brown. Amongst the *Odontoglossums* especially fine were the old *luteo-purpureum*, *triumphans*, an excellent form, good varieties of *crispum*, *Halli*, *Andersonianum*, *Sanderianum* and *facetum*. A large specimen of *Dendrochilum glumaceum* crowded with flowers showed what a graceful Orchid it makes when in a large mass. Besides these were the yellow-flowered and spotted-leaved *Phaius maculatus*, *Epidendrum lanipes*, *Calanthe Regnieri*, *C. Williamsi*, a very richly coloured form, the whole of the lip deep crimson; the pure white *Cœlogyne cristata alba*, *Oncidium Cavendishianum*, and *Lycaste flavescens*. Messrs. H. Low and Co. showed several flowers of *Phalaenopsis*, comprising all the best varieties, and a new species of *Angraecum*, supposed to be a hybrid between the little *hyaloides* and *citratum*; the flowers paler and smaller than those of *citratum*. If it is as free as the parents, it will be welcome (botanical certificate). A fine series of *Cœlogyne cristata* came from Messrs. Paul and Son, Cheshunt, comprising the varieties *Lemoniana*, major, *Chatsworth* variety, the plants well flowered. Mr. Tautz exhibited *Cypripedium Rothschildianum* and *C. selligerum rubrum*, a richly coloured form, shining as if varnished. *C. Trianæ tyrianthina*, from Messrs. Laing and Sons, is a good type, the flowers rich purple-crimson in colour. An excellent specimen of *Oncidium tetracopis* came from Mr. H. Mark, Cheriton, Beckenham, and it is a species seldom seen, although introduced from New Grenada in 1873. The stem is slender and very long, the flowers rich chestnut-brown and yellow. Mr. Wythes, of Syon House Gardens, brought an excellent spike of a variety of *Cœlogyne cristata*, closely approaching *Lemoniana*, and flowers of a good type of *Cypripedium villosum*. *Dendrobium Smilliae*, with a crowded mass of greenish flowers, from Sir Trevor Lawrence, is a curiosity, but nothing more. A choice *Odontoglossum* is *O. Appleyardianum*, shown by Mr. Appleyard, Savile Road, bearing two racemes of flowers, which have a yellow ground colour, thickly and regularly spotted with chestnut; it is not unlike *O. hebraicum*. A good variety of *Cattleya Trianæ* was that exhibited by Mr. G. Firth, Manningham Thorpe, Bradford, the flower very decided and rich in colour. The lip is deep self purple-rose, without the usual blotch of yellow at the base, this colour appearing in the form of a few lines within the throat; the sepals and petals are rich rose, the latter broad, and having a central line of still deeper shade. Messrs. J. Veitch and Sons exhibited *Cypripedium Othello*, a hybrid between *hirsutissimum* and *villosum* Boxalli, in which the characters of the two parents are fairly well blended; also *Dendrobium micans*, a hybrid between *D. Wardianum* and *lituiflorum*, which has much of the character of the last named. *Cymbidium eburneo-Lowianum*, the parentage expressed by the name, is an interesting hybrid, but of no particular beauty. The flowers are of a soft buff colour, like those of *Lowianum* in expression, and with a similar, but not such rich blotch of crimson on the lip. A delicately beautiful flower is *Dendrobium Wardiano-japonicum*, white, and more in the way of transparencies; it would be difficult to trace the *Wardianum* parentage.

The most interesting group was that from the Royal Gardens, Kew, containing many rare, curious, and beautiful plants seldom seen. Several, such as *Arisæma speciosa* and *A. præcox*, have been described recently in *THE GARDEN*, and a few more

have special mention in the "Notes of the Week" of the present number. An interesting exhibit was specimens of the Arrowroot (*Maranta arundinacea*) and Poison Bulb (*Buphane toxicaria*), a South African Amaryllidaceous plant, bearing a large head of numerous deep crimson flowers. It is said to be fatal to cattle, and is also used by the Bushmen to poison their arrows. *Brownea Ariza*, *Aechmea glomerata*, *Strelitzia Nicolai*, *Columnnea Kalbreyeri*, the curious *Dracontium foecundum*, *Tacca artocarpifolia*, *Godwinia gigas*, besides several *Acacias*, were exhibited, and, it need scarcely be said, created unusual interest. One of the finest of the plants shown was *Rondeletia amena*, a Guatemalan species, carrying a dense head of small pinkish flowers, bearded with golden hairs in the throat. It is very free and a valuable stove plant. We hope to publish a coloured plate of it.

A large display of *Camellia* flowers, which filled fourteen boxes, was made by Messrs. W. Paul and Son, Waltham Cross, representing a rich selection of the finest varieties in commerce. This firm has a unique collection of *Camellias* (silver medal).

Besides the *Cœlogynes*, Messrs. Paul and Son, of Cheshunt, showed a box of Rose blooms, including such varieties as the soft, yellow-coloured *Mme. Hoste*, *Puritan*, and *Luciole*, besides a large specimen of the single white *grandiflora*, *Amaryllis* *Dark Beauty*, a very deep-coloured variety; several plants of the sweet-scented *Boronia megastigma*; the bright salmon-rose *Azalea rosæflora*, and flowers of the double *Sparmannia africana*. Messrs. J. Laing & Sons had a *Carnation* of the *Souvenir de la Malmaison* type named *Mme. A. Warocque*, the flowers bright red.

The *Amaryllises* from Messrs. J. Veitch and Sons were a feature of interest, but we shall have again to refer to this flower, soon to be in full beauty in the Chelsea nurseries. The same firm had plants of the delightful *Boronia heterophylla*, the shoots hung with rosy bells, as shown in our coloured plate of November 12, 1887 (p. 442), and also of *B. megastigma*, besides a mass of *Andromeda japonica*, a valuable shrub for its rich profusion of Lily-of-the-Valley-like spikes of flowers, and varieties of *Azalea mollis* named *Edison* and *Esmeralda*, the flowers of which are rich scarlet. A basket of the now well-known *Primula obconica* came from Mr. Moore, The Gardens, Holmwood, Kingston-on-Thames (bronze medal). Cut flowers of *Crown Imperials* came from Mr. J. T. Gilbert, Bourne, Lincoln, and *Primrose "Ye Primrose Dame,"* the flowers deep yellow. Why name such varieties of the common *Primrose*?

Ferns and *Dracænas* were exhibited by Mr. H. B. May, Edmonton, and comprised a number of good things, especially *Adiantum farleyense*, and *Aralias* *gracillima*, *leptophylla*, *Kerchoveana*, *elegantissima*, and *Chabrieri*, which represented the best of this class (silver medal). *Adiantum Porteri*, exhibited by Mr. H. Porter, The Nurseries, Freshfield, Liverpool, is said to be a hybrid between *A. cuneatum* and *gracillimum*, but we could see no special distinctness. The strain of *Cinerarias* from Messrs. Cannell and Sons was given an award of merit.

The only hardy flowers were shown by Messrs. Barr and Son, Long Ditton, and comprised *Daffodils*, *Chionodoxas*, and other early gems. *C. gigantea* has certainly larger flowers than *Lucilia*, but we should doubt it remaining permanently distinct. In a large mass of *Lucilia*, flowers quite as large and finely coloured might be picked out. If the flowers remain as large and of as deep a colour as those shown by Messrs. Barr, it would be worth growing (bronze medal).

Fruit was represented by a collection of Apples from Mr. Cummins, The Grange Gardens, Walington. There were fruits of Cox's Orange Pippin, Claygate Pearmain, and Golden Reinette. The same exhibitor also had Pears, principally stewing varieties (silver medal). The Claygate Pearmain was also shown by Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher. Messrs. R. Veitch and Sons, Exeter, had an Apple named Ashford Seedling, a brightly coloured and well preserved fruit, but of its quality we are not able to speak.

MR. VEITCH ON HIPPEASTRUMS.

MR. VEITCH in the paper read by him at the last meeting of the Royal Horticultural Society gave a very interesting and instructive account of what had been done in his nursery in improving the flowers of *Hippeastrums* since the year 1867. Before Veitch began, however, the late Louis Van Houtte, of Ghent, and the elder De Graaf, of Leyden, had raised numerous hybrid and seedling *Hippeastrums*, and they no doubt had taken their cue from Dean Herbert, who was busy amongst *Hippeastrums* in 1810, when the first hybrid plant of the *Amaryllid* order, viz., *H. Johnstoni*, was raised. De Graaf's son and successor is now a formidable rival to the Messrs. Veitch in the breeding of *Hippeastrums*.

The species from which Messrs. Veitch have obtained the best results by crossing them with each other are *H. Leopoldi*, *H. reticulata*, *H. vittata* and *H. brasiliensis*. By crossing *H. Leopoldi* with a hybrid known as *Empress of India* the race which is now so popular was obtained. In many of the first seedlings there was a serious defect in the large, green, star-like blotch at the base of the tube. This has now been reduced to inconspicuous size, or combining it with colours that it enhances rather than detracts from. A comparison of the species of *Hippeastrum* with their progeny as represented in the list of Messrs. Veitch's seedlings shows what a truly marvellous improvement has been made in the size, form, substance, and colour of the flowers.

The cultural directions given in Mr. Veitch's paper were briefly as follows: Soil to be two parts loam, one part rotten cow manure, and one part sand, the whole to be mixed together three months before it will be wanted for use. Pots to be as small as convenient, and well drained. The plants to be shaken clean out of the old soil when repotted; the time for this to be about ten weeks before the flowers are wanted. At Chelsea the plants are repotted in January. They are then placed in a light house where the temperature is 55° Fahr. About a fortnight later they are plunged in a tan bed and the temperature is raised 5° higher. Air is given on all bright, warm days. Water must be carefully supplied at all times, more of these plants being killed by excess of water than by any other cause. When growth is completed, which is usually about July, the plants are taken out of the plunge-bed and exposed to sunlight and air. After the bulbs have matured, they should be kept dry until the return of the potting season. The *Eucharis* mite is almost invariably found on *Hippeastrums*, but it never becomes troublesome unless the plants are over-watered. Mr. Veitch has never seen a bulb of *Hippeastrum* so badly infested with *Eucharis* mite as to be incurable. This statement is important, and should be noted by those authorities who recommend the immediate destruction of all bulbs which show any signs of this pest.

We do not think that proper courtesy was shown to the large gathering of Fellows and others who listened to this admirable paper, when no opportunity for comment or discussion was afforded. This may have been the result of a misunderstanding caused by the remarks of the chairman, but it was at any rate both unfortunate and disappointing.

L'Orchideenne.—The seventeenth meeting of this Dutch Society of Amateur Orchidists was held on Sunday, March 9, at Brussels. One hundred and twenty-two Orchids were shown and about thirty of them were very striking. Amongst the kinds exhibited were *Catasetum Bungerothi*, *Grammatophyllum Fenzlianum*, described as an extremely rare Orchid with a raceme of olive-green flowers spotted with brown, *Phalænopsis casta*, *Epidendrum Wallisi*, *Cymbidium Lowi*, *Lycaste Skinneri* alba, *Cattleya Trianae* alba, *Zygopetalum Jorisanum*, a series of *Odontoglossum* triumphans, among which was the well-known variety *Lindeni*, *C. Elliottianum* superbum, and *Cœlogyne cristata* alba. The following were each awarded a first-class certificate: *Odontoglossum Ruckeri* var. *Albertianum*, from Mr. J. Hye-Leysen; *Odontoglossum* species,

from M. G. Warocqué; *Zygopetalum Jorisanum*, from M. Linden; *Odontoglossum* species, from M. Vuylsteke; *Cattleya Reine des Belges*, from MM. Vervae et Cie; *Grammatophyllum Fenzlianum*, from Mme. Gibeze, à Sens, France.

ROYAL AQUARIUM.

It is a venturesome undertaking to institute a series of flower shows, apart from those of the *Chrysanthemum*, at the Royal Aquarium, but this has now been done, and during the season exhibitions will be held from time to time under the superintendence of Mr. Holmes. If the first show, held on Wednesday and Thursday last, may be taken as a criterion of what is to follow, we should have displays of unusual merit, and which should draw a good attendance of visitors. While we have no building to hold a good flower show, we suppose it will be necessary to fall back upon the Royal Aquarium. On the bright spring day of Wednesday last neither the atmosphere nor the light were agreeable, and in the autumn it is not always possible to see the colours of the flowers, so that its disadvantages for horticultural exhibitions are too evident. We scarcely anticipated such a display of spring flowers, comprising principally, of course, *Daffodils*, *Cyclamens*, *Hyacinths*, and *Tulips*. There was not great competition in some of the classes, but big breadths of *Daffodils* and *Cyclamens* made a brave show of colour.

It is early yet for show *Hyacinths* and *Tulips*, and the specimens exhibited looked as if drawn up somewhat in heat, but the spikes of the first named were strong and handsome. There was only one competitor in the classes for these, viz., Messrs. Williams and Sons, Fortis Green, Finchley, who exhibited excellent specimens. Amongst the *Hyacinths* were such well-known kinds as *Lord Macaulay*, *Gertrude*, *King of the Blues*, *La Grandesse*, *Lord Derby*; and of the *Tulips*, none were finer than the brilliant carmine *Proserpine*, *Duchesse de Parme*, and the *Keizer Kroon*, which Messrs. Williams showed extremely well. There was the same marked excellence in the *Polyanthus* *Narciss* and *Lily* of the Valley, the same firm having again the finest specimens. In the amateurs' class for twelve *Hyacinths*, Mr. T. L. Turk, Cholmley Lodge Gardens, Highgate, was first. The greatest display was made by the *Cyclamens*, which were splendidly shown by the St. George's Nursery Company, Hanwell; the plants were one mass of flowers of bright and beautiful shades, especially rose-carmine and crimson; the whites were also exceptionally pure. Mr. J. Odell, Gould's Green, Hillingdon, was second, and he had also several new varieties which were pleasingly coloured, but showing that, as in the *Cineraria* and *Chrysanthemum*, there is a striving after bigness. *Princess Beatrice*, carmine; *Alba magna*, white; *Evelyn*, white with a rich crimson base; *Precursor*, white flushed pink; and *Fairy Queen*, similar in colour, were all good, but with that tendency to coarseness that is a distinctly evil trait. *Victory* is a free-blooming small-flowered variety of a dark crimson colour. The first prize for thirty-six plants was also won by the St. George's Nursery Company. Mr. D. Phillips, Langley Broom, Slough, had the finest twelve.

Three firms competed for the prizes offered for the cut blooms of *Narcissus*—Mr. T. S. Ware, Tottenham; Messrs. Barr and Son, Covent Garden; and Messrs. Collins and Gabriel, Waterloo Road. All showed exceedingly well. *Sir Watkin*, the Tenby, *Golden Spur*, *Henry Irving*, *Bicolor Horsfieldi*, *Maximus*, the old double *Eggs* and *Bacon*, *Ard-Righ*, *pallidus præcox*, and *sulphureus plenus* were amongst the principal varieties. The prizes were awarded in the order given above. There was a good competition also for a group of flowering and foliage plants, Messrs. J. Laing and Sons, Forest Hill, coming first, their group consisting of very choice varieties of *Cattleya Trianae* and numerous plants of *Dendrobium Wardianum*, and seedling *Civias*. One of the prettiest exhibits was the collection of *Primroses* and *Polyanthuses* from Mr. R. Dean, Ealing, the plants full of bloom and showing a great variety of bright colours.

Some were named, and amongst these the most beautiful were Ellen Terry, bright rose; Mrs. Langtry, an exquisite colour, the flowers covering the plant, and of a brilliant rose shade, the centre yellow. We have never seen a brighter, clearer variety. Lord Randolph is very deep scarlet. It is almost impossible to individualise when we have such a rich series of delightful tints.

There were a few miscellaneous exhibits, including a beautiful group of plants from Messrs. B. S. Williams and Son, made up for the most part of Orchids, and well-flowered plants of *Clivia atrosanguinea*, a bright scarlet-flowered variety bearing excellent heads of bloom. The plants of Lilac and Gaelder Rose were remarkably well grown, the Lilacs comprising the white alba virginalis and Charles X. The plants were one mass of bloom, and just of the right size for decorations. Several bunches of Daffodils of well-known kinds were sent from St. Mary's, Scilly Isles, by Mr. J. C. Tonkin, all, it need scarcely be said, grown in the open air. A basket of excellent Mushrooms for the season was sent by Mr. C. Mays, gardener to Sir Spencer Wells, Golders Hill, Hampstead, and in the stand of horticultural manures from Mr. George, Patney, were samples of wood wool, a material which has now become much used for packing soft fruits. It imparts no disagreeable flavour to the fruits, and is both elastic and clean.

A full prize list is given in our advertising columns.

NOTES OF THE WEEK.

Cattleya Trianae.—"J. R. R." sends a flower of an excellent variety of this, the lip unusually brilliant in colour and the petals soft rose.

Orchidists, please note.—The National Horticultural Society of France intend to hold four special shows of Cypripediums, viz., April 10, June 12, Sept. 11, 1890, and Jan. 8, 1891.

Weather in Hereford.—Heavy snow here this morning. Wind north and keen; every appearance of a very sharp frost. Most acceptable, as we have no blossom open, but very forward and promising.—W. COLEMAN, Eastnor, March 8.

Show of flowering bulbs at Haarlem.—We are asked to state that from March 21 to 25 will be held at Haarlem a show of flowering bulbs, especially Hyacinths, Tulips, Narcissi, Amaryllises, and miscellaneous subjects. The show is one of those which take place every five years under the auspices of the General Union for the Cultivation of Flower Roots.

The Joss Flower.—A splendid mass of the Chinese Sacred Lily, or Joss Flower, that has created some interest this spring, was shown at the meeting of the Royal Horticultural Society on Tuesday. The bulb had been grown on in a large bowl filled with small stones. It is very similar to the Polyanthus Narcissus Grand Monarch, and has nothing very new about it.

Hyacinthus leucophæus, a species from the Caucasus, is not without beauty, although not to be compared with *H. azureus* or many of the brilliant nearly allied Muscaris. The flowers are closely set like those of the latter genus, of a pale porcelain or almost lavender. Its earliness is at least one point in its favour, though not the only one.

A beautiful spring flower.—*Leucojum carpathicum* comes to us from Mr. R. Elliott, Harbottle Castle, Rothbury, Northumberland. This is a form of the better known spring Snowflake (*L. vernalis*), and a charming early flower, more worthy, we think, of the gardener's care than even the Snowdrop. Mr. Elliott's plants are very strong and handsome and emit an agreeable odour.

Rondeletia amœna in flower now at Kew is a beautiful stove plant from Guatemala, growing to a height of about 4 feet. The flowers are borne several together in a cluster, the colour of a dark shade of pink, the throat of the flower deep yellow and bearded. It is one of the prettiest of the genus, and should be made a note of by all who want a good stove plant.

Dendrobium Falconeri.—I have sent you a few flowers of *Dendrobium Falconeri* which I have now flowering very freely. I believe a great many growers fail to flower this most lovely *Dendro-*

I think the best and safest way of flowering it is to put it in a Heath house, or any other very dry, airy house about September and let it remain till about November without any water at all, and then put it back into a very strong moist heat, in which it should be grown all the rest of the year. Our plants are grown over a tank.—W. B.

Chiswick Horticultural Society.—There should be a good competition in the open class for Roses at the exhibition of this society to be held on July 10 next. A special prize to take the form of a silver cup, value 20 guineas (added to which is a prize of £3), will be offered for twenty-four Roses, three blooms of each kind. Mr. J. Mantell offers the cup, to become the property of the exhibitor after it has been won by him three times, not necessarily in succession.

Wildsmith Memorial Fund.—We are pleased to receive a list of contributions to the fund amounting to upwards of £40. W. J. Palmer, Esq., M.P., Messrs. Sutton and Sons, and Messrs. J. Veitch and Sons each contribute 5 guineas; the Hon. Emma L. Shaw-Lefebvre, £5; G. F. Wilson and Arthur Sutton, Esqs., each a guinea; while Miss Potts, Miss Markby, and Messrs. W. Binder, H. J. Clayton, W. Coleman, W. Crump, A. Dean, W. C. Davis, S. Kerry, A. Maxim, W. A. Searing, T. Turton, P. C. M. Veitch, and Messrs. Wood and Sons contribute various amounts. Mr. T. Turton, Maiden Erlegh Gardens, Reading, is the honorary secretary, and Mr. A. W. Sutton, Reading, and Mr. H. J. Veitch, Chelsea, the honorary treasurers of the fund.

The Mayflower (*Epigæa repens*).—We have at last flowered this, which is at least one step towards its making a home with us. It is a common North American plant, evergreen, with a prostrate trailing habit, and said to be found in sandy or rocky soil, chiefly under the kindly shade of the huge Pine trees. After trying it in many ways and failing, we hope at last to establish it successfully, under an old Pine, in peat and well-rotted leaf-soil. We believe it has been well established at Knap Hill Nurseries for many years under Rhododendrons, and also at Wisley Gardens, Weybridge, where, however, it is shaded by deciduous trees, the plants being almost covered over with the lanky grass. The flowers, borne in bunches, are of a white or delicate rose tint, sweetly scented, and very pretty peeping from amongst the dark green oval leaves. An engraving of a flowering plant of this appeared in THE GARDEN, June 2, 1888.

Strelitzia Nicolai.—This striking flower was shown on Tuesday last at the meeting of the Royal Horticultural Society in the collection of rare plants from the Royal Gardens, Kew. It is compared sometimes to *S. Regina*, but it is quite distinct from that species, and certainly less beautiful as regards colour. *S. Nicolai* is one of the most robust of all, and has fine foliage, which suggests a use for the plant in sub-tropical gardening where Musas figure largely. It will in good soil grow even more vigorously than these if given shelter from winds and planted in a warm corner. There is a noble specimen in the Palm house at Kew about 25 feet in height, and at present in bloom. The flowers are very large, of characteristic shape, that reminds one of a huge tropical butterfly in the act of alighting, and with large boat-shaped purple bracts, each about 1 foot in length and 3 inches deep, the sepals white and the petals blue. The bract is filled with a gummy secretion by the time the flower is open. If it is compared to any other kind, that one must be *S. angusta*, which it so closely resembles that it was considered identical with that species until it flowered in the Imperial Botanic Garden of St. Petersburg in 1858.

The white Apennine Windflower.—A charming companion to the *Anemone blanda* noted in THE GARDEN last week may be found in this now coming into bloom on sheltered spots on the rockery. This variety flowers a little earlier than the type, is as robust and free flowering, and in every way a more serviceable and desirable plant. This is a time when flowers are most appreciated, and any plant supplying the needful at this dull season

should be in every garden in England. There are several forms between the pure white and typical *A. apennina*, but they are usually of a pale, washy colour. I first saw the true form in Mr. Ellacombe's garden at Bitton, and it has made a lasting impression on my mind.—K.

Korolkowia, or what we know in English gardens as *Fritillaria Sewerzowi*, is already in flower, and although doubtless of much interest to botanists, we must confess to an utter want of appreciation for this new introduction. Moreover, it does not seem to stand well in the open air, although it comes from a cold district in Asia Minor. *F. Sewerzowi* var. *bicolor*, in which the yellowish green of the type is somewhat relieved by dark brown, is also of little value. It will doubtless settle down to its legitimate place, i.e., the curio collection in the Botanic Garden.—K.

Heuchera sanguinea.—The expression one often hears in connection with this as being the best hardy plant introduced for many years is, in our opinion, true in every sense of the word. It proves one of the most attractive of rockery plants, a most useful bed or border plant, and is fast becoming a great favourite for the greenhouse or conservatory. It stands forcing well, which must not, however, be too rapid, and although a little lanky, the flowers are richly coloured and as freely produced as when grown naturally. As a cool house, window, or corridor plant it is unequalled, as it may be grown for several years with no more attention than a little top-dressing, its charming and graceful flowers lasting a long time. This plant has a great future before it.

A Chrysanthemum in spring.—I am sending some flowers of *Chrysanthemum grandiflorum* to show the usefulness of the variety for late work. I have been cutting very fine flowers of this variety constantly since the beginning of the year. There are some buds still opening, but only a few of the outer florets are of the proper colour; the inner ones are very short and quite green, as you will see by the buds sent. What is the cause of this? I also send a flower of *Cattleya Trianae*. As I have several other plants of the same species which differ very much from the one sent, I should like to know if you consider this a good variety. The flower has been open now three weeks; consequently the colour on the lip is not so intense as it was.—E. S. BROWN, Portland House, Salisbury.

* * * Very handsome blooms of *Chrysanthemum*. The variety of *Cattleya Trianae* is very good.—ED.

Canarina campanula.—This greenhouse perennial is flowering now at Pendell Court, which is rich in interesting and uncommon plants. It was introduced from the Canary Islands—hence the name *Canarina*—about 1696, so that it is by no means new, although as rare as if brought over yesterday. The flowers are distinctly bell-shaped, quaintly coloured with a yellowish purple shade, and red nerves, nodding, and borne singly at the ends of the shoots. It will grow between 3 feet and 4 feet in height, and wants, if grown in pots, plenty of drainage, root space, and a loamy soil lightened by the addition of silver sand. The roots are tuberous, and one way of propagating the plant is by division of the roots, or it can be done by cuttings or sowing seeds. The flowers are so much like those of a *Campanula* that the plant was at first included by Linnæus and Miller in this genus. Soon after its introduction it was grown in the Hampton Court Gardens.

Death of Mr. Thomas Harrison, Sen.—It is with regret we announce the death of this well-known nurseryman, of Leicester, at the age of 74. He was widely known in the trade, and devoted himself with unflagging interest to the large seed business of which he was the head.

Names of plants.—*Anon.*—1, *Odontoglossum Hallii*; 2, *Odontoglossum Alexantræ*; 3 and 4, forms of *Celogyne speciosa*; 5, *Clematis hexapetala*. The *Cymbidium* has, I think, been grown in too low a temperature. —G. S. S.—All forms of *Cattleya Trianae*, a very variable Orchid.—M. E. F.—1, the common Myrtle; 2, *Cupressus Lawsoniana*; 3, sent when in flower; 4, double Snowdrop.

WOODS AND FORESTS.

THE SILVER FIR.

I AM glad to see that an old favourite has at last received in your issue of Feb. 15 that attention which in my opinion it so well deserves. I agree with Mr. Webster in much of what he says of the Silver Fir, but would take exception to some of his remarks. Thus, he says that the soil most beneficial for its rapid growth and general welfare is a sandy or gravelly subsoil; my experience does not confirm this. I do not recollect any in the neighbourhood of Bournemouth or at Kew where the subsoil is sandy, but am acquainted with flourishing specimens in most retentive clay and dry slate rocks on the south-east coast of Ireland, where they tower above every other tree in most exposed situations, continuing to increase in height for many years after every other neighbouring tree has ceased to add appreciably to its height.

I cannot agree with Mr. Webster as to its value for planting in conjunction with Douglas Fir, for I would expect that the nursling would very soon outgrow the nurse, the great defect of the Silver Fir being its slowness of growth in its early stages, nor do I think this system of planting to be advantageous to the Douglas Fir, for I have remarked that where they have grown up without shelter in somewhat exposed positions, they have stood exposure fairly well; whereas, where they have been sheltered for some years, they have frequently lost a yard or two of their growth on the removal of the sheltering tree. I would rather advise that the Silver Fir be planted as a reserve tree with others of faster growth, whether of hard or soft wood, the faster growing trees coming sooner to market, and nursing up the Silver Fir to more rapid growth than when alone, and thus obviating its principal defect as a timber tree, viz., the number of knots arising from its multiplicity of branches. I would also strongly recommend it as a screen whether for shelter to less hardy trees or to hide unsightly objects, retaining as it does dense masses of foliage down to the ground as long as it stands.

Mr. Webster says "somehow or other very few" are now planted, on which I would remark that "somehow or other" it is rarely recommended for planting by writers in *THE GARDEN* or other periodicals, the only objection to it that I can think of being its slowness of growth in its early stages, its comparative dearth, and the not infrequent carelessness (I will attribute no other motive) in nurserymen selling for it the cheaper and far inferior Balm of Gilead Fir (*Picea* or *Abies*, *Balsamea*), which, being very short lived, has doubtless in many instances given a bad name to the Silver Fir. C.

Nurses for plantations.—The use of nurses in plantations is a subject deserving of notice. How seldom do we find these planted sufficiently thick or of adequate strength to give the necessary shelter to the main crop. The extent to which they should be used must depend upon the exposure

Where this is great, they may be filled in to within from 30 inches to 36 inches of the standards and of each other. Upon more sheltered sites they may be from 4 feet to 6 feet apart, and when thinned out they will have attained a useful size. The Mountain Ash is second only to the Larch for use in bleak situations; and the Spruce will afford a better shelter upon a less space than the Scotch Pine. The Sycamore, Norway Maple, Pinaster, and the Elder are very serviceable near the sea.—J.

THINNING HARD-WOOD PLANTATIONS.

THE style and extent of thinning hard-wood plantations greatly depend upon the kind of trees constituting them. Some trees require more room to mature than others, while some ought to be kept close together, to check their straggling habit and ramifying side-branches. The Oak, for instance, requires ample space to develop itself, and as considerable revenue is derived from the bark, and in some places from the branches as cord-wood, it should at all times have plenty of room. The Wych Elm and the Beech, on the other hand, although growing to large dimensions and of a widespreading habit, should not be allowed more room than is necessary for their healthy growth, as neither the bark nor the branches are of much value. They also exhibit a tendency to grow much to rough branches and short stems, and the timber, if not of good quality, is unsaleable. The Ash, English Elm, Sycamore, and Birch require plenty of room, and are not so straggling in plantations, especially in their young state. The great point to be kept in view in thinning hard-wood plantations is to commence in good time, and not to wait until the trees become drawn up and weakly. It is not uncommon to see plantations left unthinned until the saplings have arrived at marketable size. This is false economy, for it is better for the main crop to thin in time, even if the first thinnings are of no value. The loss on the thinnings will be made up in the health and extra growth of the trees left. It is equally objectionable to continue thinning longer than necessary, with the view of deriving immediate revenue. In both cases the value of the main crop, which ought to be the principal object, is lost sight of, and the certain result is material loss in the end. It is by some recommended in thinning, with a view to profit, that operations should commence as soon as the branches touch one another. A little careful pruning may sometimes defer it for a year. The thinning of hard-wood plantations should, of course, commence before any injury is sustained, but not in ordinary circumstances before the second or third year after the side-branches have met, and in no case should the operation be deferred until the side-branches show signs of decay, or till they have closed into one another well up the stem towards the leaders, as in such a case the trees will be deprived of the amount of light and air necessary for their healthy growth. Hard-wood trees require more room for the spread of their branches and healthy growth than Conifers; but the plantations are generally filled in with Larch, Spruce, or Scotch Fir, as nurses for the intended crop. Under such circumstances, on the first thinning, such Conifers as are encroaching upon the hard-wooded trees will be generally removed. Although Firs are the best nurses for hard-wood plantations when young, and also more valuable when of small size, great care must be taken not to let them crowd or overshadow the hard-wooded trees. While their shelter is better than that of hard-wooded trees, they more readily overgrow and destroy them. In the case of any hard-wooded tree dying out or becoming damaged, it is advisable to leave one of the nurses to take its place for the time being. Any such tree left during the early thinnings can be removed as opportunity occurs. The great aim should be to preserve the hard-wooded sorts, however irregular the appearance may be at early thinnings. Presuming that the nurses have all been removed, it is desirable to preserve the best and most healthy trees, irrespective of sorts, and never to cut a healthy, vigorous, growing tree to make room for a small unhealthy neighbour for the

sake of regularity. Such thinning must in the end turn out a great loss and disappointment to the owner. A little opening or larger gap is preferable to a sickly or ill-grown tree, and such openings can be rectified at the next thinning. No definite age can be given for commencing to thin for the first time, as all depends upon the soil and situation in which the trees are growing. Thinning may be performed too early as well as too late, and it may be overdone as well as underdone. Great care should be taken not to err in either direction. When hard-wood trees are mixed with Firs as nurses, they generally have to be thinned sooner than if the plantation consisted entirely of hard-wood trees. X.

Birch wood.—The timber of the Birch is white, close-grained, tough, light, and pliant. It makes excellent firewood, and yields superior charcoal for smelting purposes. The *sabots* worn by the peasantry in some parts of France are made from the wood of the Birch; in Germany, spokes, ladder-beams, axe-handles, and cattle-yokes are made from it; and in Great Britain it is used for turnery, hoops, and fish-barrels. Almost every part of the tree is utilised. Brooms and switches are made from the small twigs and rods.

Transplanting Hollies.—I find after many years' experience that Hollies can only be transplanted with safety about the first week in April, or just as they are bursting their buds, a time when there is a reciprocal action below, thus enabling them to start off into growth at once before the bark becomes shrivelled and contracted, from which they seldom recover. A heavy mulching with a thorough soaking of water at the time of planting will help to prevent this, and be of great service in enabling them to become quickly established.—D.

Pines on mountains.—*Pinus flexilis*, which grows on the Rocky Mountains and the Sierras, attains a height of 130 feet on mountain sides which have an altitude of several thousand feet, but on the higher and more exposed crests of Mount Shasta and other peaks it is reduced to a straggling shrub creeping on the ground. On the large trees the cones are 5 inches long; on the reduced ones only 1 inch or 2 inches. At the foot of Mount Washington the evergreen trees are 60 feet or 70 feet high, but an hour's ride up the Cloud railway shows the same species as small as Currant bushes and flat on the rocks.

Elm.—The Elm tree is known by the two distinctive names of English and Wych. The English Elm is a comparatively soft and brittle-wooded tree, and very liable to having large limbs broken and riven off by gales in autumn; and as it retains its leaves to the very last, it is doubly liable to injury from that cause. The Wych Elm, generally speaking, is a strong and hardy tree, but unless grown on good dry loam, in which it can grow freely and quickly, it seldom grows sound, being affected with shakes of various forms, which render it unfit for industrial work. There are several very worthless varieties of Wych Elm growing side by side with the good sorts, from which they cannot be distinguished till cut down.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

THE RANUNCULUS.

This lovely little bulb or tuber, belonging to the Natural Order Ranunculaceæ, obtained the English name of Crowfoot from "rana," a frog, as this species prefers to inhabit marshy places frequented by frogs. They comprise a class of flower roots of remarkable beauty in a numerous variety of colours, being striped, spotted, variegated, self coloured, &c. The species was formerly divided into two kinds, border flowers and florist flowers, while the double sorts of the latter kind are those so much admired at the present day. They are at present divided into three distinct classes, viz., the Turkish, the Persian, and the French (*asiaticus superbus*).

The Turkish section consists of only a few varieties in general cultivation, but these are strong growing and free blooming, with very distinct striking colours, all known by the name of Turban. The most distinct varieties grown in large quantities are Romano (Turban scarlet), Seraphique (citron), Merveilleuse (orange-yellow), Souci doré (blotched), Hercules (pure white), besides the scarcer varieties Turban black, grandiflora variegata, carmine, orange, crimson, viridiflora lutea (yellow with green centre), and viridiflora rubra (scarlet with green centre).

It must be observed that occasionally these Turban Ranunculuses develop most singular colour sports, of which many are really very handsome, and would well be worth growing and propagating. As these sported flowers, however, do not remain constant, they cannot be depended upon.

I must point out here that the flowers of the Turban race are round, of a full shape, and with erect petals (the flowers of the Persian race being more flat with spreading petals). The above given list of Turban sorts is not correct, although they are all known as Turban sorts in the trade. It appears that the original Turban sort is the scarlet variety (Romano), from which all the others have come as sports. Thus the list of true Turban sorts should be Turban scarlet, black, citron, orange-yellow, blotched, and the viridifloras, whilst the remainder, although classed as Turkish sorts, really belong to the Persian section.

The Persian section consists of a great number of varieties obtained from Ranunculus asiaticus, a native of the Levant, with tuberous roots, which are rather too delicate to endure the severity of our winters in the open air without some protection. The plant grows wild in Persia in meadows, which are moist during the winter and growing season, but dry during the greater part of summer. The many handsome varieties of double Persian Ranunculuses at present in cultivation in Holland have been considerably improved by additions and importations from various monasteries in France—monks inhabiting these institutions having for many years taken a delight in cultivating these flower roots and in raising new varieties from seed—whilst the milder climate of France proves more favourable to the ripening and

germinating of these delicate little seeds than the colder and often very unkind climate of Holland or England.

The horticultural world, as well as the general public, for many years had been unaware of what beautiful flowers existed behind the garden walls of these monasteries, until a florist in Haarlem, named M. Voorhelm, through unexpected circumstances, had the good fortune to find out this state of things, and secured, by purchase or by exchange, the best collections, which are still in cultivation.

The French Ranunculus (*asiaticus superbus*) has only come into more general cultivation during the last ten years, and although the flowers are more or less semi-double, they surpass all the others by their strong and robust growth, great variety of colours, and wonderful freedom. Their habit of growth, however, is very irregular, and by far not so dwarf and even in height as the varieties of the Persian or the Turkish sections, and thus their merits for bedding depend greatly upon the individual sorts selected for the purpose and how they are planted, for while some sorts grow as high as 12 inches or 15 inches, others do not grow over 6 inches. Still, for cutting, they are of great value, not only from their long stems and dark green foliage, but also because they come into bloom at a time when there are only few flowers.

The best season for planting Ranunculuses in Holland is from December until April, according to the class they belong to. Those of the Turkish section should be planted first—if possible in December, but those of the Persian and French sections should not be planted before January, or as early in spring as the soil can be worked. The roots or tubers may be planted about 4 inches apart each way, and not over 2 inches deep, and immediately after planting they should be protected by a dressing of some light material to keep off the severe frosts, and especially the sharp, cutting winds which at that season of the year often prevail. This covering, however, must be removed as soon as the tender shoots appear above the ground.

The tubers, if kept dry, will retain their vitality for two years; and hence, if the roots which should have been planted in December are kept out of the ground till the December following, and then planted in pots and protected from frost, they will flower very early in spring. It even appears that some who grow Ranunculuses in pots for cut flowers prefer the old roots, and if, therefore, some are planted every month in pots for succession, Ranunculuses may be had in bloom all the year round. However, I must say that my experience with old roots in the open ground has been far from satisfactory, but those grown in pots did well, as a rule.

Respecting the best positions for Ranunculuses, as far as I have observed they like a rather shady situation. The common mode of propagating the Ranunculus is by separating the offsets from the large roots.

The successful culture of the Ranunculus is rather difficult, as only a few localities are found in the flower-root farms where this class of bulbous plants thrives well. A black sandy soil rather moist during winter and spring, but more dry in summer, should be chosen to plant in. This soil should be dug up and be thoroughly manured with well decomposed cow or stable manure, which should be put in not very deep, as the Ranunculus fibres are extremely delicate and do not penetrate very deeply into the soil. Before planting, the ground should be neatly levelled and rather firmly pressed down in order that the roots may stand at equal depth, this

also facilitating the taking up of the roots after maturity, and preventing all stagnation of water when heavy showers of rain, often prevalent in March and April, occur.

The Ranunculus comes into flower in June, and as soon as the leaves commence withering the roots must be taken up, dried in the shade, and preserved in a dry place till they are wanted for replanting. This taking up of the roots at the proper time is of the greatest importance, because as soon as the roots have fully ripened and rain moistens the soil, they commence growing again, and if lifted in such a state the tubers are injured very much. Some of the species having become extensively naturalised grow wild and have become a nuisance, although if, like the double-flowering Ranunculus bulbosus, they were half as difficult to get as it is to be got rid of when once established, they might have been considered valuable acquisitions to our gardens.

POLMAN MOOY.

Haarlem.

Hepaticas.—Among early spring-flowering plants in the open nothing is more attractive than the Hepaticas. It appears that some people have a difficulty in growing or keeping Hepaticas, as in places they dwindle and die away, but when they do this it is through unsuitable soil, as that which agrees with them best is a light gritty loam where the drainage is good. Some time ago I saw in a nursery a lot of plants in a bed of Cocoa-nut fibre which they seemed to like immensely, as not only were they growing freely, but seedlings were coming up by thousands, and many thousands had been removed, which shows that this is a good way of raising them. The Cocoa-nut fibre though lying loose is always uniformly moist, and the Hepaticas root in it with the greatest freedom, as those lifted from it came out with huge balls and might have been sent anywhere without feeling a check.—S. D.

Violas for summer bedding.—Those seeking three good summer-flowering bedding Violas should now work up a good stock from cuttings or division, discarding all hard pieces of roots, of Countess of Hopetoun, the best white; Bullion, a grand deep yellow; and Archie Grant, a rich dark purple. Cuttings struck now, grown on in cold frames, and planted out in May in rich soil convenient to water, will give grand results throughout the summer and right up to autumn, the seed-pods being kept picked off. These same kinds do well for spring-flowering, but should be struck in August and established in permanent quarters before winter sets in. It is advisable to grow spring and summer batches separately to obtain the best results—W. CRUMP, *Madresfield Court.*

Flowers in the Grass at Kew.—What is now known as the wild garden at Kew is just now very attractive with bulbs of various kinds in full flower apparently quite at home amongst the long coarse Grass. The slope facing No. 1 Museum is a sheet of gold with the Dutch Crocus (*aureus* of our gardens). Besides the yellow variety there are large purple and white forms and a host of rare species, such as *C. Imperati*, *suaveolens*, *garganicus*, many of the biflorus and *chrysanthus* forms, and also the charming little *C. susianus*, with its handsome reflexed segments. These species seem to be quite at home here, indeed as much so as they are in the collection which we notice nicely in bloom close to the large group of Iris species in what is known as the Irid garden. The Glory of the Snow (*Chionodoxa Lucilæ*) has also made a home here, and from its scattered condition we conclude the bulbs have produced seed freely. Should this prove correct, we have here a splendid subject for naturalising in the uncultivated portions of our gardens. It is perfectly hardy, taking good care of itself, and is withal one of the, if not the most beautiful of our early spring flowers. Near by are the Squills, *S. sibirica* and *bifolia*. Narcissi are also here by the hundred thousand, we are told. The extensive collection formed by the late Hon. Godolphin Osborne, of

Biarritz, was presented to the gardens, and a large portion of them are planted here. The higher parts of the mound are at present white with *N. pallidus præcox*, and should it become established here, which seems likely, so far as one can judge, it will be beautiful in the years to come. On the lower ground we see *Triteleia uniflora* coming up strongly, numerous *Primroses* of all kinds, and on the sunny side innumerable *Tulips*, *Hyacinths*, *Anemone fulgens*, *Hepaticas*, and various *Daffodils*, prominent amongst them being double *Telamonius*, which has already formed quite a sea of glaucous green foliage. This spot should prove of much interest this year, and will doubtless be a source of pleasure to the many visitors during the spring.

A FEW WORDS ABOUT DIANTHUS NEGLECTUS.

IT is my opinion that "D. K." has never seen the true *Dianthus neglectus* (Lois.). The description as well as the plate are wrong. The chief distinguishing character of *D. neglectus* (Lois.) is the dichromatic colouring of its petals, the upper surface being of a clear rose colour, while the under one is sulphur-yellow. By this one point *D. neglectus* can easily be distinguished from any other *Dianthus*, the buds always showing a bright yellow. As for the length of the flower-stalks of the true *D. neglectus*, I have found it in its natural habitat in the Maritime Alps with flowers 3 inches to 5 inches high. I have since cultivated it for years, during which time it has entirely maintained its original habit. The leaves on the plate have not the true shape of those of any of the *Dianthus* I know, at the very least of *D. neglectus*, whose leaves are more rigid, narrower, and thinner. The leaves on the plate seem to be nearest to those of *D. alpinus*.

Out of all this it appears that a wrong plant has been figured. I may further remark that *D. neglectus* (Lois.) has been found neither in Switzerland nor the Pyrenees, it being a native of the Maritime Alps south of Mont Cenis only. The habitat of this species is a very limited one. For all these remarks I have the authority of Dr. Christ and Mr. Burnat, besides my own experience. It is very singular that "D. K." in the same article calls *D. tener* a variety of *D. alpinus*. Besides the botanical characteristics, *D. tener* is so distinct from *D. alpinus* by the branching of its flower-stalks and the purplish-rose colour of its petals, that it is unaccountable that anyone, seeing the true *D. tener* in company with *D. alpinus*, should have considered the former a variety of the latter one.—OTTO FROEBEL, Zurich.

— I will state my case in as few words as possible.

DIANTHUS TENER.—I admit I was in error in not stating that the *D. tener* of English gardens is what we call a garden form, but such it is, and most people who grow alpine here will bear me out. I know the true *D. tener* (Balb.) very well, and know that it has a branched inflorescence, and how M. Froebel could suppose that anyone could possibly mistake the one for the other puzzles me. *D. tener* of English gardens is probably one of the numerous hybrids or seed variations referred to under the heading of *D. alpinus*, and has been cultivated here for many years. The true *D. tener*, to my mind, is not worth troubling about.

D. NEGLECTUS (Lois.).—After again reading carefully the article that accompanied the plate I do not feel called upon to withdraw a single word of what I then stated. I have seen Loiseleur's original description in the *Journal de Botanique*, 1809 (p. 321), and this agrees in every important particular with the plant from which the coloured drawing in THE GARDEN was made. In a foot-note Loiseleur says the flowers are wine red, and appear in July and August. The specimens were received from the environs of Seyne, Barcelonnette, and also from Mont Cenis. Again, in his "Flora Gallica," 1828, he gives the flowers as *rubri*, and the locality as *Delphinatus montium Provinciae*. He nowhere mentions the dichromatic colours on which M. Froebel lays so much stress, but he places under *D. neglectus*, *D. glacialis* (Haenke), a totally distinct plant. M. Froebel considers *D. neglectus* in a far

too restricted sense; whereas it appears to me a somewhat variable species, as the following will show:—

H. Ardoina ("Flores des Alpes Maritimes," p. 62) gives the flowers as rose, yellow on the outside. Grenier and Godron ("Flora de France") give the flowers as purple, sometimes yellowish on the outside, inodorous, and with the following localities: Summit of high Alps of Dauphiny, Provence, Lautaret le Quayras, Mount Ventoux, Pyrenees, Bagnoles, Mount Monnier, Vallée de Barcelonnette. Nyman ("Conspectus Europæus") gives the French provinces of the Pyrenees, Dauphiny, Piedmont, Lombardy, Tyrol, and Transylvania, according to Schur. Koch gives Canton Grison, Swiss Alps, and the flowers *purpurei*.

I have had an opportunity of comparing specimens in the herbarium, and I find that *D. neglectus* from the Maritime Alps is 6 inches, 8 inches, or 9 inches high, and not 3 inches to 5 inches, as M. Froebel says, a sparse flowered plant with thin narrow pointed leaves, exactly as in the plants growing at Kew. Those from the Alps de la Provence vary from 3 inches to 9 inches, and are more compact than the above. There are also specimens from Piedmont 5 inches to 9 inches high, with slightly larger flowers than those of our cultivated form, and which even show nearly the exact tint given in the coloured plate, the outer surface of the petals being paler, as in the Kew specimen.

The plants at Kew have been shown to botanists of high repute, one of which, to wit Mr. G. Churchill, a gentleman, who from his great and critical knowledge of European floras, surely has a right to be considered in the matter.

I feel perfectly satisfied that the plant at Kew is one of the forms of *D. neglectus*, though perhaps not from the Maritime Alps, though even that would not be very unreasonable.—D. K.

The Hollyhock.—It is excellent weather now to get the ground in good condition for planting out the spring-struck cuttings. We have obtained a good number of strong plants by taking cuttings in February, by planting each one separately in a small pot, plunging them in bottom-heat in a forcing house, but taking the precaution to cover them over with a hand-glass. As soon as they are strong enough they are planted into 5-inch and 6-inch pots, and no time is lost in getting them inured to cold frames, for it is not desirable to keep such plants in an artificially heated house. By the time the ground is prepared for them they will be ready to be planted out. If the weather is favourable the end of April is a good time, but it is sometimes necessary to defer planting out until May. Our ground is heavy and requires turning over two or three times to a depth of 3 inches or 4 inches in fine dry weather; by this process the heaviest clay soils can be reduced to a loose, powdery state. The Hollyhock is a gross feeder, and plenty of manure should be trenched in as early as the ground can be spared in the autumn, for the longer the surface is exposed to the weather the better for the future of the plants. Road scrapings are excellent for spreading over the surface, but they ought to lie there until they are well aired before being dug in.—J. DOUGLAS.

Protection for plants.—I have found the shelters, of which I wrote to you on Oct. 22, 1887 (p. 380), and again on December 14, 1889 (p. 546), so very useful in the sudden great changes of weather to which we have lately been exposed, that I will ask you to find room for another short notice. The Osier coops which we first used, though protected by the green scrim, cannot, I fear, last for many years; we have therefore had frames made of galvanised iron wire. These are quite light to carry, and can be made of the size of an ordinary round hen-coop at about 2s. each, and in sets of 1 foot high, and 12, 13, 14, and 15 inches across, at about 9d. each shelter. So far we have only had the coop size in use, but I have no doubt the smaller sizes will be sufficient to protect small plants in flower from frost and rough weather. *Cyclamen Atkinsi* has been for some time in great beauty with us, and many of the species of *Crocus* and other spring flowers. The thermometer on a little house in Wisley Wood fell 18°. The shelters have therefore been well tried; they should

also be of service placed over newly-moved plants and to shade flowers.—GEORGE F. WILSON.

NOTES ON CARNATIONS.

ADVANTAGE should now be taken of a fine day to thoroughly examine those Carnations that have passed the winter in open beds or borders, in order to replant any that have been thrown out of the ground through frost, or to make firm any plants that have been loosened by the same cause. Timely attention to this apparently small, but nevertheless important matter in Carnation culture may save many plants. There is no more trying time for them than the more or less protracted period of cold drying winds, which will dry up the loose soil and destroy the plants unless they are in firm ground, when of course they will be quite safe and take no harm. I never remember to have seen Carnations look better in March than ours do now, and there has been scarcely any loosening by frost, for the layers were got out so early last autumn and rooted so freely, that when frost came they had obtained such a firm roothold that not one in a hundred has been disturbed by its action. Some of the strongest plants are already making fresh top growth. For quality, quantity, and continuity of bloom first place must be given to plants that have been established in autumn and have passed the winter in the open air. Soil and situation vary so much, that this may not be possible in every garden, in which case the layers are potted up in autumn. Probably there are many more growers that pot up their layers than there are that leave them in the open ground all the winter, and the practice, though not absolutely essential, has much to commend it, whilst it certainly ensures the safety of the stock. Although most of our Carnations were planted out, especially all the best kinds, yet we potted up several hundreds. These have passed the winter in a cold frame with full exposure whenever possible. They are now filling the pots with roots, and therefore an early effort will be made to plant them in their summer quarters in bold groups between Roses as soon as the condition of the ground permits. They will be little inferior to the groups that have braved the winter's storms.

Those who are doubtful of the hardiness of the Carnation should remember that great success attends even the potting up practice, and surely this cannot be considered too much trouble to take for such a fine flower, which for sweetness and beauty comes next to the Rose and is a long way ahead of the *Pelargonium*.

A few words upon Carnations from seed would be appropriate, for although the seed may be sown at any time during the next three months, yet perhaps there is no better time than now, if it is desired to put out in autumn strong plants that have made a vigorous and sturdy growth. All coddling should be strictly avoided. The seed germinates quickly, and progress is facilitated if the seed-pot, pan, or box can be placed in a little warmth. After the plants are up on no account must they be kept too warm, or they will soon become lanky and weak. If the seed was not sown too thickly, the young plants may remain till they can be pricked out at a fair distance in a bed of suitable soil, where they will grow till autumn, by which time they will have made large plants that will lift with fine balls of roots and may be transferred to permanent quarters without apparent check or injury. There is much that is interesting in raising and flowering Carnations from seed, but be the strain ever so good its produce cannot prove so effective or valuable in the garden as the vigorous hardy self would when grown by the score or hundred and massed or grouped in proportionate extent. The variety of habit, form, and colour must of necessity preclude the use of seedlings even where self-seeds were admissible, but a place can always be found for the seedlings, and they are most useful for cutting. It is in every way desirable to raise a batch each year, and it is generally possible to select a few worth propagating and growing in quantity for future use. Old and even good kinds deteriorate after a time, but if the stock is annually

increased with others fresh with the vigour of youth no breakdown is likely to occur. Although the selected seedlings may not come up to the florists' ideal, that does not matter, as they are not wanted for the show table. In the garden any Carnation that is clear and pleasant in colour and has a scent is of value, as it helps to make the garden sweet and gay, as we all wish it to be. A. H.

SHORT NOTES.—FLOWER.

The white *Scilla bifolia alba* is a pretty little white flower, but not so free and bright as the common one. It looks well planted near the other.

Palms in the open air (p. 234).—All that the hardy Palms ask for is shelter from wind. Give them that, and I believe they will grow anywhere, and are always beautiful.—H. N. ELLACOMBE.

The netted *Iris* (*I. reticulata*) is planted in large clumps in the Broxbourne nursery of Messrs. Paul and Son, and this is the only way to obtain the full beauty of its flowers.

Narcissus lobularis is the earliest to flower on the stiff loamy soil at Broxbourne. A large mass of it was promising a mass of colour the other day. The flowers are neat and not too large.

Megasea Stracheyi will become much sought after as a plant for cut flowers. It is very free and the clusters of bloom are of a delicate pink and white shade, soon, however, spoilt by frost. If the plant is to give cut bloom, grow it in a frame.

Saxifraga luteo-purpurea is the finest early-flowering Rockfoil, first shown by Messrs. Paul and Son under the name of *S. Frederici-Augusti*. Its primrose-yellow flowers make a fine show of colour in their nursery at Broxbourne.

Helleborus viridis.—In my remarks on this in THE GARDEN, March 8 (p. 225), I meant to have said *H. viridis* is not an evergreen or winter-foliated plant. *H. foetidus* is, and they are otherwise most distinct.—J. WOOD.

The spring Meadow Saffron (*Bulbocodium vernum*) should be planted in large clumps to gain a true idea of its beauty. The variety *ruthenicum* has deeper-coloured flowers than the type, and they appear rather earlier.

Iris orchoides splendens is quite a distinct plant, rather un-*Iris*-like. There is a kind of *Hemerocallis* look about its foliage which is out of proportion to the flowers, which are medium-sized only, bright deep yellow in colour and borne on leafy stems a foot high.

Anemone stellata alba.—A snow-white, black-centred *A. fulgens* is good. Flowers of this of large size I saw for the first time to-day, springing from vigorous tufts of healthy leaves on strong stems. It is certainly one of the most beautiful of all spring flowers.—T. SMITH, *Neury*, March 14.

Hepaticas in masses.—The several varieties of *H. triloba* and also *H. angulosa* were a mass of bloom the other day at High Beech. Four large, slightly sloping beds in full exposure to sun were filled with large clumps one mass of flowers. This is the way to see the richness of the Hepaticas, which usually struggle for life in a shady border, where air scarcely reaches them.

Lenten Roses, or Hellebores, were in bloom in rich variety at Broxbourne the other day. The forms of *H. colchicus* are of unusual beauty, one named *formosus* having blooms of fine proportions and deep colour. *Coccineus* is good, but not equal to *formosus*. *Orientalis* is the prettiest of all; its white and green flowers are without the sombre colours of *colchicus*. The flowers of *H. Boconii superbus* are rich crimson. A series of Hellebores gives a delightful variety of quiet colours.

Daffodil buds opening in water.—Perhaps it may not be generally known how readily Daffodil buds open in water in a room. I now have some fine flowers open of the old double yellow. They were gathered after the recent snow and placed in water in a sitting-room. For several days no change was apparent, but when once they start expansion is so rapid, that although it cannot be detected actually, it is yet possible to see a great change in the flowers in an hour or two. Other buds left upon the tufts out of doors will not be out yet for some days, so that the gain in time by gathering buds is considerable, and it also prolongs the season of enjoyment of a truly beautiful flower. It does not

matter, apparently, whether the buds are large or small, have long stems or short ones, as they all open.—A. H.

LILIES AND HOLLYHOCKS.

"J. C. B." writes hopefully (p. 205) of the promising appearance of his Madonna Lilies (*Lilium candidum*), but the experience of the past few years teaches us that the chances of a bad attack of the fungus, so fatal to the beauty of this Lily, are almost certain to appear just before flowering time, be the plants strong or weak, and destroy all hopes of a grand display of flowers, such as used to be seen only a few years ago. It is almost painful to watch the clean autumn growth and the bright green spikes pushing up in spring, remembering to what this brightness and freshness have given place in the months of May and June during the past few years. One almost wishes the flowering (?) season to be quickly over, instead of being prolonged. No doubt the recuperative powers noticed by "J. C. B." are due to the fact that the fungoid attack does not appear until the plants have nearly reached the flowering stage, and that the disease does not penetrate to the bulbs at all, for I have lifted and examined them when the leaves and flowers have been very badly attacked, and also after the stems have decayed, and in all cases the bulbs were clean and without blemish. In seasons when the disease does not appear till late, the bulbs may even be strengthened by the loss of the flowers, as is supposed to be the case with many bulbs. "J. C. B." does not tell us when the grand bed of this Lily was seen at Hampton Court Palace gardens, but if this was within the past year or two, or since the disease has become so general, it would seem, judging from this display, and from what "Hollyhock Fancier" tells us (p. 138) of the success obtained with the Hollyhock at Dulwich, that the pure country air leaves something to be desired, and that we must look within the range of London smoke for healthy plants of those things which suffer so much and seem to be in such danger of complete annihilation by fungoid diseases elsewhere, unless in the meanwhile some public benefactor gives us a clue to a cure for these attacks.

"Sanguinea's" query *re* Hollyhocks led to some interesting notes and replies, but the evidence as to so-called cures is conflicting. Mr. Douglas seems to have cured his plants, but how they must have suffered in appearance by the three pickings of leaves, and then how futile the result if a few diseased Marsh Mallows, growing half a mile off, could reintroduce it. Mr. Webb, by the aid of tobacco powder and sulphate of copper, appears to have arrived at a definite result, for although diseased plants were growing amongst those dressed with the mixture, they were not again attacked. This is good news, and the disease should be kept at bay in future if the mixture is equally efficacious elsewhere. Some of the advice given to "Sanguinea"—such as to grow them on a new site, or to give up growing them for a year or two and to get new and clean stock—was totally inapplicable to his case, for he had started with home-raised seedlings, planted them in three different parts of the garden—one lot in a new garden made by breaking up an old pasture field that had never been broken before in the memory of the oldest inhabitant. No Hollyhocks had been grown in the neighbourhood for over twenty-five years, but all his stock was attacked at the same time and with equal virulence, so that he did not get a good spike amongst them. They were planted out in April and May, and grew away capably until they began to throw up their flower-spikes, and would undoubtedly have been good but for the disease. This year the old stools have been planted in an open field, and such preventive measures as have been advised will be used on them and progress reported. J. C. TALLACK.

Violets losing their leaves.—In writing of single Violets losing their leaves during the winter, and especially instancing The Czar as one that has suffered severely this year in some places, "A. D." (p. 178) wonders at such loss taking place

in a position happily out of the reach of ordinary fogs. Some special cause may possibly have been at work in the case mentioned, but I take it that, as a general rule, the loss of leaves during winter on this particular variety is due solely to the plants having been left too long in one place without being transplanted. This Violet is so accommodating that it stands a greater chance of being neglected than many other things do but if the best results are wanted, they can only be had from young plants that have been treated in the same way, as regards annual division, as the more tender kinds, such as Neapolitan, Marie Louise, and Comte de Brazza, which are wintered in frames. Such plants will carry good leaves and flowers on long and clean stalks all through the winter, while old stools in equally good positions are leafless and flowerless, or if flowering at all the stalks are short, curved, and useless for bunching, the flowers being puny and of poor colour. I do not think this loss of leaves has anything in common with the disease which appears to be affecting frame Violets so badly in many places this year, as young and old plants may be grown side by side without fear of injury to the former. Undoubtedly this Violet pays for good cultivation and should not be forgotten or neglected, for a bunch or two now and then from outdoors makes a very welcome addition to the flower basket, especially when frame plants have had a hard run upon them.—J. C. TALLACK.

NOTES ON HARDY PLANTS.

Blue winter Windflower (*Anemone blanda*).—I spoke of this (p. 225) from personal experience only when I said that I believed age of flower and weather action to be the chief causes of the many shades of blue in this Windflower, and when I again inspect my stock, where I see deep blue young flowers and on the same plant very pale blue ones that are older, I have not, I think, been far wrong. My plants being in pots, I could not well make a mistake, for I am well aware of the spreading underground habit of the flower-stems, which might well have misled one if the plants had been in open ground groups. Moreover, I said there might be some permanent difference, but that I had not observed it. I am now, however, quite satisfied that there are distinct and purer shades of blue, and also a white form, as since my note appeared, several friends and correspondents have been so kind as to point me to facts that have come within their experience. Anyhow, my last note will serve to show that to see the deepest blue and by far the finest varieties in perfection in winter, they should have the protection of a cold frame, for the frost does blanch them.

Chionodoxa sardensis.—But an indifferent idea can be had of the beauty of this from small bulbs, or even large ones, if they have not been timely planted, and I fear many of the collected bulbs are lifted too soon. From full-sized, home-grown bulbs, set, as they should be, in the months of August or September, fine spikes of a dozen to sixteen flowers are to be had. Similar bulbs planted in December and January are a failure. The bulbs, however, were only similar in the sense of being of the same batch; they had deteriorated vastly from being kept out of the ground. I suppose everybody knows that it is essential to plant the early-flowering bulbs in good time, but we cannot keep the fact in mind too well that some of the earliest—such as *Scillas*, *Chionodoxas*, *Snowdrops*, *Crocus*, and *Leucojums*—if not planted in time, have not the vigour to regain themselves like some other spring flowers with bigger bulbs, such as *Daffodils*. This reminds me of something about *Daffodils*.

Narcissus minimus finds its way into our gardens in many forms. It is not too much to say, perhaps, that the variations are as numerous in this as in any of the larger species of the *Ajax* section; there are straight tubes and others contracted at the mouth; some with uneven flanges, others with short and deep lacerations, and yet more with even and uneven toothed coronas. The shades of yellow are various. I fancy before long we shall hear something about this species, and at least one remarkable form that has turned up. I find that most

of these imported bulbs produce larger flowers than the typical form. I suppose this may either happen from their being the progeny of some cross or from the vigour the bulbs gain when cultivated one or two years.

Perennial Asters.—This is a good time to deal with strong clumps of Michaelmas Daisies. To divide them and plant in open quarters a good distance apart—something after the manner of planting Cabbages—will be found the most profitable way where large quantities are wanted for cutting in the autumn. The heads are vastly improved in colour, size, and quantity, and with good exposure they come in earlier. Another advantage is that they do not grow quite so tall as when in more crowded positions. J. WOOD.
Woodville, Kirkcaldy.

ORCHIDS.

VANDA SANDERIANA.

A FLOWER of one of the most beautiful forms of this plant which has come under my notice has been sent me. *V. Sanderiana*, one of the most wonderful plants known in the Orchid world, is said to come from the island of Mindanao, one of the Philippine group, some 600 miles from Luzon. This island is very mountainous, but whether this Orchid comes from the low ground near the coast, or from the hill districts, we are not told. In cultivation it is found that it is a very difficult plant to establish, and that it requires an abundance of heat and moisture. In its native home *V. Sanderiana* blooms about the month of October, and here in England it flowers during the winter, and the bloom now before me is a late one. Those who only know the tricolor and suavis section of the genus *Vanda* cannot form any conception of this beautiful plant, figured in *THE GARDEN*, Feb. 9, 1884, p. 104. The flowers each measure nearly 5 inches across; the sepals and petals are round and full, whilst the lip is small, and leads one to suppose it would be nearer to the genus *Esmeralda* of Reichenbach than to *Vanda*. The dorsal sepal and the petals are of a soft and silky rosy-pink or rosy-blush, the base dotted with crimson; the lateral sepals are very much larger than either petals or the dorsal sepal, being upwards of 2 inches across, round and full, the ground colour buff-yellow, and having from nine to twelve broad prominent veins of crimson running over them. The lip is small and somewhat fleshy, the front lobe deep chocolate with three raised lines or crests traversing it, the side lobes being ribbed with greenish-yellow; the flower is quite destitute of a spur. I have seen as many as seven flowers on a spike of this grand plant and the flowers resemble large blooms of *Odontoglossum vexillarium*, but they are much thicker in substance. I believe Mr. Sander has frequently imported this plant, but it appears a bad one to travel, and it certainly is a very difficult one to establish. Has anyone tried growing it cooler? I have always seen it kept in the warmest part of the East India house, where it enjoys abundance of sun and light in addition to the moist atmosphere. There appears to be a considerable difference in the varieties of the few established plants which are in the country. The fact of so fine a species remaining hidden from observation leads one to hope that there are others equally good. W. H. G.

Paphinia grandis.—This has undoubtedly the finest flower of the four or five species which constitute the genus. In colouring, perhaps, it is scarcely so handsome as *P. cristata*, but altogether *P. grandis* is a very distinct and remarkable plant.

Fully expanded the blooms would measure 7 inches in diameter, but the sepals and petals stand forward, forming a somewhat cup-shaped flower. Compared with the size of the plants, all the *Paphinias* produce surprisingly large flowers; perhaps in no other genus is the disproportion so marked. In this species the pseudo-bulbs are narrow and slight, from 1½ inches to 2 inches high, bearing about four thin lanceolate leaves on the top. The ground colour of the flower is a deep chocolate-purple, which at the base of the sepals and petals is transversely barred with creamy yellow. The lip is of the deepest purple, and has two curious angular lobes at the sides, a curious feature also being the tuft of cream-coloured hairs at the apex of the middle lobe. One to three flowers are produced on the short, pendent scape which proceeds from the base of the pseudo-bulb. The species is a native of Brazil.—B.

Cattleya Trianae Backhousiana.—This is a beautiful form sent by Mr. Cowley, gardener to Mr. Tautz. It resembles somewhat the form I noted last week as coming from Mr. Blair, of Trentham. It has the same feathery spray of colour in its petals; the lip, however, is not ornamented with bright yellow, as in that variety, but is white, and there is a broader and deeper band of colour in front. The sepals in this variety are narrower. It is a beautiful form, the sepals and petals being rosy-purple, the latter flaked with crimson, the front of the lip heavily marked with very deep purple, and the throat white, with a very narrow band of yellow in the centre.—W. H. G.

Cypripedium leucorrhodum.—This is a magnificent hybrid of Mr. Seden's; it is a strong grower, producing an erect and many-flowered spike of bloom. It is the result of a cross between *C. longifolium* and *C. Schlimi albidum*, the flowers being large and of a soft creamy-white, slightly tinged with pale rose. I recently noted this plant flowering in Mr. Dorman's collection, at Laurie Park, Sydenham, where Orchids have been well grown for some years. Mr. Dorman is a great lover of the *Selenipedium* section of this genus, but I think his house should be moister than at present. I also saw a beautiful form of Veitch's variety of *C. Sedeni candidum* flowering here in company with *leucorrhodum*. The two varieties are well worthy of cultivation by all Orchid growers.—W. H. G.

Masdevallia Schröderiana.—This is a beautiful species which I recently saw in the collection of Messrs. Seeger & Tropp at Dulwich. The plant shown me was said to be the largest in the country. The *Masdevallia* is now receiving, I am glad to say, attention at the hands of Orchid growers. This, I think, is wise, as in this genus are to be found some of the most exquisite gems, and as these plants for the most part require so very little heat, they are adapted to the convenience of everyone. The great wants of *Masdevallias* are a cool temperature, and abundance of moisture and shade. The flowers, however long they continue on the plants, do not remain long in beauty when cut for indoor decoration.—W. H.

Cattleya Trianae from Buxton.—I am in receipt of four grand varieties of this plant from Capt. H. Shaw, Whitehall, Buxton, and they certainly are magnificent in every respect, the flowers being large and fleshy in texture. No. 1 is an elegant flower, round and compact, the sepals broad, of a delicate mauve shade. The lip is also round, beautifully frilled round the edge, the colour in front being delicate mauve, but deeper than in the petals. This colour is continued quite round the lip, inside of which is a zone of white, the throat being deep yellow; the flower has a fragrance resembling that of almonds. No. 2 Capt. Shaw says is in shape like that of the rather rare *C. chocoensis*. The flowers are not reflexed and spreading, and there is more colour in the lip than I have ever seen in the best forms of *chocoensis*, the petals being 2½ inches in width. The flower is white, saving the lip, which is broadly blotched with deep magenta, which extends into the sides; the throat is white, saving a tinge of yellow at the base, the

margin being prettily frilled and pure white. No. 3 is a large flower about 7½ inches across, with pure white sepals and petals, and a white lip tinged with mauve; the throat rich deep yellow. This form somewhat resembles *delicata*, and such I should call it, but it is not such a good form as that recently received from Arddarroch. No. 4 very nearly resembles *Dodgsoni*, saving that the sepals and petals are of a slightly deeper tinge of blush, and it lacks size somewhat. The flower before me is 7 inches across; lip broad and full, the front portion rich crimson-violet, with a bright orange throat. I really cannot see any other difference between this and Mr. Lee's plant, *Dodgsoni*, and I should advise Capt. Shaw to so name it. These flowers are all very fine; they have not been harmed by the fog, and the long footstalks show them to have been well thrown up beyond the leaves, while the substance of the flowers is very thick and fleshy. We can never expect such blooms in the London district.—W. H. G.

Cypripedium porphyrochlamys.—This is a great beauty, which I recently noted flowering in Mr. Tautz's collection at Shepherd's Bush. The flowers are large and showy, and the leaves are somewhat obscurely tessellated; the dorsal sepal is nearly round, measuring 2 inches in length and the same across, the upper part being slightly narrower. The ground colour is crimson-violet, saving a white margin, and it is heavily veined with purplish-crimson. The lower sepal is much smaller, creamy-white, petals deflexed, some 3 inches long, nearly 1 inch wide at the tips, greenish-yellow at the base, where they are profusely spotted with black, wart-like spots, the tips being wholly of a rich deep violet-purple, the large pouch being brownish-purple. It is a cross between *C. barbatum* Crossi and *C. hirsutissimum*, and is a grand variety. Judging from its parents I should imagine it would require the warmest house. It was awarded a first-class certificate by the Orchid committee of the Royal Horticultural Society on Feb. 11 of this year.—W. H.

SHORT NOTES.—ORCHIDS.

Angræcum fastuosum.—This is a gem. I do not remember to have seen this species before. I recently met with it in Mr. Dorman's garden at Laurie Park, Sydenham. The plant was small, the flowers being ivory-white and very sweet-scented, yielding a fragrance resembling that of a *Gardenia* or *Tuberose*.—W. G.

Odontoglossum Alexandræ with yellow flowers.—A very fine form of this variety is now flowering with Mr. Dorman. The flowers are of good form and substance and the colour good, not the washed-out yellow which one so frequently sees. It is a beautiful form, and should be well taken care of.

Cattleya Trianae magnifica.—This is a beautiful form, having size and substance as its first attributes. It is now flowering in Mr. Dorman's collection. The flowers each measure 8 inches across; sepals and petals broad, and soft rose; the lip is large, with a white throat, the front lobe being heavily marked with crimson-lake. It is a very fine form, and one that deserves recognition, as it stands out conspicuously amongst a fine lot of other kinds.

Gardening periodicals in bothies.—Very many opportunities of mixing with young garden men and learning of their wishes in relation to horticultural literature enables me to say that in myriads of gardens where two or more young men are housed in rooms or bothies, the employers would render them exceeding service if they would furnish them with a fresh copy of the gardening papers weekly. The pay of young men is not so much that they can afford to provide themselves with much literature, although, generally, they do their best. All young men who have devoted themselves to gardening like to be kept abreast of the times. The expense to employers would not be great, whilst the cost may be considerable to youths of very narrow incomes. Young men do not care much for old or back numbers. They like to be kept fully conversant with what is fresh or immediately proceeding, as in such cases the interest excited is so much the greater.—G. H.

THRUMPTON HALL.

SITUATED in the valley of the Trent, embosomed in luxuriant foliage, and surrounded on every hand with sylvan scenery, stands Thrumpton Hall, the residence of Lady Byron. The hall was built in the year 1629 by the Pigots, who were then among the county magnates. It is a fine brick building, the stone mouldings and the square-framed windows being a distinguishing mark of the architecture of the reign of James I. The entrance to the grounds is from the quiet village of Thrumpton, through a spacious arch in the same style of architecture as the hall, and surmounted with castellated ornamentations. No sooner have the gates been passed than the eye is arrested by the vigour and variety of the Evergreens and Conifers. Many plants of *Retinospora pisifera* were in grand

the Grass were scarlet-flowering Chestnuts. The hall is bounded on the front by a low balustrade, beyond which is the sluggish lake; while the Grass on the opposite side, as far as the eye could reach, was planted with hundreds of Crocuses.

In the Priest's Walk, running parallel with the lake, were some old Quinces, supposed to be the oldest trees in the country, and which yearly carry heavy crops of fruit. As far as the eye could reach the walk was skirted with tall Limes and fine old Yews. On the west front of the mansion there are numerous beds filled with the best Roses in cultivation. One set of beds was planted with Hybrid Perpetual Roses, while three more were filled with the best Tea Roses. Near this is the lawn tennis ground. In forming the courts in this, Mr. Geddes, the

Thrumpton. On the rising ground in the distance may be seen some very fine Elms, "tall ancestral trees," and also remarkable Cedars of Lebanon. In the pleasure grounds are some excellent Oaks, Elms, Cedars, and Hollies. One of the Elms measured 14 feet 6 inches round the bole about 4 feet from the ground. The Cedars were planted in the year of George the Third's Jubilee, 1810. One Cedar was 8 feet 6 inches in girth 4 feet from the ground and about 60 feet high. Several of the Yews were remarkable, the spread of the branches of one specimen being 150 feet. One Larch (supposed to be nearly the oldest in Britain) had branches about 114 yards in circumference, and the bole of the tree at 2 feet from the ground was 16 feet 6 inches round, and 12 feet 6 inches at 3 feet from the ground. Near at hand a



Thrumpton Hall, Kegworth, Derby, the seat of Lady Byron. Engraved for THE GARDEN from a photograph sent by Mrs. Hewitt, Walton-on-Thames.

condition, and appeared to luxuriate in the soil and climate. Then there were fine specimens of *Cupressus Lawsoniana*, 30 feet high and upwards, all clothed with healthy foliage down to the ground. *Pinus excelsa*, *P. austriaca*, *Abies Nordmanniana*, growing with great freedom, and *Retinospora squarrosa*, one of the most beautiful of all the *Retinosporas*, were also doing well. Scattered among the Evergreens were many beautiful deciduous trees, attractive either for the great beauty of their flowers or their gorgeous foliage. Such subjects as *Prunus Pissardi* were planted not in solitary specimens, but by the hundred. To these may be added *Quercus coccinea* (the Scarlet Oak), *Laburnums*, *Acer Negundo variegatum*, flowering Currants, *Cornus mascula variegata*, and as single specimens on

head gardener, has hit upon an ingenious plan to economise his men's time. Narrow boards, about 3 inches wide and three-quarters thick, had been let into the ground sideways, and so far below as to escape the machine, and yet for the marking to be seen distinctly when it is occasionally chalked over.

On the south side of the hall there is another series of beds. Many of these were furnished with *Euonymus radicans variegatus*, *Erica carnea*, *Buxus aurea*, *Retinospora squarrosa*, cut down and trimmed like Box edging, *Antennaria tomentosa*, *Sedums* and variegated Ivy. Close by this is a noble specimen of the evergreen Oak, and in close proximity a large bed of *Rhododendrons*, every available inch of which is filled with *Lilium auratum*, which does well at

Cedar of Lebanon, planted on the 21st of June, 1887, had reached a height of about 7 feet. In the borders in front of the shrubs were hundreds of herbaceous plants, fine clumps of *Lilium candidum*, quantities of *Papaver orientale*, *Pæonies* and other hardy plants.

In a sheltered position, about 150 yards from the mansion, there was a large bed containing nearly every Evergreen that is to be found in commerce. Here and there amongst the shrubs is a large commingling of herbaceous plants. In one place was to be seen a large patch of tall *Phloxes*; in another position a quantity of perennial *Asters*; then there would be space left for *Gladioli*, another for *Dahlias*; while near the margin, amidst glistening foliage were

broad cushions of Aubrietias, Arabises, Snowdrops, Primroses, Narcissi, Alyssums, Sedums, Saxifrages, the whole edged with *Euonymus radicans*. Amongst the shrubs, *Elæagnus striata* aurea and *E. striata* alba were conspicuous. *Abies polita*, *A. Menziesi*, *A. concolor*, *Biota aurea*, *Cryptomeria elegans*, *Cupressus* in variety, most of the *Retinosporas*, *Taxus adpressa*, *T. aurea*, *T. elegantissima*, *Bambusas*, and *Berberises* were also grown freely. Passing through a Yew avenue, the Beaconsfield garden is reached. Here Primroses and many other hardy plants abound in wild luxuriance. In secluded corners were miniature rockeries planted with many varieties of hardy Ferns. Passing on to what is called the back drive, there were many fine Conifers, while the space between the specimen plants was covered with an undergrowth of dwarf Laurels and Privet, which were kept down to a height of about 24 inches to 30 inches. Here again were many specimen Conifers, and among them *Cupressus pendula* was specially fine. *Abies Douglasi*, which refuses to grow in the ordinary soil at Thrumpton, was growing with great vigour in soil that had been brought from a distance for the purpose. Last year it made a growth of 18 inches.

THE KITCHEN GARDEN.—Great alterations and improvements have been made here during the last ten years. Old worn-out Apple trees have been uprooted and new ones of good quality introduced. A peep into the fruit-room bore evidence of forethought in this respect. There was a good supply still of such useful old sorts as Dumelow's Seedling, better known in Nottinghamshire and Derbyshire as Norman-ton Wonder; Blenheim Orange, Sturmer Pippin, and one a fine variety, the Beauty of Kent. This variety was only just coming into bearing, but the fruit is fine and handsome; the tree is said to be a free bearer, and if it is so, it will be a most valuable late-keeping sort.

Outside the kitchen garden, and under a low wall which skirts the frame ground, there was a fine border containing many choice herbaceous and alpine plants. The border was raised with an irregular stone edging, and in the interstices between the stones were growing numerous trailing plants, while clumps of Snowdrops were peeping up in all directions, heralding the brighter days of spring. In the frame ground mention must be made of a number of old Asparagus beds which, Mr. Geddes informed me, had been made for more than seventy-five years, and they are reputed as being among the best in the country. They are 30 feet 6 inches long, 6 feet wide, and 4 feet 6 inches deep. The bottom is concreted; each side is supported by brick walls which are pigeon-holed, so that the 2 feet 6 inch space between each bed can be filled with fermenting materials. The beds are forced in rotation. A frame is placed on the bed, and the space between the beds is filled with stable litter, and by this means Asparagus is cut from Christmas onwards. This plan is worthy the attention of those who wish to grow a most delicious vegetable successfully. No one has any idea what the materials composing the beds consist of, nor can the date of their formation be accurately fixed, but they can be traced over a period of seventy-five years. The grass is always thick and fleshy, and far in advance of that grown in the ordinary way. While Thrumpton can boast of venerable Hollies, Yews, Cedars, Oaks, and Asparagus beds, it can also boast of venerable men. Here we met an old servant, Jonathan Keightly, who entered the gardens at the age of fourteen. His first duty was to serve the kitchen, and he has continued in that

capacity for the space of seventy-two years, and is yet hale and hearty.

The kitchen garden covers a space of $3\frac{1}{2}$ acres, well walled round, the latter furnished with nicely trained fruit trees. In several instances I noticed a singular method of training Pears. A maiden tree would be planted in the first instance with one stem, which was run without branches to the top of the wall. Two branches were then taken horizontally in opposite directions along the top of the wall, and from these branches were brought downwards to cover the wall. They had a singular appearance, and were no doubt retained for this quality more than utility. The Peach houses are comparatively new, having been erected within the last ten years. The trees bore evidence of careful culture; the training was perfect, while the fine sheets of bloom gave promise of abundant crops of fruit. There are two sets of trees in each house; one on the back wall and the other trained to an arched trellis on the front. Having found that the Peaches are so much better flavoured on the front trellis, this in the early house has been carried to the top.

There are three vineries, and I was able to judge of the quality of the late Grapes from what I saw in the Grape room. There were fine bunches of Lady Downe's, the berries plump and fresh, and looking as if they would keep for another three months. From the late house on one occasion a bunch of Barbarossa was cut which weighed 13 lbs. 14 ozs. The back wall in one vinery was covered with Camellias in luxuriant health; others were utilised for zonal Pelargoniums, while every nook and corner in vineries and Peach houses were filled to overflowing with bedding plants. In the stove was a bed, perhaps 9 feet by 5 feet, where the *Eucharis amazonica* was planted out. The plants were growing with the utmost freedom; the foliage was thick, large, and leathery, while the flowers are so abundant, that they can be gathered freely every day in the year. The greenhouse was all aglow with such subjects as are generally found in bloom at this season.

R. W.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—*SCUTELLARIA MOCCINIANA*.—This plant takes up little room, and flowers through the best part of the growing season. It is adapted for the decoration of a warm house, and the flowers are useful for cutting, their combination of bright red and yellow affording a pleasing contrast to anything with which they are associated. Plants that bloomed last summer and that have had their branches shortened earlier in the winter will now have broken into growth and be in a condition for repotting. Eight-inch or 10-inch pots are sufficient for large specimens, as much of the old soil can be got rid of at the time the plants receive their annual shift without any harm being done, as the roots are not impatient of being disturbed. Loam of good quality with rotten manure and sand answers for this section. After potting keep the plants a little warmer if possible. Young stock struck last summer and now in 3-inch or 4-inch pots should be moved into others two or three sizes larger.

CUTTING STRIKING.—This *Scutellaria* is easily propagated. It flowers in quite a small state. Shoots that have been made during the winter and that are now about 3 inches long will strike readily. Five or six may be put together into a 5-inch pot. Treated in the way required by other stove subjects, they will strike in a few weeks.

TOXICOPHLEA THUNBERGI.—This blooms freely in either a large or small state. The somewhat

erect habit of growth necessitates the plants being cut in freely once a year, and this, of course, requires to be done after blooming, which varies according to the amount of heat given. Last year's shoots may be reduced to half their length. As soon as the young growths made after cutting in are an inch long it will be well to repot those that require it. Less root-room will suffice than is necessary for many stove species. Twelve or 14-inch pots will in most cases be large enough for full-sized specimens. It is not advisable when repotting to disturb the roots much. Whatever soil there is about the tops of the balls that is not occupied by roots may be got away, but this is as far as it is advisable to go in this direction. The plant thrives well in peat of medium texture. For moderate and large-sized plants it should be broken by hand to about the size of Walnuts. Nothing in the way of manure is necessary, as this can be given in liquid form during the season of active growth. Add a fair amount of sand and pot firmly. Half specimens may have pots two sizes larger than those they have been in. Keep the temperature a few degrees higher after potting.

CUTTING STRIKING.—This is best done about the present time. If pushed on through the summer in a brisk heat the young stocks will flower well a year hence. Young shoots that have been formed since the plants were cut back will make suitable cuttings. Take them off when 3 inches long with a heel; they will soon form roots if kept close and shaded in brisk heat. It is best to put them singly into small pots filled with sand. When an inch or two of growth has been made, cut out the tops so as to induce the plants to break; if left to themselves they will quickly run up to a considerable height before they break. By midsummer a shift into 6-inch pots will be necessary. At this time stop the shoots again, and when they have made a little more growth tie them out horizontally. Without this precaution the future specimens will be thin at the bottom.

JASMINUM GRACILLIMUM.—Where white, sweet-scented flowers are much in request this *Jasminum* should always be grown. The plants will last for a number of years if fairly treated. Each spring when the blooming is over it is necessary to prune them fairly close in, especially if they have attained a large size. If this is omitted they get into a straggling condition and take up too much space without giving a proportionate return in the quantity of bloom. Specimens that have reached something like the size they are required to may have the preceding summer's shoots cut back to within a few inches of where they spring from. If afterwards kept in a moderate stove temperature and syringed overhead once a day, the plants will push new growth directly. After this turn them out of the pots and remove all loose soil that can be got away without much disturbance of the roots. Most of the *Jasminums* are comparatively spare rooters; consequently they will do without so much pot room as many stove subjects require, especially if due attention is given in supplying manure water during the summer. A 13-inch or 14-inch pot is big enough for a large specimen. Rich, light-coloured turfy loam with a moderate quantity of rotten manure sifted and some sand is the best material to grow this species in. The roots are impatient of the least stagnant moisture; therefore the drainage must be efficient. Make the soil moderately solid in the pots. Withhold water for some days after potting until the roots have begun to move. Continue the use of the syringe all through the summer. Let the plants have abundance of light, but give a thin shade in bright weather. No stopping is necessary for old stock, and in the case of young examples pinch out the points of the shoots once during the spring and again about midsummer. Plants that are to be grown on bigger should have pots about two sizes larger than those they have been grown in. In other respects, treat as advised for the large specimens.

JASMINUM SAMBAC FLORE-PLENO.—This is one of the sweetest-scented of all stove plants. It is best grown as a climber for draping a rafter or

training round a pillar. It should not be used in a position where there is much space to fill. Full-sized plants ought to be cut in moderately each spring; sever the shoots at different lengths, so as to encourage the production of new wood evenly from the bottom to the top of the specimens. They should be turned out of the pots as soon as they have made a little growth after being pruned; remove as much of the old soil as can be got rid of without breaking the roots. Large examples may be put in pots the same size as those they had last summer. Younger stock ought to have pots about two sizes larger than those they have been in. Give soil of a similar description to that advised for *J. gracillimum*.

JASMINUM DUCHESSE D'ORLEANS is a desirable kind with a climbing habit of growth. It is a somewhat stronger grower than *J. Sambac* and is a free bloomer. In other matters, including annual pruning and potting, treat as advised for the last-named sort.

STOVE.—ACHIMENES.—Another lot of tubers should now be started so as to have them in flower after the earliest batch have done blooming. The roots first put in heat, will shortly be ready for moving to the pots and hanging baskets in which they are to flower, but avoid crowding too many plants together. If there happens to be a scarcity of any variety, the tops may be cut into lengths of two or three joints each, and struck in the way of ordinary cuttings. They will root readily in a confined, moist, warm atmosphere, with shade from the sun.

GLOXINIAS.—A second lot of *Gloxinia* roots should also now be potted and put in heat. Treat generally as recommended some weeks ago for the tubers then started. The earliest lot will have made some progress. Stand them close to the glass; if there is a shelf over the path of the stove this is just the place to keep them until they come into flower. So managed, the leaves will be stout and compact and the flowers of like character. Abundance of light is more necessary for *Gloxinias* than for many stove subjects, but they must have a thin shade in bright weather. Without this and a constant use of the syringe it is difficult to keep down thrips.

GREENHOUSE.—PLUMBAGO CAPENSIS.—Plants that were cut in last autumn when they had done flowering, and have since had a greenhouse temperature, will now have made some progress with their new growth. Large specimens that are grown in pots should be turned out and have a portion of the old soil removed. If they have pushed many roots down into the drainage, these may be cut away. Repot in loam well enriched with rotten manure, to which add enough sand to keep the whole sweet and porous. This *Plumbago* does not like much moisture after its roots have been interfered with, consequently it is better to be sparing with the water-pot until the young fibres have begun to move freely. The plant is very useful when comparatively small and will flower nicely in 6 inch pots. To provide stock of this description cuttings should be struck each spring. The young shoots taken off with a heel and treated in the ordinary way will root in three or four weeks. After they have made some growth they may be put at once into 5-inch pots. They should have their shoots stopped twice before the end of June, so as to encourage the production of several growths. After warm summer weather has set in greenhouse heat is sufficient. T. B.

THE KITCHEN GARDEN.

MUSHROOM HOUSE.—Apparently exhausted beds ought not to be too quickly broken up, unless the space they occupy is wanted for a new bed, as it is quite possible that if they are in a very dry state remoistening will bring up a fresh crop of Mushrooms. They will need several gentle waterings before they are properly moistened, a mulching of short litter or straw manure greatly facilitating the operation. Either weak liquid manure or water slightly impregnated with salt may well be used, this being in a lukewarm state. Any old beds in a cold damp condition may safely be cleared out, as it is very

certain nothing will put new life into these. Those formed late in the autumn or during the winter are apt to move very slowly, but if not saturated in any way a failure need not occur. It is the daily damping down or overhead syringings, coupled perhaps with high temperatures, that are responsible for numerous failures. If a fairly brisk hotbed or even a new Mushroom bed could be formed under any that have much cooled down since spawning took place, and which give no signs of activity, this might quickly cause the crops to appear. Only sufficient fire-heat should be turned on to keep the temperature about 55°, a much stronger heat shortening the duration of the beds and also greatly impairing the quality of the Mushrooms.

FORMING MUSHROOM BEDS.—There is generally a good demand for Mushrooms during May and June, but they will scarcely be forthcoming unless fresh beds are formed some time during March. Unless, however, the beds are made in a position where they are well sheltered, yet comparatively cool, the produce in hot dry weather is of little value, but in many instances the Mushroom houses are much cooler in the summer than open sheds or even the open air, and if the lowest places or floor can be spared it is these where the Mushroom beds should be formed now. Ridge-shaped beds formed in a sheltered position in the open might with advantage be tried for these late supplies. In our case, unless the latter are made inside the garden walls, it is almost impossible to keep moles and mice out of them, and these pests soon spoil either the bed or produce, the delicate gills of Mushrooms apparently being much appreciated by mice. In each and every case the manure used should be particularly well prepared by frequent turnings, as should it become violently hot after being finally put together the bed will soon become dry and useless. It ought to be in a fairly moist state when used, and retain both its heat and moisture for many weeks to come. Late beds, whether in the open or under cover, should be heavily mulched with soft straw litter or manure, this keeping them moist and comparatively cool in hot weather.

KIDNEY BEANS.—According as the sun gains in power and the walls and other surroundings of the Beans become correspondingly hotter, the plants in pots are liable to become badly infested by red spider, and in any case do not long remain productive. There must, however, be no falling off in the supply, and overworked as the gardeners may be and crowded as are the houses at this time of year, the work of sowing fresh batches of seed every fortnight or oftener, throwing away exhausted plants, watering, syringing, and staking must still go on. Those who are in a position to do it, ought now to substitute boxes for pots, the Beans thriving far better in these and requiring much less attention in the way of watering and syringing than is the case with pot plants. If the boxes are made fairly strong, deep, and narrow, they will stand on shelves and either front or back walls of pits quite as well as pots. They may be of any convenient length, not less than 8 inches deep and the same in width. Very little drainage need be placed in these, but good loamy soil should be used, the boxes being filled at once, top-dressings being of little or no service to Beans in either boxes or pots. One single row of plants only ought to be grown in these boxes, and given good room they will be more than ordinarily vigorous and productive. *Ne Plus Ultra* is still the best variety that can be sown or grown under glass.

TOMATOES.—Those raised early ought now to be quite strong enough for their final shift. When kept in small pots in a badly root-bound state the plants become hard and spindly, from which unsatisfactory condition they are not quickly recovered. The first cluster of fruit ought to be borne within 1 foot of the soil in either pots or beds, but this will not happen if the plants are neglected in any way. The quickest crops are generally obtained from pot plants, the heaviest and most continuous from those given more root-room, whether this be in tubs, boxes, or ridges of moderately rich loamy soil. In the former case, a single plant should have a pot not less than 10 inches in

diameter, and a pair a pot 12 inches and upwards across. Lightly drain these, and pot deeply and firmly, leaving fully one-third of the space for filling up in the form of top-dressings later on. The same remarks also apply to tubs and boxes, it being found that occasional rich top-dressings serve to keep the roots active and the plants healthy and productive. Any to be fruited in the body of the house, that is to say, uprightly and either set on back walls, staging and floors, are best kept confined to a single stem, all side shoots being pinched off as fast as they form. Place strong stakes to the plants, train them before they get crooked, and above all let them have good room and as much light and sunshine as possible. A temperature ranging from 60° to 65° by night, with an increase of 10°, or rather more, in the daytime ought to suit them well. Those planted out, and in fact all that are over-luxuriant, ought to be kept rather on the dry side at the roots when in flower, and the more shy setters especially may well be fertilised with the aid of a camel's-hair brush.

TOMATOES IN PEACH HOUSES AND VINERIES.—Although good crops are obtained from plants trained uprightly, a far heavier weight of fruit is more frequently obtained from those trained on a roof not far from the glass. They also succeed well against back walls if these are not unduly shaded and moderately well against the ends of fruit houses. Only partially furnished Peach houses and vineries ought, therefore, to be turned to good account in the production of a few or many Tomatoes. The former especially must be very well stocked if room cannot be found for a few Tomato plants either between the front trees or those growing against back walls. Turned out into rich borders the growth is apt to be too luxuriant to be fruitful, and in order to counteract this it is advisable to shift the plants into 10-inch or rather larger pots, setting these on, or partially plunging them in, the borders. The roots will eventually find their way out into the soil surrounding them, and the plants derive as much support as they need from it. If there is room, a single plant may be allowed to form several leading growths, a free extension also favouring production. The back walls of partially furnished vineries may well be closely covered with Tomatoes, and the greater portion of the body of the house could also be utilised for their culture in the case of newly planted vineries. A Vine border would be far too expensive and rich for Tomatoes, which, therefore, ought to be planted thinly and very firmly in poor loamy soil. W. I.

FRUITS UNDER GLASS.

PEACHES.

THE principal work in the early house will be dis-budding, heeling down, and thinning the fruit, three operations which, to a certain extent, may be carried on conjointly. Disbudding, of course, claims the earliest attention, and the prevailing evil being overcrowding, a free hand should bear until the shoots are reduced to the proper number. When well disbudded, heeling down to keep the young growth in line with the yearling shoot is entirely mechanical, but thinning the fruit must be conducted with care and judgment. All inferior and badly placed fruits, including the weakest of triples and doubles, and any that are pendent, of course, come away first, that is, provided there are enough and to spare with points facing upwards. This choice of a full crop of Peaches with cheeks to the sun in a great measure depends upon the way in which the trees are managed up to the time of fertilisation, for if all the under side flower buds be retained, not only are they most accessible, but the pistils being below or on a level with the anthers, they have two chances where those above may be neglected. The master of the art, on the other hand, who draws his finger down the under side of each flowering shoot assists Nature when the fertiliser is bound to operate upon the best flowers in the best position. When thinned and swelling freely the trees will require an

abundance of tepid water, and on fine days they may be well syringed when the morning temperature begins to rise, and again after closing; 56° to 60° at night, and 70° to 75° by day, with plenty of fresh air, are safe and suitable figures, but much depends upon the weather, for just now we have very sharp frosts with cutting east winds, conditions which justify a minimum of 50°, especially as these cold nights are succeeded by bright days, when without the aid of fires the house will require incessant attention to prevent a run to the danger point of 80°.

Succession houses.—The forcing of these is comparatively easy work, as the front ventilators may be kept wide open throughout the day, the rise and fall being regulated by extending or reducing the openings at the apex. The trees may be well syringed twice on fine days when not in flower, and plenty of atmospheric moisture will support and strengthen the delicate organs during the period of fertilisation. All late houses not yet in bloom may be very freely ventilated, and assuming that speed is not the object, the night temperature may descend as low as 40°. If the roots are inside, the first show of colour in the flowers indicates a favourable time for another supply of tepid water; also for the final smoking, an operation which must not be neglected. Constant repetition of these matters of detail to the initiated may appear superfluous, but when correspondents state that they sulphur the hot-water pipes for checking "honey-dew," there is nothing for it but plodding away at the calendar.

STRAWBERRIES IN POTS.

As the main crop plants will now be on the move and the sun is gaining power, those on exposed shelves must be examined every day, as no after care can make up for an insufficient supply of water. The foliage, too, must be well syringed, and when the scapes are well up the plants may be greatly assisted by the removal of a few of the inferior flower-buds. Those retained will then open bold and perfect, but before this stage is reached the house or pit must be carefully fumigated. A temperature ranging about 45° at night and 55° by day, 60° with plenty of fresh air will bring the plants on quite fast enough, as confinement fosters fly and elongates the leaf-stalks.

Earlier plants in the various stages from setting to ripening must be treated in accordance with former directions, the main points being a low temperature until the flowers open, a brisk, buoyant atmosphere with plenty of fresh air until the fruit is set, timely thinning, copious syringing and good feeding during the period of swelling, and removal to a dry, warm, airy structure for a few days at least to perfect the flavour. Strawberries swell rapidly and attain their largest size in Pine stoves or other close, highly heated structures where they colour well and pass for being ripe, but delicious aroma, the true test of quality, cannot be secured without the aid of dry warmth and plenty of fresh air.

All early Peach houses and vineries should now be cleared of plants, and being so subject to spider and mildew, all danger of their infesting the permanent occupants must be prevented by scrubbing the shelves and limewashing the walls.

HARDY FRUIT GARDEN.

PEACHES.—Although the sharp dry frosts have produced a most acceptable check, the bright sun by day has rushed the buds forward to the bursting stage. Training and nailing in, consequently, have been hurriedly performed, and in not a few gardens the great anxiety just now will be the protection of the flowers. If three-ply fishing nets are used, they must be kept about 3 feet away from the wall at the base and the width of the coping-board at the top, as the trees will require attention before they can be removed; hence the necessity of ample space for moving backward and forward. The screen, moreover, being a good distance away from the wall will enclose a great volume of dry infiltrated air, an important matter in the protection of the flowers. Enclosing air with a fishing net may

appear paradoxical, and yet a blind composed of miles of twine is accepted by all gardeners as a powerful preventive of injury from sharp morning frosts. The blossom, no doubt, is the tenderest part of the tree, but if kept dry through the night and shaded from sun after frost, the flowers, especially those nestling close to the brickwork, will stand several degrees with impunity. Apricots, Pears, Plums, and Cherries should have protection, and, taken at all points, I question if three thicknesses of netting will not form the cheapest and most satisfactory covering that can be found for wall fruit trees.

STRAWBERRIES.—Assuming that the winter dressing of rotten manure or mixed compost has been lying rough and loose upon the beds now for some weeks, and that the recent frosts have reduced the stiffest particles, the whole mass should now be broken down and raked over. If not already done a light sowing of soot may be cast over the whole surface of the plantation, or, lacking this, a mixture of wood ashes and lime, whilst stimulating the old stools, will act as a deterrent to slugs and snails quietly biding their time for mischief. When the beds are put in order, an occasional soaking with superfluous liquid from the overflowing tanks will do them no harm, and they will be ready for the usual covering of fresh litter, as it can be obtained from the stables.

NEW PLANTATIONS formed last August also will require attention, the most important work being firm treading to solidify the frost-raised soil about the plants. The Dutch hoe on a dry day will check surface weeds and let in warmth and air, and if at hand, half a peck of old Mushroom manure placed round the collar of each plant, whilst keeping in moisture, will favour the development of bold foliage and flowers, the forerunners of good fruit. Young plants which have been kept in nursery beds through the winter should be put out early in April. The ground having been well manured and deeply worked, it must be made level and very firm, of course when the weather is dry. Planting may then be proceeded with, allowing 2 feet from plant to plant, and 2½ feet between the rows. Fruit must not be expected this season, but the thrifty vegetable gardener will know how to turn this highly cultivated ground to account. Those who do not may plant autumn-sown Tripoli Onions in single lines, or successional crops of Cos Lettuce 18 inches apart.

W. C.

AMERICAN NOTES.

Viburnum pauciflorum.—This pretty species, which attains a height of 3 feet or 4 feet only, might, according to the *Garden and Forest*, be described as a dwarf V. Opulus, with small cymes, terminating short, two-leaved, lateral branches, and without the showy neutral ray flowers of that species. It is a widely distributed northern plant, inhabiting cold, moist woods from Labrador to Alaska, extending south to the high mountains of Northern New England, the Saskatchewan country, Washington, and to the Rocky Mountains of Colorado. *Viburnum pauciflorum* has recently been introduced into the Arnold Arboretum, where it has not, however, flowered.

Water Lilies.—A tank for these aquatics should have a depth of 4 feet, with a length and width according to convenience, and it may be built in any part of the greenhouse where room can best be spared. Cement is one of the most durable materials for this purpose, and at the same time it has a neat appearance. The walls should be 8 inches thick, with holes in the bottom large enough to draw off the water when required, and these may be stopped with wooden plugs, which should be long enough to stand above the soil. A 4-inch pipe round the tank will easily raise the water to a temperature of 80°, the warmth which is necessary, but if the tank is more than 12 feet in width it would be advisable to put in an extra pipe. Good loam to the depth of 1 foot should be placed in the bottom, with a little manure added. To ensure an early supply of flowers the bulbs should be planted early in February, putting in enough tepid

water to cover the soil, and increasing the quantity of water as the plants grow. An essential point in the cultivation of Water Lilies is pure water—*i.e.*, water which has not become stagnant—and this can be secured by inserting a small overflow pipe through the wall of the tank near the top and running in fresh water once or twice a week. The following are a few of the varieties which can be used to make a good display: *Nymphaea cerulea*, *N. Devonensis*, *N. alba candidissima*, and *N. zanzibarensis*. *Nelumbium speciosum* is also a handsome aquatic in a heated tank. A good display may be made out of doors in summer in a cool tank with the following plants: *Nymphaea odorata*, *Aponogeton distachyon*, *Lymnocharis Humboldtii*, and *Pontederia crassipes*. These, with the exception of the last, may be planted in tubs or baskets and placed in the tank; the *Pontederia* does not require any soil about the roots, as it floats on the surface of the water.—*Garden and Forest*.

Anemone blanda and **Iris Bakeriana** are excellent winter-blooming plants. If potted at intervals from August to September and housed afterwards in a greenhouse, they may be had in flower from November to February. *Anemone blanda*, a near relative of *A. apennina*, is a native of the Levant, and has the advantage over the latter of flowering in the open air four or five weeks earlier—that is about the second week in March—with me. The plants form a low mass of palmate, much divided leaves, and the deep blue flowers are from three-fourths of an inch to an inch in diameter. *Iris Bakeriana*, a native of Kurdistan, was introduced by me only two years ago. Treated in the same way as the *Anemone*, it will flower at the same time. It is a near relative of *I. reticulata*, has lavender standards, white falls blotched with blue, and a deep blue-black tongue. It is powerfully violet scented when the sun shines upon it, and is very beautiful on account of the harmonious colouring of the flower.—MAX LEICHTLIN, in *Garden and Forest*.

The Epiphyllum as a rafter plant.—A plant of *Pereskia aculeata*, says *American Florist*, was planted eight years ago under a side bench and trained to a rafter of the greenhouse in the Bussey Institute. The following March pieces of the *Epiphyllum* were grafted on the *Pereskia*. After the first year the graft began to grow rapidly, and now presents a most charming sight hanging from the centre of the house. It measures from top to bottom 47 inches, and from side to side 41 inches, forming an almost perfect ball. Since Christmas I should say there have been picked from the plant over 1200 blooms and it is still thickly covered with flowers and buds, having at this time nearly 500 blooms. The plant has had no especial care except occasional tying to keep it from falling. It has one enemy, the mealy bug, but by syringing the plant during the summer months this can be got rid of. Nice pot plants can be obtained by growing the *Pereskia* a foot or so in height and then grafting them, and the following winter drooping heads of fifteen to twenty blooms will be the result. The grafting is easily performed, as it consists merely in opening the hardened stock either on the side or top and then putting in the scion, which can be held in place by a thorn of the *Pereskia*. [There is also a specimen of the *Epiphyllum* similar to that described in the *Cactus house at Kew*.]

The Chinese Sacred Lily or Joss Flower, according to the *American Garden*, is very variable in its character. We have distributed a large number of bulbs this season apparently all alike, and, so far as we know, their treatment has been similar, but the results have been quite different. In one dish were planted three bulbs, one of which gave three enormous spikes of bloom; the second gave six spikes, but the size and number of the flowers were much smaller; the third gave four spikes and the flowers were perfectly double, but in all other respects similar. The first-mentioned we consider decidedly the most desirable.

Hypericum Kalmianum.—*Hypericum Kalmianum* was one of the first of the American St. John's Worts described, having been discovered by the

Swedish botanist, Kalm, whose name was bestowed upon it by Linnaeus, probably at Niagara Falls, which he visited in 1750. It is a straggling bush, growing to a height of 2 feet or 3 feet, with rather contorted four-angled stems, covered with thin, exfoliating reddish bark, slender two-edged branchlets, and crowded oblanceolate pale leaves 1 inch to 2 inches long. The flowers are bright yellow, an inch across, and begin to open early in July. The pods are ovate and five-celled, a character which best distinguishes this species from the nearly allied *H. prolificum* of the Middle and Western States, the pods of which are three-celled. *H. Kalmianum* is rather a rare plant, being confined to lake and river cliffs from the Falls of Niagara, where it is found on Goat Island, to the Northern Lakes. Like the other shrubby *Hypericums*, it is an excellent garden plant, although less showy in flower than some of the other species. They all bloom at midsummer, when few shrubs are in flower, and grow easily, flower profusely, and are not particular about the treatment they receive.—*Garden and Forest*.

STOVE AND GREENHOUSE.

GLOXINIAS.

AMONG summer-flowering stove plants, few, if any, are more showy and useful than Gloxinias, which have been very much improved of late years, as instead of the small flowers we used to see, we now have them of great size. Not only are the flowers now of a larger size, but they have been much improved in substance and rich and varied colours. At one time there were none but the drooping kinds, and here again the improvement has been very marked, as there has been quite a transformation, these having given place to erect varieties (a finely grown plant of which is here shown), which are all in favour at the present time and deservedly so, as instead of hiding their beauty they display their fine form and rich shades and markings to the greatest advantage. Some of the named sorts of these are really grand, and those who desire the very best should buy plants or bulbs and start them at once, as by so doing they may be had in flower early, and not only that, but it is very likely that the roots will admit of division, and thus a quick increase may be effected. If not in this way, it may readily be done by propagating from the most forward leaves either put in entire or divided by cutting through the middle. To start dormant plants of Gloxinias that are fresh bought in they should be potted in small pots in sandy soil, that which is most suitable being peat and loam in about equal proportions, or leaf-mould and the latter in the same degree. When potted the crown of the bulb should be kept just level with the top of the soil. The proper condition for this at starting is only just moist, as the plants do not require water till they show leaf, and then it is necessary to give it very sparingly, or the bulbs if kept wet will rot. Any that are in stock and have been wintered in pots are best started without any disturbance, by being left in the soil as they are, the only requisite to get them to move being a little moisture and a brisk heat. As soon, however, as young shoots from the crowns show, it is necessary then to stand them up near the glass to prevent them from becoming drawn. At the stage mentioned it may easily be seen if all or any admit of division, and if so, no time should be lost in cutting them through, which may be done with a knife. It is a good plan then to dust the cut part with charcoal. To assist in this as well it is requisite to keep those portions dry for a few days or a week, and they are sure to heal and soon form root, after

which their growth will be rapid. The way to increase Gloxinias by means of their leaves is to take off any of the most forward, so as to secure a short piece of stem at the base of each. If this is cut clean across without any bruise, no further preparation is needed, and they may be inserted at once. The sized pots most suitable for this are $4\frac{1}{2}$ -inch, which should be well drained and filled with sharp sandy soil, and the leaves put in close around the edge. This done, the best way then is to water to settle the sand, and plunge each pot in another a little larger, when if covered with bell-glasses to fit over the leaves, roots will soon be formed. To aid them in doing this they should have a nice shaded position in a warm house, but be so placed as to have plenty of light. Unless the leaves are put in very early in the season they will not do much the first year by way of making plants and flowering, and it is generally as well to leave them without any disturbance till the following spring, then start and pot in the way already referred to above.

If a number of Gloxinias are required, they



A well-grown erect-flowered Gloxinia.

may quickly be had by raising them from seed, and if this is sown at once they will flower before the end of the summer. To make sure of getting them up it is necessary to be very particular about the preparing and sowing, the chief thing being the pressing and perfect levelling of the surface of the soil in the pots or pans and the watering after, as none should be given or needed when the seed is sown. If so, the seed is almost sure to be washed away or in too deep for it to germinate, as owing to its exceeding fineness it will not bear covering, and if it has any at all, only the thinnest particles of silver sand should be sifted between.

The next point is to cover with a pane of glass, as this is very important, for the keeping perfectly close in that way not only preserves a regular degree of warmth, but it prevents evaporation, and thus maintains an equable moisture till the seed germinates. The want of this is why so much good seed fails, as alternate wet

and drought do not suit it, and often when it has sprouted the drought kills, as it has not had time to get hold of the soil.

I regard the glass covering, therefore, as almost indispensable, and besides that it is also a good plan to shade with a piece of brown paper over the top, as it shuts out light; but it need hardly be said that the paper should be removed as soon as the seed germinates. The proper position for the pans or pots, then, is on a shelf up near the glass in a house, with a moist temperature varying between 70° and 80° . In such a situation, with such conditions, the progress of the young plants will be rapid, and as soon as large enough to handle they should be pricked off and stood in a similar place as before, and kept sprinkled or damped to give them a start. The next attention they will require is to be potted singly, and this should be done into small 3-inch pots, from which it will be necessary to shift into $4\frac{1}{2}$ -inch pots later on, and in these the plants may be allowed to bloom, as they will be quite large enough the first year. As soon as their beauty is over the plants

should be gradually dried off, and in autumn or winter laid on their sides in any house with a temperature ranging about 50° , where they will be quite safe till the spring.

S. D.

Rhododendron formosum.

—Among the more prolific blooming of the Himalayan *Rhododendrons* must be included this species, which with ordinary care and attention will flower well each year. It forms a free-growing much-branched bush, plentifully clothed with bright shining green leaves. The flowers are white, tinged more or less with purple, principally on the outside, while the inside of the upper segment is blotched with yellow towards the base. Besides being, in common with nearly all the tender members of the genus, a very suitable subject for planting out in a cool greenhouse or conservatory, this *Rhododendron* will do for pots, and flower well when not much more than a foot high. Large specimens in pots or tubs will keep in health and bloom for years without repotting, provided they have been properly potted in the first instance. This *Rhododendron* is also known

under the name of *R. Gibsoni*, and one distributed a few years ago as *R. assamicum* appears to differ little, if at all, from the type. Of course, where seedlings are raised, a certain amount of variation is to be found, but there is little doubt that the three mentioned above may all be referred to one species. In common with most of the other free-flowering *Rhododendrons*, especially those with white blossoms, *R. formosum* has been employed by the hybridist, and two of the grandest *Rhododendrons* we possess, viz., *R. fragrantissimum* and *R. Sesterianum*, were obtained by intercrossing *R. formosum* and *R. Edgeworthii*. This last is remarkable for the woolly tomentum with which the under sides of the leaves are densely covered, but which is, however, not to be found in the hybrids, though their foliage is far more hairy than that of the other parent, *formosum*. The flowers of these two are large, widely expanded, of the purest white, except a stain of yellow in the centre, and most deliciously fragrant. Both are certainly somewhat straggling, unless frequently stopped during their earlier stages to make good bushy plants. I have also seen them used for cover-

ing a greenhouse wall and furnishing a pillar.—H. P.

Isoloma hirsuta.—This plant bears the greatest resemblance to the *Tydaea*, and as in its case may be induced to bloom at almost any season of the year. *I. hirsuta* is of a somewhat rambling habit, and if needed as a pot plant should be pinched back freely during its earlier stages in order to ensure as far as possible a bushy style of growth. The blossoms are about 2 inches in length, and of a bright vermillion colour, with the entire plant, stems, leaves, and flowers thickly covered with brownish hairs. It may often be increased by division of the roots, or cuttings of the young shoots will strike without difficulty, but they should be really rooted before removing them from the close propagating case, as the top will often grow before any roots are produced.—T.

Salvia boliviana verticillata.—Each season this showy Sage forms an attractive feature among other plants in bloom in No. 4 greenhouse at Kew, yet it does not seem to be generally cultivated. This Sage is a free, bold-growing kind, with bright green, wrinkled foliage, broadly heart-shaped, and about 8 inches in length. The individual blooms are rather small, but borne in dense racemes, composed of whorl after whorl of brilliant scarlet flowers. Like the rest of the genus, it is easily grown, and may be struck from cuttings in the spring, which should be potted off as soon as rooted, and when all danger from frosts is over they may be planted out, or, if preferred, kept in pots and shifted on as required. This last is as a rule the more satisfactory, as when plants are lifted in the autumn they are often apt to lose much of their foliage.—H. P.

Aotus gracillima.—Amongst the Australian greenhouse plants which flower at this season there are none more graceful or pretty than this, referred to in *THE GARDEN*, March 15 (p. 247). The great amount of care which is needed to keep many of the New Holland plants in good condition is the main cause of their scarcity in gardens now-a-days compared with what was the case fifty years ago. No one, however, need fear failure with this *Aotus*, which flowers as freely and is as easily grown as *Acacias*. It was originally introduced to Kew from the Swan River region, by Mr. James Drummond, upwards of fifty years ago. The habit of the plant is similar to that of a slender free-growing *Epacris*. Shoots over 2 feet in length are made in a single season, the terminal half being so thickly set with the small flowers as to form a cylindrical mass almost hiding the minute dark green leaves. The species belongs to *Leguminosae*, and the Pea-like flowers are bright yellow with a few veins of brownish red. After flowering, the shoots should be cut back to within a few inches of the old wood, and the plants placed in a moist and rather warmer temperature until the young growths are an inch or so long. If necessary, the plants should then be repotted, using a compost of peat, leaf-soil, and silver sand. As the *Aotus* prefers rather small pots, this should not be done until the old ones are well filled with roots. When fairly started into growth, it will thrive in an ordinary greenhouse.—B.

Palms in the open air.—In *THE GARDEN*, March 8, p. 234, attention is drawn to the practice of exposing Palms to the effects of our variable climate. The writer takes exception to their use for the sub-tropical garden during the summer, but even for this purpose I think their use should be limited to a few of the hardier sorts. With the great variety of material which we have at hand, I consider that there is no necessity to place any tree, shrub, or plant out of its proper element. I think the greatest objection to the use of stove and tender greenhouse plants for the open-air garden is that it does away with any distinctive difference between the indoor garden (call it conservatory, greenhouse, or what you may) and the open-air garden. In fine weather no one cares much for being under glass, the beauties of Nature outside being more attractive, but in bad weather it is pleasant to enjoy plants under glass, and if we keep things in their proper places we find something fresh to

look upon, wander where we may. Another disadvantage arising from the use of Palms outside is that during the winter months the Palm house has to be crowded up with a lot of ragged, untidy plants, instead of being arranged in an attractive manner with clean healthy specimens. There are some people who seem to think that so long as a plant will live outside, even though it may be only a lingering existence, it is out of place under glass. Of course, there are many of our greenhouse plants which under favourable conditions are remarkably beautiful in the open air, but where they are seen once in good condition, they may be found twenty times in a miserable state.—F. H.

CHOICE ÆCHMEAS.

This genus includes many handsome species, both large and small growing, and when I purchased the *Æ. Marie-Régine* from my friend, H. Wendland, in Hanover, for Mr. Williams, of Holloway, I thought this is a plant which must captivate the hearts of my countrymen at home and lead to the cultivation of *Æchmeas*, but it did not. Now, however, I hope to see them take the position they deserve, judging by the numerous inquiries I have to answer about them. There is nothing difficult or peculiar in their cultivation more than I have stated in the notes on *Tillandsias*. I shall name a few of the larger-growing species of the genus, hoping to have to go into further details later on.

Æ. MARIE-REGINE.—This is a bold and handsome green-leaved species, forming broad, stoutly armed leaves some 2 feet to 3 feet long and nearly 3 inches broad; they are green on both surfaces, slightly dotted with some whitish scales. The inflorescence is stout and erect, the lower part furnished with large oblong boat-shaped bracts of great substance. These are of a rich, bright magenta, with a slight shade of rose, last for many weeks in full beauty, and have a very pleasing effect, the upper portion being thickly studded with blooms, which, however, are small and less showy than the bracts. They, however, form a beautiful contrast and addition to them. In a young state they are of a bluish violet, which with age becomes pale rose. It was first flowered in this country twenty years ago by Mr. Williams, of Holloway. It is a spring bloomer, and comes from Costa Rica.

Æ. LÆLINDEI is a similar plant to the preceding, introduced from New Granada a little more than twenty years ago, and it is also known by the name of *Æ. gigas* in Belgium. The leaves are channelled, somewhat spreading and slightly recurved at the tips; they are green, slightly dusted with a white powder, and each is from 3 feet to 4 feet in length, the edges being armed with short spines; the flower-stem is erect and stout, bearing on the top an oblong spike of small greenish white flowers, which are tipped with rose. The large reflexed bracts are bright red and sharp-pointed. It is one of the most desirable amongst the large growing kinds.

Æ. CÆLESTIS.—This is another somewhat large grower, with plain green leaves on the upper side, but somewhat obscurely banded with a transverse line of black beneath. The leaves are each some 12 inches or 18 inches long, armed on the edges with small black spines, peduncle erect, stout, as long or longer than the leaves, bearing a dense branched panicle of flowers, which are white, tipped with pale blue; the bracts small and rosy red. It comes from Brazil.

Æ. DISTICHANTHA.—A species which is beautifully figured in the *Botanical Magazine*, t. 5117. It is a plant with long narrow leaves, which are each from 24 inches to 30 inches in length, and not more than an inch wide. They are plain green above, slightly powdered below with white, and armed on the edges with long black spines, which are more or less hooked and somewhat distant. The peduncle is erect, about 2 feet high, bearing a dense oblong panicle of flowers; the bracts are

small and red, the flowers being numerous and of a beautiful purple hue. This plant, which thrives under cool treatment, comes from Paraguay.

Æ. BRASILIENSIS is a somewhat similar plant; it, however, differs in being shorter in the leaf, and in the spines on the leaves being closely set and erect; the peduncle is of a coral-red, whilst in the previously named plant it is rose-coloured. The flowers are of a lilac tinge. It comes from Southern Brazil.

Æ. GLOMERATA.—This species has been in cultivation about thirty years; its leaves are each some 18 inches long, plain green, armed on the edges with medium-sized black spines; the peduncle is erect, bearing a much-branched panicle of bright red bracts and small flowers, the latter being tipped with bluish-violet. This plant when well grown makes a very elegant specimen. It comes from Brazil from the neighbourhood of Bahia.

Æ. MELIONI.—This is another fine old species, which it appears has been in cultivation about half a century, although I fear very few plants of it are now to be found in collections. The leaves are each some 3 feet in length and nearly 2 inches broad, plain green, armed on the edges with stiff black teeth; the panicle is erect, and the flowers large and of a bright red. It enjoys abundance of heat and moisture, and comes from French and British Guiana.

Æ. FULGENS.—This is an old and very handsome species. I have had specimens each bearing nine and ten heads of flower. Its leaves are shining green, each 1 foot or 18 inches long with small teeth; the peduncle rises from the centre and is erect, bearing a branching raceme of brilliant coral-red flowers tipped with bluish-purple in the variety *discolor*; the under side of the leaves is of a deep vinous-purple. Both these varieties are natives of Brazil and Guiana.

I hope Bromeliads will be taken in hand by one of the many plant growers in England.

W. H. G.

USEFUL PLANTS FOR A COLD HOUSE IN SPRING.

THE following will help to keep a cold house gay with but little trouble or expense: *Myosotis dissitiflora* is most useful when taken up in large patches in autumn and potted or grown in boxes, placing them under glass at the end of the year. We have some now (end of February) in $\frac{1}{2}$ inch pots covered with bloom, and they are most useful for house decoration or for cutting from. I remember some years ago having seen a grand mass of this *Forget-me-not* in one of the houses at The Wilderness, near Reading, very early in the year. Mr. Lees told me it was much sought after as cut flowers.

Double and single Wallflowers are very useful, and give a delicious scent when brought on under glass early. These, too, are very useful to cut from. In one place I had to provide these sweet-scented flowers quite early in the year to cut from for house embellishment. *Iris stylosa* and *I. reticulata* are both most useful in pots. *I. reticulata* I had in bloom at the beginning of the year in a cold house. I grow the bulbs in 8 inch pots, placing from twelve to eighteen bulbs in a pot in early autumn. This *Iris* is most beautiful to cut from for house decoration. I have just cut a good handful from the open border. This *Iris* thrives grandly in a sandy soil. I have seen fine patches several feet across in a garden in one of the coldest parts of Norfolk early in March. *Primula erosa*, again, is a most useful plant; its heads of purplish white with powdery substance rising above its green leaves make it a most distinct and useful plant for a cold house. *Primula floribunda*, with its yellow flowers, is very beautiful in spring. This, associated with the ever-blooming *P. obconica*, makes a pretty contrast. Not less beautiful is the Abyssinian Cowslip, *P. verticillata*, with its long trusses of lovely yellow flowers arranged in whorls. These three kinds can be easily raised from seed, a method they succeed best under when sown early in spring. *P. rosea* is charming, good, strong clumps

in pots in early spring being very effective. Nor can we forget the lovely *P. viscosa nivalis*, known as the Snowy Primrose. This is lovely either in or out of doors. It thrives in rock gardens, or in borders in shade.

Doronicum Clusi is most attractive by its freely produced yellow Marguerite-like blooms. Most of the above may be grown successfully by anyone in the open, placing them under glass in autumn to forward and protect them in early spring.

Forde Abbey.

JOHN CROOKE.

Anopteris glandulosa.—For a glass structure where during the winter months frost is just excluded, this, in common with many other Australian shrubs, is at home, and produces its terminal racemes of pure white, saucer-shaped blossoms in winter or early spring. This *Anopteris*, which is also known as the Tasmanian Laurel, forms a somewhat upright, stout-growing specimen, clothed with deep green leathery leaves, so that even when out of flower it is ornamental. Its cultural requirements are not great, for a mixture of loam, peat, and sand will suit it perfectly, but it dislikes to be scorched up during summer. Cuttings of the half-ripened shoots are by no means difficult to strike, though they often stand some considerable time before they root. This *Anopteris* is a shrubby member of the Saxifrage family, though at the first glance it would seem to be more nearly related to the *Vacciniums* or *Andromedas*.—T.

Tinnæa æthiopica.—The small dark-coloured blossoms of this shrub are even when numerous not particularly attractive, but they emit a most delicious violet-like perfume. This *Tinnæa* will often flower more or less throughout the year, but blooms most freely during the spring and early summer months. Though introduced a quarter of a century ago, and possessing the delicious Violet-like perfume so agreeable to everyone, it is rarely met with, and that not from any difficulty attending its successful cultivation. It forms a much branched shrub with ovate leaves. Though quite different from most members of the order, *Tinnæa æthiopica* is a representative of the Labiatae and a native of tropical Africa, being named in honour of Mlle. Tinné, a traveller in that region. It will grow well in ordinary potting compost in a moist stove, and its propagation is easily effected by means of cuttings, put in anywhere during the growing season.—H. P.

Shading plant houses.—Sufficient importance is not attached to this matter, and it not infrequently happens that plants are spoiled through being shaded too much. In all the market nurseries it will be found that very little shading is used; in fact, some of the best plants taken into the market are grown fully exposed to the rays of the sun. Of course, plants grown under such conditions require more attention, and in private establishments it is not always convenient to give such careful attention, yet in all cases where dwarf sturdy plants are appreciated shading should be used as little as possible. The most desirable method of shading, of course, is the use of blinds made to roll up, and these require some attention. It is always desirable to let them down before the sun is fully on the house, especially in the case of flowering plants, as if the sun strikes on the flowers when a little damp it will take out the colour. Shading should be regulated something in the same way as ventilating, and I always like to open before the houses get too warm, and close early or before the sun is quite off. It is quite as necessary that the blinds should be let down early and rolled up before the sun is too low. If blinds cannot be employed, something less expensive has to be substituted. Lime is much used, but a great objection to this is that it is difficult to remove off the glass in the autumn. I prefer either whitening or flour. The latter may be made by using 1 quart of flour to 3 gallons of water, and putting on the mixture with a syringe. This will form a nice shading without obstructing the light, which is so essential to good plant growing. Where the shading can be put on with a brush, I should recommend whitening. If mixed with boiling milk and put on while fresh it will

last pretty well through the season, and can be easily washed off in the autumn, especially after the first frost. Green colouring is sometimes used in shading, but this is, in my opinion, one of the most objectionable practices that can be imagined. The use of green glass is equally objectionable, for not only does it obscure the light, but it also casts a sickly pallor over everything seen under it. Although plants may look greener under such shading, it will be found that when brought out into daylight, they will have quite a different appearance.—F. H.

POTTING HARD-WOODED PLANTS.

The repotting of plants that are at all of a delicate nature is always attended with some danger; more especially is this the case with the fine-rooted section, such as Heaths and many of the New Holland hard-wooded species. However carefully the operation may be carried out, numbers of the delicate fibres get injured more or less. The soft extremities of the roots are quickly broken or bruised, so that with all the care that can be brought to bear on the work some injury is unavoidable. The safest time to repot is when root action has begun, so that new fibres will quickly be formed to take the place of those that suffer. In the case of most of the greenhouse species and varieties this root movement commences in spring and continues through the summer, and with some kinds far on into autumn.

In spring when the root action commenced, and again about September when the air begins to be cooler and contains more moisture, and there is yet time for the roots to get established in the new material, are the best seasons for potting the various kinds of plants that are liable to suffer in the way named. Taking the majority of the greenhouse and stove kinds, spring is the season which answers best for potting much the greater number. Still it is safe to say that where a fairly representative collection is grown, there is not a month in the year when some or other of them do not require potting. This will be easily understood if we consider the widely different conditions in climate, and the equally different seasons at which the various kinds naturally begin to grow, coming as they do from so many different parts of the world. Within my recollection many growers of hard-wooded plants used to defer potting until towards the end of spring, or early in summer after the flowering was over. But where the work is carried out after the hot weather has set in, with the dry condition of the air consequent thereon, there is much greater danger of the plants suffering. After trying both early in the spring, say during the first half of March, and in the summer, and in September, I have found that the first and the last times named are much the best and safest, especially for Heaths. In the case of large specimens or any that have got big enough to make their flowering a consideration, one naturally hesitates to pot them before they have bloomed, as however cautiously the operation may be performed there is danger of the flowers going blind. This being the case, it is often better to put off the potting until September. One of the advantages of repotting hard-wooded plants early in the spring or at the beginning of autumn is, that at these times the temperature of the houses does not run up so high through the limited amount of air given, consequent on the necessity for keeping the ventilators closer than ordinary for ten days or a fortnight after the potting is carried out. In the summer, even when the roof is closely shaded, without giving more air than it is well to subject newly potted hard-wooded

plants to, the heat rises to a point that is calculated to do harm.

In potting plants of all kinds, hard-wooded as well as the soft-wooded sorts that are less impatient of injury to their roots, it used to be looked on as necessary to loosen the ball so as to admit of the roots being spread out in the new soil, without which it was supposed they would not succeed. When this was not done, the outside of the balls, where all the best and most active roots lay closely packed, were picked over with a pointed stick or something of a like description. The result of this was that half the roots so placed were broken. Popular errors are hard to remove, and this barbarous mutilation is even yet sometimes supposed to be the right thing to do. It has caused the death of more tender-rooted plants than any other practice that I can call to mind. Whilst the light potting that at one time found some advocates was in fashion, there was a reason for this loosening of the old balls, with its accompanying destruction of roots, as when the new soil was left loose, the water subsequently given naturally passed off through the fresh material without penetrating the old ball, so that it soon became so dry that the plants could not possibly remain in a healthy state. All the disturbance of the roots that should ever take place in potting hard-wooded greenhouse plants is in getting away the drainage crocks, and this should always be effected with as little disturbance as possible. Respecting the new material, the only reasonable course is to make it as close and solid as the old ball. If this is not done, the ball, as a matter of course, gets too dry for the roots to work in it.

Another piece of advice that used frequently to be given, the adoption of which with newly potted plants of a delicate rooted nature not unusually caused their destruction, was to water immediately the potting was done with the object of settling the soil. The water thus applied at once came in contact with any roots that were broken before they had time to heal, the result being that they often decayed further back than the point where they were injured. In place of proceeding in this way water should be withheld as long after potting as it is possible without endangering the health of the plants through the soil getting drier than the roots will bear. To prolong the time between the potting and water being given, the potting should be carried out a day or so after the plants have been watered; this will give time for the superfluous moisture to pass off. It is scarcely necessary to say that the soil should be in right condition, neither too wet nor too dry. If in the former state, it will form a solid impervious mass into which the roots will never enter freely or continue healthy in. If it is too dry, the obvious result will be that it absorbs the moisture from the old ball, so as to make watering necessary sooner than it should be. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Allamanda violacea.—I was pleased to see the coloured plate of this distinct and seldom-seen species in THE GARDEN of March 3 (p. 224). I remember the time of the introduction of the plant about 1863, and also the interest that was then evinced in it, by reason of the novel colouring of its flowers, as compared with that of the well-known yellow-flowered varieties. I am persuaded that there must be two varieties of *A. violacea*, one much inferior in colour to the other, that from which Mr. Moon made his drawing being much the better one of the two, with an absence of "dirty salmon-purple" to be seen in the other kind.—J. H.

Forced Rhododendrons at Canford Manor.—These are forced in great numbers at Canford, and

the mass of bloom in the conservatory at the present date (March 8), and which Mr. Crisp informs me has been maintained for the past six weeks, shows how much can be accomplished with these useful plants if not given too much heat. As soon as the first flowers began to open, the plants were removed to this structure and have given an immense quantity of bloom. They are massed in large groups, intermixed with tall Palms, and on the outside of the groups are smaller Ferns and other flowering plants.—G. WYTHES.

Azalea Deutsche Perle.—When growing this fine early-flowering Azalea, I never observed in any instance the failing noted by G. Rouse, in THE GARDEN, p. 235. Azaleas flowering, even in a natural way, so early in the season need a little more warmth than a cold house affords them, especially if the weather is very cold. Fumigation would cause it in all probability if a strong dose were given, so also would an excessively moist atmosphere with a stagnant soil at the roots. When the plant has finished blooming, should any of the flowers open at all, I would advise that it be examined at the root to see if there is anything the matter there; then, after re-potting in good peat and sand, keep the plant growing in a moist and rather warm house for a time, and fully expose it later on to obtain a well-ripened growth and a good set for flower during another season.—J. H.

Cochlostemma Jacobianum.—The spike of this plant sent by "S. W. S." is a very fine one, denser and more compact than the one shown in our illustration recently, which had evidently been taken from a somewhat drawn-up specimen. I have seen the same form, but much regret that we now so seldom see this and many other fine flowering plants and shrubs in our plant stores. Can anyone tell me, for instance, why this plant is so much neglected? It is handsome in or out of flower, and when in bloom it is magnificent; added to which it is easily grown, and I may say, without fear of contradiction, that it is one of the very handsomest plants that M. Linden has ever introduced.—W. H. G.

Centropogon Lucyanus.—This Centropogon blooms from October to the present time, and there are still many buds yet to expand. During the dull autumn and winter months its flowers are most welcome. It is generally grown as a bushy specimen, when it forms an effective pot plant, but besides this it thrives well when treated as a climber, and used for furnishing the end of a glass structure or in some similar position. It must not be used for large houses, but will reach a height of 6 feet or thereabouts. Few plants are less troubled by insect pests than this, for though the foliage may be sometimes attacked by aphides a gentle fumigation will soon destroy them. Where it is intended to grow on some specimens for flowering during the coming autumn and winter no time should be lost in putting in the cuttings, if this has not already been done, as, in common with many other somewhat quick-growing subjects, such as Eranthemums, the best results are obtained when the plants are not pushed on too rapidly during the summer, but encouraged rather to make good sturdy growth which may be depended on to flower well.—T.

Two good Palms.—A beautiful Palm when in fruit is *Synecanthus fibrosus*, the only introduced species of a small genus, and hailing from Central America. A specimen may be seen now in the Palm house at Kew, and is well worth a note, as an excellent example of this Palm when in fruit. It is bearing, on a pendent stem, a number of rich red fruits, each about the size of a small Plum, and giving a distinctive beauty to the plant. It is a tall Palm, about 4 or more feet in height, slender, and with spreading terminal leaves. It is also in flower as well. Treatment similar to that given to the *Chamedorea* is required. In the same house in full flower is a plant of *Ravenia Hildebrandti*, which was found in the Comoro Islands at a height of 4000 feet. It has the habit of a *Chamedorea*, and the numerous spikes of creamy white flowers are so strongly scented as to fill the house, especially in the early morning, with a pleasant nutty perfume.

Godwinia gigas.—This plant is like most giants, in being remarkable rather for size than beauty. The flower is of extraordinary dimensions; indeed, before the discovery of *Amorphophallus Titanum* it was considered the largest flowered of

all Aroids. At Kew these tuberous Aroids appear to thrive exceptionally well. Last year the *Godwinia* bloomed there, and the odour of its enormous flower had scarcely left the house where these plants are grown ere the *Amorphophallus Titanum* developed its colossal blooms, accompanied also by an odour more penetrating than pleasant. The *Godwinia* is now again in flower, and it was exhibited at the last meeting of the Royal Horticultural Society. The odour is not developed until after the flower has attained full size, which it will do about the end of this week. At present the flower is 21 inches long and 6 inches in diameter, boat-shaped, open only in the upper part, the surface wrinkled, the texture leathery, and the colour a deep maroon-brown, yellowish at the base. The stalk is 15 inches high, the whole being quite erect. The tuber of this plant is as large as a child's head, and the leaf, which follows the flower, has a stalk 10 feet high, as thick as a man's arm, beautifully mottled and barred with purple on a grey-green ground. The blade is large and spreading, as in *Amorphophallus Rivieri*. The *Godwinia* was introduced by Seemann from Nicaragua, and was flowered for the first time by Mr. W. Bull in 1873.

WILD PLANTS AND FERNS AT SELBORNE.

In the March number of *Murray's Magazine* there is a good article on the present state of the parish of Selborne, with the following references to the plants of the district. We quote it to show how well Fern-gatherers of all kinds are clearing the country of their favourites. If they would only think of it, it would be better to let the Ferns grow happy on the walls and in the ditches than to carry them home to die in their windows and gardens. Prizes to encourage people to keep the wild flowers in their places would be better than those offered to bring the flowers to shows.

Many of the plants, it is satisfactory to say, are still to be found in their old localities; but some are, unfortunately, extinct. *Helleborus foetidus* (Stinking Hellebore, Bear's-foot, or Sitterwort) still grows in fair abundance on Selborne Hanger, in spite of the depredations of dealers, who dig it up for sale. *H. viridis* (the green Hellebore) is also to be found in its old locality, the deep stony lane, near Norton Farm. The yellow *Monotropa* (the Bird's-nest Orchis), the common *Helleborine*, and the Spurge Laurel still flourish beneath the Beech trees of the Hanger. In the hollow lanes, *Chrysosplenium oppositifolium* (the opposite-leaved golden Saxifrage) is abundant as formerly. The wild Everlasting Pea still climbs up "the bushes at the foot of the Short Lith, near the path." The beautiful creeping Bilberry (*Vaccinium Oxycoccus*) and the curious carnivorous Sundew both flourish "in the bogs of Bin's Bond;" while a few specimens of *Motherwort* (*Leonurus cardiaca*) may still be found along the "Forest-side."

But *Daphne Mezereum* is no longer to be seen on Selborne Hanger, though it still grows in fair abundance in several copses in the neighbourhood. This shrub is often transplanted by the woodmen into their cottage gardens; and this practice probably accounts for its disappearance from White's locality. The curious Toothwort, though found in the district, has not been seen for many years at Selborne. *Palmonaria angustifolia* (the narrow-leaved Lungwort), stated by White to grow in the "hollow lanes," has not been found since. *Comarum palustre* has disappeared from "the bogs of Bin's Pond." The rare *Tulipa sylvestris* (the wild Tulip) formerly grew in the "Park," the extended meadow between the garden of "The Wakes," White's old house, and the foot of the Hanger. It is, however, no longer to be found there, the lost plant having been removed into the garden some years since. This rare plant still flourishes in an old disused chalk-pit, within a few miles of Selborne. The streaked Field Garlic used also to be found in the same "Park," but this, too, has become extinct. The rare

Man Orchis is stated to have been found on Nore Hill, but the specimen, unfortunately, was not preserved. *Parnassia palustris* has once been found at Oakhanger, which formerly formed part of the parish of Selborne. The Great Bistort, of which in 1848 there was one single specimen "between Oakhanger and Selborne," is now abundant. Many other uncommon plants, mentioned in Professor Bell's list as "found at Selborne," have since been searched for in vain.

White mentions that "the deep rocky lanes abound with Filices," but the Ferns, though abundant, belong to but few species. The practice of digging them up for sale, and of transplanting them into gardens, is fast becoming fatal to our rarer species. *Osmunda regalis* (the King Fern) until quite lately grew in a ditch at Oakhanger and in the Devil's Punch-bowl at Hind-head; in both localities it is now extinct. Neither *Asplenium Ruta-Muraria* nor *A. Ceterach* grow any longer on "the church wall." The common Moonwort has not been seen on the "Common" for many years. It is to be feared that *A. Trichomanes* will be searched for in vain near "Temple," and *Lastrea Oreopteris* in Dorton Wood. There is certainly plenty of scope for the energies of the Selborne Society, in the locality from which it takes its name.

GARDEN FLORA.

PLATE 745.

ABUTILON VEXILLARIUM.*

THERE are few plants of greater service in the garden than this. For the conservatory it is valuable both as a foliage plant, its prettily marbled leaves being decidedly ornamental, and for the sake of its brightly coloured and durable flowers. Even in a stove it is quite healthy; indeed, the variegation of the leaves is most pleasing when they are grown in heat close to the roof glass. It is also largely used for summer bedding, both in carpet designs and as a front row to large groups. It has few equals as a drooping plant for large vases out of doors, and it is, moreover, as easily propagated and grown as Ivy. In addition to all these uses, this *Abutilon* has still another and most important one, namely, as a wall plant in a south position out of doors. The pretty picture Mr. Moon has made was prepared from a plant which clothes a low wall looking south at Kew, and it has been in this position without any protection whatever since it was planted, now six years ago. Here it makes annually long, wand-like shoots, clothed for their whole length with beautiful, drooping, urceolate flowers. Last year it commenced flowering in June, and I gathered a few perfect flowers from it on Christmas eve. There can be no question whatever as to its hardiness in situations as favoured as Kew is.

The positions for which this plant would prove suitable are numerous. One can imagine it growing over a house front and flowering all through the summer. It requires pruning in spring and should then be let alone. The plant at Kew was the variegated variety when it was planted in its present position, but the variegation has gradually disappeared, until now the whole of the leaves are green.

* Drawn in the Royal Gardens, Kew, Sept. 13, 1889, by H. G. Moon, from a plant on the open wall. Lithographed and printed by Guillaume Severeys.



IPOMOEA VERNICATA L.

That the treatment out of doors is suited to it will be clear enough to anyone who compares the leaves and flowers in the picture with those of a plant grown under glass.

This last statement suggests a question of more than ordinary interest just now, namely, how far we are justified in experimenting on plants with a view to discovering the range of conditions which they will bear, more especially in regard to temperature. When writing of *Zephyranthes candida* a few weeks ago, I quoted Dean Herbert's remarks on the fact that a plant found only in hot valleys and plains along the La Plata should prove quite hardy in England, whilst those species found in cooler localities were less hardy here. *Abutilon vexillarium* is another instance of the same kind. It is known only as a native of Rio, one of its names, viz., *megapotamicum*, or great river, referring to its habitat on the Rio Grande. When introduced in 1864 it was cultivated in stoves, the figure in the *Botanical Magazine* having been prepared in 1868 from a specimen grown in the Kew Palm house. From this it got into the greenhouse, then into the summer flower garden out of doors, and now finally it is grown, and grown well, as a permanent wall plant in the open air without any protection. The name *vexillarium*, or standard-flowered, was given to this plant by the late Prof. E. Morren, of Liege, who first described it in 1864, because of its colours, yellow and scarlet, representing the national colours of the Belgians.

Abutilons have been a good deal improved of late years, chiefly by Mr. George, of Putney, and Mons. Lemoine, of Nancy. Mr. George's seedlings are remarkable for the size of their flowers and their brilliant and varied colours. The first good hybrid *Abutilon* was *Boule de Neige*, which was obtained from a nurseryman in the south of France by Messrs. Standish and Co. and distributed in 1873. Neither the raiser of this plant nor its pedigree are known. Singularly enough, the Royal Horticultural Society has never certificated it, notwithstanding its undoubted merit even now when there are so many other hybrids or seedlings in cultivation. Mr. George began operations with *A. Darwini* and *Boule de Neige*, obtaining his first pod of ripe seeds from this cross in 1876. Since then he has raised dozens of really beautiful and distinct kinds, many of which have obtained certificates.

So far, however, *A. vexillarium* has not been employed by the hybridist as the possible parent of good varieties. Perhaps Mr. George will think it worth his while to cross this species with some of the large-flowered kinds. *Abutilons* as hardy as this and as varied in colour and size as those which have been raised from *A. Darwini* and others would be a real gain. W. W.

Feeding tomtits.—I have read the note by an "Amateur Gardener" in *THE GARDEN*, March 1 (p. 193) on feeding tomtits. I have been in the habit of doing the same thing for years, but I tie my fat and

meat on a perch instead of putting them into a wire cage. I find that blackbirds and thrushes are continually on the perch, and also, what is more extraordinary, starlings.—J. NOBLE, *Chateau de Thorenc, Cannes, Alpes Maritimes.*

ORCHARD AND FRUIT GARDEN.

LOOPING UP THE SHOULDERS OF GRAPES.

CONJOINTLY with thinning, the grower of large bunches of Grapes performs the operation of drawing up the shoulders. Opinions differ as to whether any advantage is, or is not, derived from this process, and, judging from the ridiculous extreme to which shouldering is frequently carried, opponents have many very strong cases in their favour. When an intelligent man's heart is in his work and he thoroughly grasps one's object, he, as a matter of course, leaves all small, medium, and good ordinary bunches in their natural form, knowing quite well that the berries in such bunches cannot bind; but when an animated machine is furnished with wire pot-hooks or matting, he not unfrequently converts pretty little clusters into skeleton guys through which one might fire a bullet without touching a berry. This may be termed the ludicrous side of the business, and the sooner it is given up the better, as any well-thinned bunch weighing less than 2 pounds, aided by an occasional raising of the shoulders just to prevent the locking of the berries, will expand upwards as the berries immediately below them require room. Mr. W. Thomson, I believe, of the Tweed Vineyard, never ties up the shoulders of his thousands of bunches; but then he is a master of the art, and can see at a glance where the introduction of his pencil will give relief, and that without disturbing the bloom or destroying the perfect contour of the clusters. The varieties, again, including *Lady Downe's*, *Mrs. Pince*, the old *Muscat*, and others which produced long taper bunches with a straight central axis, are capable of developing a certain number of berries, but, each berry being held by its short stalk, no amount of shouldering can afford benefit. The larger clustered kinds, on the other hand, including vigorous *Hamburgs*, *Alicantes*, *Gros Colman*, and *Trebbiano*, which produce numerous large shoulders, may be assisted by tying up, especially if the greatest possible weight be an object. The reason for this is not far to seek, as I have seen, over and over again, men clipping incessantly at the centres of very large bunches, removing scores of berries which another would have been able to retain by the preliminary process of shouldering, and yet, when finished, although considerably reduced in weight, the non-shouldered bunch presented a crowded, yet helpless and flabby appearance.

When tying up the shoulders is considered necessary this operation should precede thinning, care being taken in the first place that the bunch be firmly secured to the wire, and a few thin pieces of split lath also secured to the wires to form a framework for receiving the ties. Then, assuming that the bunch is to be made as large as possible, each shoulder may be drawn upwards and outwards to an extent that will reduce the labour of thinning, and yet if judiciously managed the berries retained will fill up without binding. In this way when an exhibitor I have prepared my best bunches of *Hamburgs* by drawing up the shoulders until the stalks were completely hidden, and a piece of string had to be passed round the wood before we could cut the ripe clusters for boarding. The bunches, nevertheless, invariably filled up to weights ranging from 3 lbs. to 6 lbs. each,

and so compact were they, that, barring accidents, I could warrant their travelling any distance without receiving spot or blemish.

The choice of materials for use as ties is entirely a matter of taste, some giving preference to thin pieces of soft, pliable wire, which can be bent into miniature pot-hooks, whilst others run light flat bands of raffia under the stem of the shoulder, then over the lath immediately above it, and tie in a bow for the convenience of future regulation. The worst tie of all is the finely twisted thread of matting which we sometimes see closely tied to the stem and secured above. Bunches so manipulated look very neat, but in three ways this method is objectionable, for, in the first place, the operator cannot attach them without touching the berries with his fingers; in the second, being so thin and thread-like they are apt to cut the stalk as the weight increases; and last of all, a pair of finely-pointed scissors must be introduced, often with difficulty, when the time arrives for removal. I always use flat bands of matting, pass them under the stem, over the lath, and tie; they never cut, and when snipped through near the top they can be drawn without touching or disturbing a berry. The art of shouldering, like that of thinning, is attained by patient practice, and the adept at one, as a rule, is an expert at the other. The main point, I may repeat, is dextrous manipulation without touching the berries with the flesh or hair. Young men should wear light, close-fitting caps when working amongst Grapes. The greatest abomination is the broad-brimmed deerstalker. W. C.

PROTECTING THE BLOSSOMS OF FRUIT TREES.

SOME years ago I accidentally came across a garden hidden away in a district not often trodden by the foot of the stranger, and saw what to me at least was rather a novel way of protecting fruit tree blossoms. I have seen the same idea carried out in another garden since, so that perhaps after all there was no novelty in it. It was in a woodland district where there was plenty of underwood. The gardener went into the nearest plantation and cut down such branches of Hazel, Elm, and Birch as suited his purpose, selecting those that were well furnished with twigs, made a hole with a crow-bar and planted them in the border in front of the trees. It was rather a primitive system and looked rather peculiar, but I was told it answered the purpose, and as the branches were used afterwards for *Kidney Bean* sticks and other garden purposes, there was no waste of material, and they would, therefore, come cheap. Thick warm covers made of wool, hemp, or cotton are expensive, and they unfortunately have a habit of wearing out speedily, and in windy districts the annual cost for repairs where there are several walls to cover is considerable. Many gardens are naturally so well sheltered by surrounding plantations, that it would be a waste of money to buy expensive coverings. I know places where two thicknesses of fishing net are found ample protection, and where such is the case it would be a waste of money to buy anything more substantial, as heavy coverings, unless absolutely necessary, are generally injurious, because the least amount of protection that will secure a crop is better than more. To a certain extent, of course, as regards the weather we are working in the dark, but where the garden is in a sheltered situation and not absolutely in a hole (which is about the worst position a fruit garden could occupy), any protection that breaks up the cold currents, if the wall is provided with a good coping to throw off the wet and check the downward frosty current, is better than heavy curtains that involve a good deal of work in putting on and taking off night and morning. I have had curtains fitted with rings which ran along a wire fixed to the wall at the top, and when drawn at night were tied to poles fixed in a slanting position

against the wall. Where heavy coverings are necessary this plan is as efficient as any. But when the trees are in vigorous health and the wood well ripened in autumn to secure blossoms of full average size and substance, a very simple covering will suffice to ensure a good set of fruit. Every garden wall should be provided with a good substantial stone coping to keep the wall dry. When the wet penetrates the wall from the top, it will in the course of years descend a considerable distance down the wall, and trees never do so well against a damp cold wall.

E. H.

DESSERT PEARS.

THE season now drawing to a close has been with me (West Middlesex) one of a most satisfactory character, both as regards the quality of the fruit grown and also the abundant crop. Some few kinds certainly have not borne so well as usual. To this category belongs Pitmaston Duchess more particularly, but, taken as a whole, the crop has been one of the best in my experience. By far the greater portion of the trees under my charge are well advanced in years, and but few trained against walls, most of them having been planted between 1850 and 1860, and some still longer. In spite of their age and the nature of the soil (light loam resting on gravel) the trees continue to thrive, and with very few exceptions annually yield good crops of fruit, which, though not of the largest size, is notwithstanding of excellent quality. I have yet to learn that mere size is the most essential desideratum in dessert Pears, or indeed in any other dessert fruit. Large-sized fruit are not certainly so economical: they may do and undoubtedly look well for special occasions or on the exhibition tables, but they are not so useful for daily supply. Large fruits of late kinds of Pears rarely, if ever, ripen so well as medium-sized samples; hence at times they have to be used for stewing. Large fruits look well and are undoubtedly creditable to growers, but they do not serve such a useful purpose as those of medium size. With our somewhat uncertain seasons and the possible contingency of an unfavourable spell of weather, the advantage is all in favour of the medium-sized fruits as regards their proper maturation upon the trees. Whilst they are perfecting themselves the sun's rays are losing their power and beneficial effects upon the fruit; hence, in my opinion, a medium-sized fruit has a far better chance of developing to the utmost extent than a larger one. Only twice in fourteen years have I known our crop to be a poor one, and even then it was only partially so. On entering upon my present charge I found the old rule-of-thumb practice of summer pruning (and that apparently severe) had been in vogue; this combined with heavy dressings of manure had induced a gross growth in some trees, whilst others were suffering badly from canker. I ceased manuring at once in nearly every instance, and as soon as I knew my trees and their tendencies I ceased to prune almost entirely, relying more upon a judicious thinning out of the weaker wood. By this means I brought about a better state of fertility and ultimately cleared the trees of canker also, which latter I believe had been caused by the rich dressings and the strong growths produced thereby. I find in my case that the plan of thinning out the weaker wood at the winter period of overhauling the trees has answered well, while the usually good crops always keep down any tendency to a gross growth without any need of resorting to root pruning. The canker was worst on trees of Louise Bonne of Jersey and Beurré Rance, a specimen of which I send for your inspection, the old spurs near to where they were affected having disappeared long ago. These trees were some few years in recovering, but now they amply repay for the patience bestowed upon them at the time. In the case of Josephine de Malines more than in any other kind was the change of treatment most observable. The common mistake of many who do not know or will not observe its peculiarities, viz., that of close pruning, which does not suit it at all, had been pursued with the trees of this variety. The finest samples of this Pear are always

produced on the terminal buds of the young growth of the previous year; this brings the shoot downwards in a drooping manner and it thus causes the formation of a cluster of fruit buds for the next season's crop. Bushes of this kind will rarely if ever produce good crops from spur pruning. Spare the knife, therefore, and let the trees have more liberty if hitherto no satisfactory crop has been obtainable. Jargonelle does well under the same mode of treatment. I have a tree which I should think is quite fifty years old and that now always bears well. It was originally a horizontally trained tree against a wall (west aspect); the wall was now wanted for climbers. The branches of the tree, then non-productive, had no attractive feature to recommend their retention. I therefore cut them off close to the main stem and planted the climbers near to it, and amongst which it is now enveloped so as scarcely to be seen. From the top of the old stem strong growths shot upwards above the wall, and now reach a height of about 15 feet above it. The new growths of this old tree have been most productive of fruit of good quality. Every spring it is a beautiful sight, its well-known extra large and pure white flowers being as ornamental as those of many trees that are grown solely for their flowers, with the double advantage in its favour of a good crop of fruit afterwards. This tree has never once been pruned since its side branches were lopped off, and I do not contemplate its being done at all. With this experience of the Jargonelle I would say to those who possess it, yet who are not satisfied with the returns from trees against walls, "Go and do likewise," with one exception only—if it be an outer wall the fruit would eventually be a temptation to passers-by.

Before passing from the treatment of trees, I would take note of two which grew in a garden in mid-Sussex some years ago. One was a fine tree of Gansel's Bergamot planted on an east aspect, where it covered a good extent of wall. A leader was taken over the wall to its western side, from whence the finest fruits were mostly to be had, and the larger number also, these being, too, of extra flavour. The other was a tree of Autumn Bergamot, planted against a north wall, and a leader taken over in a similar manner to the opposite side, as much fruit being taken, as a rule, from the one side as from the other; yet the space taken up was not more than one-fourth as compared with that on the side where the tree was planted. I have noted the same thing in other places. During the season now drawing to a close the following sorts have kept up the supply since the third week in July. The season before, the fruits of Doyenné d'Été came in useful, just as the Strawberry season was at an end. Jargonelle, from the tree previously alluded to, carried us on with good fruit of average size until the first of the Williams' Bon Chrétien were ripe from off a wall, the season of this variety being prolonged from bush trees. The next to ripen was Beurré d'Amanlis, a heavy crop of fine fruit, which, being gathered at different periods, considerably extended the season of its usefulness. Thompson's, always of the finest flavour with us, was the next to follow (fruit rather below the average size, but very juicy). This kind lasted well until Louise Bonne of Jersey commenced to ripen. The gathering of this at intervals helped to lengthen its season, the fruit taken from a tree previously bad with canker being the finest. The next to ripen was Marie Louise, which was ripe before those of the previous kind were over; the chief of these partook of that russetty character which, in my opinion, enhances its beauty, to say nothing of its flavour. Beurré Superfin, of superior flavour, was a capital succession to Marie Louise, and lasted in good condition a considerable time. Swan's Egg, from an extremely old tree, came into use about the same period as the aforementioned. If the feathered tribe may be accepted as judges of what is good among fruits, this variety deserves more notice than it receives, for I have noticed that the birds, especially thrushes, blackbirds, starlings, and jackdaws, are very fond of it. It is of very good flavour here and generally bears freely. Duchesse

d'Angoulême this past year ripened well, and was the next to come into use; it was not, of course, devoid of that grittiness at the core to which it is so liable, but far better than for several seasons, on this occasion serving a good purpose. Beurré Clairgeau, like the preceding from bush trees, was the next for use; though not to be classed as a first-rate Pear, it always ripens well with me. Glou Morceau, a partial crop only, succeeded the last named Beurré, and stopped the gap between that and Josephine de Malines, which lasted in good condition for eight weeks. Beurré Rance, which with some cultivators does not ripen and has to be used for stewing, with me is always good, very refreshing in flavour, juicy, and melting; it attains to medium size on large bush trees and bears well. This keeps well when ripe and does not, like autumnal Pears, come in with a rush. Ne Plus Meuris, with that warm brown colour indicative of good flavour, as against green samples which are inclined to be of a bitter taste, is a very useful variety. Knight's Monarch, with its rich aroma, has been good, but rather small in size; it makes a nice change, but is liable to drop prematurely from the tree. Had I the space at command, I would (if desirable) plant Josephine de Malines more extensively. I fully believe, with proper cultivation and plenty of room between the trees, so that each could fully develop, that it would be a most profitable variety for market culture. It is of hardy constitution and forms a handsome tree if treated right from the commencement of its existence. All late Pears, to ripen them well, require a temperature a few degrees above the average of the usual fruit room.

J. H.

PEACH TREES.

I WOULD like to elicit the opinion of some leading outdoor Peach growers as to the value of withdrawing all nails and allowing the wood of Peach and Nectarine trees to fall away somewhat from the wall at this season of the year. I was in a garden recently where all the nailing had been finished, and the gardener was congratulating himself that such dull and monotonous work for the men was all accomplished. Certainly there were a very large number of trees on the walls, and the labour so great that it was easy to understand, even so far as the south walls were concerned, that it would not do to leave work of that kind over till the spring. In another garden so recently as the 20th ult., I found the Peach trees without a nail, although not falling away from the walls, as is sometimes seen, nor tied away purposely, as is also sometimes the case. The trees were in capital condition, the wood well ripened, and covered with bloom-buds, and none too advanced. Still I could not, on comparing them with trees not so loosened, realise that the deferring of the work of nailing till March was likely to render these trees more productive than others. I should therefore much like to learn what is the usual practice of successful Peach growers in this direction. Some gardeners work very much by rule of thumb, adopting a practice because they have seen others do it, but still not proving more successful on the whole than others who adopt a diverse method. If in the case to which I refer the trees had been tied well away from the wall, I could have understood that such action might check bud development, but such was not the case. We know very well that early development one year naturally conduces to early motion the next, and therefore early development in wall trees which have been so influenced in previous years seems to be almost inevitable, even though loosened from the walls. Then there is in regard to checking bud development the exceeding uncertainty which hangs over the spring weather. We may get much more excellent weather in March for bloom fertilisation than in April, and the forward trees would then come off best. Bright sunny days, even if the nights be rather cold, yet the air dry, are better for the setting of bloom than is a time of excessive dullness, cold easterly winds, lack of sunshine, and generally a low temperature. There is no certainty

whatever that April will be better than March anywhere, but, of course, we look for greater warmth in April. All the same, the looked-for result does not always follow. During the winter we found January to be on the whole much warmer than February, and March may be warmer and more favourable for the fertilisation of the flowers of Peaches than April. If such be the case, the trees which have not been checked will come off best. It would be an excellent time also to discuss the subject of protection for wall trees when in bloom. There are still growers who get good crops of fruit from wall trees who give so little, if any, protection by means of blinds or netting to the trees, that it would seem as if protection was not so indispensable as is usually imagined. The matter is worth a little consideration, and doubtless the points in outdoor Peach culture to which I have referred will not fail to receive full attention.

A. D.

IS THE RIBSTON PIPPIN WORN OUT?

A CORRESPONDENT says, "The truth probably is that the variety, never a very robust grower, is becoming worn out, and when it is taken into consideration that it has been in cultivation for nearly 200 years, this is not to be wondered at. Forty or fifty years ago the fruit was much more plentiful, and complaints about canker, &c., seldom heard." I am not old enough to contradict or corroborate from personal experience the last statement as to quantity or freedom from canker, but with increasing years I become more convinced that the distant date of origin is beside the question, whilst neglect on the part of the propagator and mismanagement on that of the cultivator have brought the Ribston Pippin to its present unpopular condition. Time, as a matter of course, carries individual trees, including the Oak and Elm, through progressive stages, until bit by bit they return to the earth or are cleared away by the woodman, but young trees grow as freely now as they did a thousand years ago. Why thus should this Yorkshire Apple be exempt from the ills other trees are heir to? Until within the past twenty years the stock invariably used for the Ribston Pippin was the deep-rooting Crab, and once its whip-like thongs got into cold, wet, or hot and dry subsoils, back went the trees badly affected by canker. Cultivators half a century ago rarely thought of root-lifting or replacing the exhausted soil with fresh compost, of draining, of cleansing, and thinning, notwithstanding the fact that the late Mr. Knight, the exponent of the drying-out theory, lived to discover that canker might be checked, if not cured, by frequent lifting and the addition of fresh compost. Messrs. Tonks and Douglas, in their excellent practical papers read at the Royal Horticultural Society's Apple Congress held in 1888, proved that canker can be prevented and cured by the performance of the above operations, and giving back to the soil the exhausted elements of lime and soda. Propagators within the memory of the present generation have proved over and over again that our oldest varieties may be maintained in health and vigour by repeated grafting with carefully selected scions, or better still by budding, an operation closely akin to raising seedlings. The falling off in the quantity of Ribston Pippins, if falling off there be, may be traced to three causes—first, the neglect of the thousands of Crab stock trees planted out when the variety was in high favour; second, the introduction of other good sorts; and last, the facilities for sending the produce from heavy croppers to distant markets. If examples of the unimpaired perpetuation of varieties and species were required, they might be given to any extent, but confining myself for the present to Apples, I may say the Golden Pippin, at one time mourned as lost, is growing here as freely as a Codlin. Our oldest varieties of cider Apples, including the Foxwhelp, the Styres, the Garter Apple, and many others given up by growers some thirty years ago, have been restored to vigour and are now in commerce. Shortly after I came to live in this county an enterprising firm applied to me for grafts of the best old sorts of Apples and Pears. Many of these old trees, laden with Mistletoe and Lichen, untrimmed and ne-

glected and standing at death's door, gave but very poor samples of wood, so poor indeed and destitute of buds, that I felt shame when sending my consignment away. From these miserable branches the propagator made stock by grafting, and in due course worked up healthy trees, a fact fully bearing out the old saying that "an ounce of practice outweighs a volume of imaginary theory." The wearing-out theory is as old or older than the Ribston Pippin, not yet two centuries old, no great age as compared with that of some other Apples which have been kept in health and vigour by regular working upon suitable stocks. It did not originate with, but was revived by the late Mr. Knight, died away, and will spring up again as neglected varieties fall behind in the struggle for existence. The Ribston Pippin, notwithstanding the popularity of its powerful rival, Cox's Orange Pippin, will survive, and give plenty of good fruit too, but it is one of those varieties which requires managing, especially when worked on the Crab stock planted over a cold heavy subsoil. On warm mellow loams this stock may be used, but for this particular Apple, the Crab, tried and found wanting, has seen its day, as nurserymen are now turning out thousands of sturdy fruitful trees budded on the Paradise.

W. COLEMAN.

GRAFTING FRUIT TREES IN THE HOME NURSERY.

THE question of grafting is at the present day apparently a long way from being settled unanimously, seeing the conflicting opinions expressed by the various writers on this knotty subject in horticultural and other newspapers. That grafting has been abused, all are ready to admit, but, on the other hand, and as regards fruit trees generally, what shall be said of those who say that grafting is radically wrong? It is my honest conviction (based on not a little experience) that the methods that have been suggested of getting up stocks of fruit trees from cuttings, layers, or, more uncertain still, seedlings, will utterly fail.

I frankly own that I have knowledge of many subjects that are abused in grafting, but mostly outside of fruit trees, conspicuous amongst which are coniferous trees, evergreen and deciduous shrubs, Tea Roses, Clematises, Acers, &c., resulting in considerable injury to the constitution, hardihood, &c., of the subject, with the consequent loss to the purchasers thereof. The operation of grafting should not, however, be held responsible for all the after-consequences, but rather the peculiar system adopted, with all its rapid forcing and unseasonable operations. For instance, notice the various families of hardy coniferous trees; how the seedling stocks approved by the grafter are potted in autumn or early winter, plunged into brisk bottom as well as top-heat in a close propagating frame as soon as operated upon, and when the graft has taken, the plants are withdrawn and gradually hardened off. This is all contrary to the natural habits of the tree, although the operation itself is a great success, and enables purchasers to obtain the trees at cheap rates. Coniferous trees, Acers, Rhododendrons, seedling Briers, and numerous others are subjected to this treatment, and success so far is accomplished, but very possibly at the cost of a weakened constitution, and adverse effects upon natural hardihood and longevity. Of course, if the public insist upon having cheap trees, which are slow and expensive to produce legitimately, this over-rapid production is calculated to accommodate them so far.

I have so far digressed from my original intention, for it is with the grafting or budding of fruit trees, principally Apples, Pears, and Plums, that I am concerned. In their case grafting is an absolute necessity. Moreover, there is no other plan of expeditiously raising fruit

trees of the above kinds. I prefer budding to grafting for standard orchard trees, whilst for pyramid or bush trees, those grafted branch out the best. There is very little difference in the quantity or vigour of after years' growth, whilst the union of stock and scion is as complete and kind in the one case as in the other. Budding should be done from July to September inclusive, according to state of the bark, for it is worse than useless attempting to bud when the bark does not rise freely and easily. If done in the latter half of August or early part of September, the buds remain dormant till spring—the most desirable state.

Grafting is most successful in April, and it is well to keep the grafts in a cool shady place, stuck in by the heels singly (not tied up in a bunch, or the air dries them) till the stocks show signs of pushing growth. In order to destroy the eggs of winter moth and other obnoxious insects, we dip our grafts in Gishurst compound, 8 ounces to a gallon, or other insecticide before putting them on. I should add, that in the case of young stocks, they are worked quite close to the ground, and it is possible own roots may be developed from the junction in after years.

The selection of suitable stocks for each respective fruit opens up a very wide question, and requires both skill and judgment, for upon this hinges success or failure. For Apples, I prefer so-called Crab stocks raised from Pippins out of the "must" or cider refuse. These stocks must undergo perfect preparation before working, as I consider a few removals of the straight, sleek, vigorous-looking Crab stocks is money and labour well spent, thus converting their objectionable tap roots into a multitude of wiggly, fibrous feeders, resembling those of a Box or Privet; in other words, doing the necessary removals of the stocks before grafting, in preference to root-pruning the trees afterwards. The late Mr. Wildsmith, previous to his last visit here, was sceptical upon this until he saw the results, which at once convinced him of the superiority of the above plan, notes of which appeared in THE GARDEN (Vol. XXXV., page 79). I also use the English Paradise broad-leaved stock for dwarf choice bush trees, a purpose for which it is eminently suitable, besides being useful for grafting any choice seedling kinds on, or as a means of expediting the proving of new kinds. I dislike removing maiden trees, that is those one year grafted, when it can be avoided, and especially if they have to be taken some distance. Of two maiden trees purchased from a distance, the grafts of the one, if cut off and grafted on to our prepared stocks, would at the end of the year form a superior tree to the other maiden, that may be planted alongside. Of course, in this case there is also the advantage of securing several trees of a new kind at very moderate cost. Standard trees of Pears are generally worked on the wild Pear stock, raised either from seed or from suckers, but choice kinds intended for walls, cordons, or bushes are worked upon the Quince. There are several kinds that do not succeed on the Quince. The wild Pear does not increase its fibrous roots by removal so readily as does the Crab stock. For Plums I find nothing better than the Pershore, the Mussel, and the Myrobalan, each of which is raised from suckers or root cuttings, that is, the root cut up in pieces about 2 inches to 3 inches in length and slightly covered with soil. Buds put on the former have been known to make shoots 7 feet in length in one season. This kind is largely grown for preserving purposes around the dis-

trict whence it takes its name, and when full height standard trees are required, it is found advantageous to bud or graft it close to the ground with its own bud or graft, when the desired result will soon be obtained, as the stock will send up a fine strong stem straight as a gun-barrel, which it will not do otherwise. This must be a point in favour of grafting, at any rate; but, as with other complex matters, where practical intelligence and skill are brought to bear, success is ensured. But where the opposite is indiscriminately done, evils present themselves in proportion. I always select stocks that start or go away vigorously, destroying all miffy or delicate seedlings. My experience of stocks bought in is unfavourable.

It is part of my business to produce not less than 1000 trees annually of standard and dwarf Apples, Pears, and Plums for permanent planting and to be supplied gratuitously to farm and cottage tenants on these estates. The quality of the trees being to me of most importance, gives me comparatively a free hand for a few experiments from time to time, and the consequent establishment of a trial ground where over 200 named kinds are located for trial, the majority of which will never obtain sufficient marks for propagation; but amongst their number are several local kinds possessing considerable merit. There are also several supposed best American kinds from imported grafts, but yet unproven.

By having the above described stocks I find that young trees of approved kinds can be so easily and expeditiously produced and brought into early bearing condition, that I have lost faith in the beheading and grafting of old trees, which, as a rule, are weakened by the operation, unless the trees thus dealt with are comparatively young, in robust health, and on good, sound drained land. I have noticed many indifferent and uncertain results therefrom, although there are exceptions. I know of one large grower, an authority in this county, possessing one of the largest and best young orchards, containing many healthy vigorous trees of Blenheim Pippin, which he is about to behead and graft with local sorts. One cannot help questioning the wisdom of this step, but the owner is a shrewd man and knows his business thoroughly. Of course it is a financial question with him, and for Apples that keep sound, firm, handsome, and well flavoured, when the season of Blenheims is over, he finds a better and more lucrative demand. With such a sample of healthy trees this style of grafting not old trees with stout two or three-year-old wood grafts upon the wedge-grafting principle will doubtless be successful and expeditious.

The system I prefer of grafting our young stock is that known as tongue or whip-grafting quite close to the ground, and the later in the month of April the better, always provided that the buds on the scions are not too forward. All being in readiness, proceed by cutting off the stock to within 3 inches or 4 inches of the ground, withdraw the loose soil, and slice, by an upward cut, a piece off the side; } he beheaded stock, about 3 inches in length, beginning at nothing and ending from a quarter of an inch to half an inch in depth of cut, make a small incision in the top of the said cut of stock, take a scion, well ripened, of last season's growth, selecting a 6-inch length and cutting a slice off its side as near as possible the duplicate of that previously cut off the stock, but if the stock and scion are of unequal sizes, care must be taken that the two barks do exactly fit on the one side, the most important point of all; cut a slight tongue in the scion to fit into the incision

on the stock, bind both stock and scion together moderately tight with raffia or soft cotton waste, and cover over all cuts with prepared clay or, better still, ordinary grafting wax put on warm. Generally, if skilfully handled, 99 per cent. will grow, and in three or four weeks' time the grafts must be gone over to loosen the ties upon the expanding unions. Six lbs. resin, 1 lb. Russian tallow, $\frac{1}{2}$ lb. Burgundy pitch, and $\frac{1}{2}$ lb. red ochre will, when dissolved over the fire, make enough best wax to graft 1000 trees.

It should be understood the above stocks should not have been removed during the previous twelve months, November being always the best month for removing all stocks. Budding of fruit trees planted in the previous November may be carried out the following August, and any failures may be grafted the following April. Budding is an extremely simple operation, and consists in removing a bud from a current year's shoot without any hard wood, and inserting it underneath the bark of an approved stock on wood of greater age, and if plenty of cambium is visible success is more certain. Great care must be taken that neither the bud by extracting nor the inner bark of stock by raising is bruised; bind round with raffia or cotton waste, and complete the operation as expeditiously as possible. The bud will remain dormant till spring. The stock should be shortened to about 20 inches above the bud, and the piece so left will form a convenient support to train the growth of the bud, thus saving staking. Of course, the growths springing out of the stock must be kept rubbed off as they appear. The bud should be inserted as near the ground as possible.

Madresfield Court, Malvern. W. CRUMP.

Orange culture at Jaffa, according to Consul Gilman, has become an industry of great value. Of the 9000 acres of cultivable land pertaining to the community, 3000 acres are covered by Orange groves and gardens, and these are all under irrigation. Among the other fruits produced are the Lemon, Lime, Citron, Date, Peach, Apricot, Grape, Fig, Pomegranate, Plum, and Melon, as well as the Olive. All the ordinary garden vegetables are also grown here of good quality and in abundance. Of late, the Vine especially is receiving increased attention and care; extensive vineyards are being planted, and as here the Vine is free from the diseases and insect pests of other countries, and the soil and climate are peculiarly adapted to it, this should be one of the most flourishing wine-producing countries in the world. The Olive does best in the hill country, and generously responds with abundant crops to the slightest care.

Apple Coriander ("B. C. R.," p. 229).—I know something of Worcestershire, but have not met with an Apple known locally as Coriander; neither have I noticed the name in any catalogue or work upon this fruit. The nearest approach to the name is Coriander Rose, one of the numerous synonyms of Court Pendu Plat, an old late dessert Apple, supposed to have been imported from the Continent to Garnons, in the adjoining county of Hereford. This Apple is perfectly round, compressed; skin bright green at first, but changing as it ripens to a bright crimson; flesh crisp, firm, juicy, and richly flavoured, but quite free from the "crimson tinge," and the reverse of the generally accepted term "mellow." The tree is of small growth, very hardy, and a good bearer. It blossoms very late in the spring, appearing quite dormant when all other varieties are in full leaf; consequently it is less liable to be injured by frost, hence another synonym, the Wise Apple. I do not think this can be the Apple to which "B. C. R." wishes to draw attention, but being a superb late dessert variety, equally fertile on the Crab or Paradise stocks, this short notice may be of use to planters who have not tried it, especially as the fruit keeps sound till May, when handsome English Apples should command a good price in the market. Seedling or kernel Apples, I

need not remind "B. C. R.," are as plentiful as Blackberries in these western counties, and this "fair sized, smooth, round fruit, of a deep rich crimson all over, with flesh of the same hue," may be one, as our best authorities do not appear to have made the acquaintance of Coriander. Several Apples with flesh of a crimson hue, including Sops in Wine, Calville Rouge, and the old 'Quarrenden, are known, but in shape they hardly agree with this Worcestershire variety.—W. C.

ABNORMAL ACTIVITY IN VINE ROOTS.

QUITE recently a most phenomenal instance of activity in the roots during what should have been the resting period has come under my notice, and as I do not remember having ever heard of such an occurrence before, venture to think it of more than passing interest. A gentleman in the neighbourhood of Frome, Somerset, who cultivates Grapes and owns to a marked preference for inside borders, decided last September to widen a viney considerably so as to include a considerable portion of an outside Vine border. The house at the time was principally occupied with rods of Black Hamburgh, and the proposed alterations included the gradual extinction of these and the substitution of late varieties without, however, the loss of a crop. The work was commenced soon after the Grapes were cut and while yet the foliage was green and healthy. Fully one half of the old border with the roots found therein had to be sacrificed, partly, I might say principally, to allow space for a new narrow border in which to start young Vines, and from this the Hamburgh roots were to be excluded. The gardener in charge, being a very intelligent man, fully realised that very little could be expected of the old Vines with their roots thus roughly curtailed and nothing but exhausted soil for the rest, decided to still further reduce the old border, a width of about 18 inches being therefore forked away, and the roots that had been preserved relaid in fairly rich loamy compost. The remaining surface of this much reduced and most roughly used border was also loosened, and old soil substituted for that removed. Nor was this work done very expeditiously, but, on the contrary, many of the mutilated roots were unavoidably kept out of soil for several days, or while the structural alterations were being carried out, but they were damped and shaded as much as possible. Now comes the extraordinary part. No sooner were the roots placed in fresh soil than they commenced forming fresh fibres, and the root action has been going on briskly ever since. The foliage duly changed colour and fell away, the ripening process apparently being most satisfactory, but there has been no rest at the roots. At the present time (March 4) long, white quill-like roots are to be seen on the very surface, these having been found underneath several flat boxes that had been stored on the border during the winter. The Vines are now in active growth. They never broke better or more evenly and strongly, and there is every prospect of a superior crop of Grapes resulting.

I have met with a variety of extraordinary occurrences in Vine culture, but though it is no uncommon thing for a crop of Grapes to be taken from hard forced Vines before the roots had hardly become active, I must repeat such an opposite state of affairs or prolonged activity in the roots after the foliage and just in advance of renewed top growth was quite novel, though not so difficult to account for as might at first sight appear. In all probability it was solely the result of subjecting the roots to more warmth than had previously fallen to their lot, a good supply of tempting food putting a finishing touch to this naturally exciting episode. If I am right in my surmise, and I shall be glad to be corrected if I am not, it will further serve to convince me that a little warmth and fresh soil are of the greatest assistance to sluggish Vines, and if more often applied, a far greater weight of superior Grapes would annually be grown in this country. By keeping the rods cool when Vines are first subjected to a fairly brisk bottom-heat, root action in advance of leafy growth results, but in most instances where

early forcing is resorted to there is scarcely any activity at the roots, that is to say, few or no fibres are formed before the primary leaves are nearly or quite fully developed. Cold outside borders are naturally the least suited to early vineries, but they answer very well when the old plan of warming these from the surface with the aid of heating material is adopted. These hotbeds invariably hasten root action, and, what is also of importance, attract many roots to the surface, an early and healthy activity of these being of the greatest service to the crops. In very many instances outside borders are badly stocked with roots, and although they may be heavily covered with manure for both fertilising and mulching, in all probability there are no roots near enough to the surface to be benefited by these regular applications. Not unfrequently it would be more to the advantage of the Vines if the surface of a much manured, I might say systematically poisoned, border was roughly broken up with a fork in time for frosts and other sweetening influences to act upon it. Even if roots could be attracted to the surface of these rich borders, they would soon perish in an inert mass of over-manured and much smothered soil.

Inside borders, as a rule, get more air and sunshine and much less manure. The surface in this case becomes hard, dry, and poor, and is by no means so distasteful to the roots as a lifeless mass of manure-sick soil. In neither extreme is there any likelihood of abnormal activity at the roots, unless it be the rapidity with which they disappear. Additional warmth is scarcely needed for inside borders, these rarely if ever becoming unduly cold, and all the roots want is frequent supplies of fresh loamy compost to keep them active and serviceable. When it is thought desirable to break up a considerable portion of a border in order to relay the roots in fresh soil, the autumn, or while yet the foliage is green and healthy, is the best time to do the work, as in this case many new roots are formed before the resting period arrives. It is also quite possible this late stimulated activity is more prolonged than many of us were at one time aware of. But if the autumn is the best time for partially breaking up and renewing borders, it does not follow it is the only time in the year when it can be done safely and with advantage. I have completely lifted replanted Vines and even transferred them from one house to another in March or just when the buds were moving, and that too without the loss of a crop. Fresh soil they need and must have, especially when the borders are small and have been thoroughly over-run by the roots. The least that can be done is to give a surface dressing of fresh compost at the present time. Old or exhausted soil should be carefully forked away down to the roots and wheeled clean out of the house. To replace this I would recommend a compost consisting of two parts fibrous loam, or the best loam procurable, to one of half decayed stable manure, wood ashes, charred or burnt rubbish, charcoal, and lime rubbish being freely added. Give the border at least 6 inches of this, and mulch with half decayed leaves in preference to strawy manure. If this fresh compost, accompanied by warmth and a sufficiency of moisture, does not promote root activity and a healthier top-growth, nothing will.

W. IGGULDEN.

New Chrysanthemums.—With reference to the note on new Chrysanthemums in THE GARDEN, Feb. 15 (p. 145), the one bearing my name sported here in 1886. This is a sport from Lord Alcester, and has been shown by me for the last three years in all my stands of incurved varieties, and this last season figured in seven first prize stands, open to all England, including the cup stand at Sheffield. It is quite as well built as its parent, and broader in the petal than that sort and rather a stronger grower. The only objection that can be raised against it is that it resembles Emily Dale or Golden Queen of England in colour. Mr. Molyneux grew it on trial last season, and showed it at the Chiswick Chrysanthemum Conference under the name of Golden Queen of England. He wrote me saying that good judges have said that it is the best Gol-

den Queen of England I have ever seen; and I think the same, and shall stick to it for that variety. It incurves so well, and is of such a deep colour. If exhibitors will only show true to name the three sports—John Lambert, Robert Mudie, and John Doughty—that are this year sent out, the question of which is the best can soon be decided.—JOHN LAMBERT, *Onslow*.

ORNAMENTAL VINES.

IN THE GARDEN (Aug. 17, 1889, p. 143) an interesting communication appeared from Mr. Charles Shinn on the wild Grapes of



Grape Vine on Cottonwood in the Tulare region, California.

California, illustrated by an engraving from a photograph of wild Grape Vines in the Upper San Joaquin Valley. The accompanying illustration shows the Californian Grape Vine in the Tulare region, rambling over Cottonwood. Several of the Grape Vines are among the best of climbing plants. The most handsome in foliage are the American Vines, such as *Vitis aestivalis*, *vulpina*, and *Labrusca*, all of which grow so rapidly, that they will quickly climb into the branches of neighbouring trees. The practice of allowing climbing plants to grow in this

way, though frequently illustrated in our woods and hedgerows by the Woodbine or Traveller's Joy, is seldom followed by planters. One instance of this is in the case of the American Vines at Knap Hill, and the Wistarias at the same place. Where climbers are planted close to trees or shrubs, an examination of the natural examples of this style of grouping will reveal the fact that in most instances the roots of the climber are situated at some little distance from the trunk of the tree, and the plant climbs upward by the aid

of supporting branches, and not by the main stem. Of course there are exceptions, in the case of Ivy, for instance, which grows well in the shade, and attaching itself to the bark thus mounts upward in this way. Another exception is when both plants grow up together, as then each takes its share of nourishment; but when artificial planting of climbers is resorted to, if placed against the trunk of a large tree they are simply starved to death. To remedy this, they should, if possible, be planted just outside the radius of branches, selecting a spot where a convenient branch offers ready support. In planting any of the Vines it should be remembered that they are gross feeders, and that a barrow-load of manure will always leave its mark on the ultimate growth. One of the most ornamental of the Vines in leafage is the Fox Grape (*V. Labrusca*) of the United States, a very vigorous climber. Its decaying foliage in the autumn changes to a bright crimson hue, certainly not so vivid as the Virginian Creeper, but sufficiently so to be very conspicuous. The other American Vines, viz., *V. aestivalis*, *vulpina*, *cordifolia*, and *riparia*, with the countless garden varieties raised, are all vigorous in growth and have splendid foliage, but they are very similar. The common Grape Vine (*V. vinifera*) has two distinct varieties, one of which, the cut-leaved Vine (*apiifolia*) has the foliage deeply lobed. According to Loudon, this kind has been in cultivation since 1648. The second variety is *purpurea* (the Claret Vine), the foliage of which in the early part of the season is slightly reddish, but towards the end of the summer becomes of a much deeper hue. The Amur Vine (*V. amurensis*) is a strong-growing Vine. The leaves are, on strong specimens, each as much as a

foot across, and in the autumn the leaves die off brightly suffused with red and yellow. A Japanese Vine (*V. Thunbergi*) has deeply lobed leaves of a very dark glossy green on the upper surface, and covered on the underside with a rusty down. The Hop-leaved Vine (*V. humula-folia*) has small leaves compared with the others, but the bright blue berries are in clusters and ripen towards the end of summer.

T. W.

Indian Daphne (*D. indica rubra*) flowers freely in the open air at High Beech, and was in bloom the

other day, even after 26° of frost. The plant is sheltered from cold winds, but has no artificial heat of any kind. We usually see this beautiful flower stewing in a hothouse.

TREES AND SHRUBS.

PINUS JEFFREYI.

THIS handsome three-leaved Pine is a noble companion to *Pinus ponderosa*, to which our most reliable authorities say it is closely allied, so closely indeed, that they think it must sink into a synonym of *P. ponderosa*, already burdened with the following aliases, viz., *P. Benthamiana*, *P. Sinclairiana*, *P. Parryana*, *P. Beardleyi*, and *P. deflexa*. From a botanist's point of view, the whole of these long-leaved Pines may be identical and entitled to one name only, but this does not alter the fact that each of them as grown here has a characteristic of its own, and that so defined as to justify the selection of the names under which they were procured, and the ordering of each one by name by those who are engaged in planting. Our original *P. ponderosa*, for instance, has gone up with a straight tapering trunk and is well furnished with dark green leaves set on whorls of rather short branches, whilst *P. Benthamiana* in several instances has made an uniformly thick stem up to the first set of branches where it has rapidly fallen off, the several long candelabra-like branches having taken the sap in their strife to become rival leaders. *P. Jeffreyi*, the tree under notice, goes up well with a nicely graduated trunk, and the branches, short and stiff, give the contour of the original *P. ponderosa*; but here the similitude ceases, as the leaves are of greater length, 9 inches to 10 inches, of a rich glaucous green, and the cones, less tapering, are larger than those of any of the other varieties. To the scientist these differences may not count for much; to the planter they are very important, for they convey the positive truth that the different members of this family of long-leaved Pines have a distinct individuality of their own which renders essential their united force in forming groups of Coniferae. *Pinus Jeffreyi* I look upon as one of the best, perfectly hardy, by no means fastidious as to soil provided it is not wet, quite at home on heavy limestone hills and igneous loam, especially if the latter be deep and the rocks broken, and being so beautifully glaucous it gives life to its more sombre companions. It is a native of the Shasta Valley and Scott Mountain, in California, where it attains a height of 150 feet, and the species, if not this particular variety, produces the Yellow Pine of Western North America. The tree was introduced in 1852 by the Scotch Oregon Association through their intrepid collector, Mr. John Jeffrey, who enriched our collections by the addition of *Abies magnifica*, *A. Albertiana*, and *A. Pattoniana*, three most beautiful hardy Conifers, the last quite a gem for planting on the lawn or in the smallest villa garden. His prospects, at one time very bright, unfortunately were cut short, for he disappeared in an expedition from San Francisco to the Colorado. No tree more fitting than that which bears his name can commemorate his loss to British planters. —W. COLEMAN.

—This grand tree was found by Jeffrey in the Shasta Valley, Northern California, and sent to this country by him in 1852. It has now proved to be thoroughly hardy in Great Britain and Ireland, and will thrive in any soil provided it is not waterlogged. From what I have seen I have no hesitation in saying that Jeffrey's Pine is one of the best trees of recent introduction, and I believe it is destined to make its mark among the trees of this

country. In its native country it is said to attain a height of about 150 feet, with a uniform thickness of trunk, and the wood of matured trees when cut up for use is said to be of a close, firm texture and very resinous, points of the highest importance in a timber tree. The contour of the tree when well established is sharply conical, and it seldom produces two leaders. Its leaves are produced in threes, and range from about 7 inches to 10 inches in length, slightly pendent, and occasionally a little twisted at the base, and of a lively or light green colour, which makes a fine contrast with the grey or ash colour of the sheaths. Although it makes a fine specimen tree for ornament, yet it cannot be said to be densely clothed with branches and foliage, the former being somewhat slender and yielding to the force of the wind which imparts to the tree a light, airy appearance. In order to counteract this tendency, the young plants should be transplanted several times during their nursery career, which will promote the formation of stout stocky trees. Amateurs who use this tree should take care not to plant it in anything like close proximity to the mansion, house, or other buildings, as it in all probability will attain a pretty large size, and therefore in course of time prove a source of danger. As a general rule, trees that are known to attain a large size should never be planted nearer each other than 35 feet, but how often do we see this rule grossly neglected. Another point of importance in planting pretty large specimens is to see that they are well staked and tied to prevent wind-waving, for no matter how well the ground has been prepared for the reception of the plants, if they are allowed to rock about, failure to a certain extent is almost certain to result. —J. B. WEBSTER.

A good Wych Hazel (*Hamamelis Zuccariniana*).—Though we have experienced 22° of frost, this beautiful Japanese shrub is now a week after thickly studded with its quaintly-formed blossoms, which render it a very pleasing object, especially in the sunshine of a bright day in March. The flowers that were fully expanded at the time of the frost were all killed, but those in the bud state quickly opened under the influence of a few sunny days. This species is the last of the *Hamamelis* to unfold its blossoms, the earliest being the American Wych Hazel, that flowers about the end of November or in December, next to which comes *H. arborea* with its rich golden yellow blossoms, while those of *H. Zuccariniana* are of a pale lemon colour, and individually not quite so large as those of *H. arborea*. The nomenclature of the different species of *Hamamelis* is somewhat confusing, for Mr. Gumbleton in THE GARDEN of Feb. 8 (p. 124), considers *H. arborea* and *H. japonica* to be synonymous, while at Kew the last-named is applied to the late-blooming pale coloured form. —H. P.

Cupressus Lawsoniana filifera.—This is a singular variety of Lawson's Cypress, and the resemblance between it and *Retinospora filifera* is so great, that unless very closely inspected one might be mistaken for the other. In this form of *Cupressus Lawsoniana* the branches are long and slender and but little divided, while the second year they become more or less tasselled at the points, and from these clusters are again pushed out other slender branchlets of a sub-pendulous character. *Retinospora filifera*, which so nearly resembles it, usually forms a shorter, rounder, and denser specimen than this particular variety of Lawson's Cypress. There is also another point of difference, as the *Retinospora* will, in common with most other members of the genus, strike root from cuttings much easier than the *Cupressus*. Of this last there is also another little-known variety, viz., *intertexta*, the branches of which spread out more horizontally than those of the others, and hang in a graceful way. The branchlets, too, are more robust and spreading, so that it never forms so dense a specimen as the ordinary *Cupressus Lawsoniana*, and it is also of a lighter green, owing to the peculiar glaucous character of the foliage. —H. P.

The Japanese Mahonia.—This is the earliest of the Ash Barberries to unfold its blossoms; in-

deed, with the exception of a few scattered blooms sometimes produced by *Berberis Darwini*, it is the first to bloom of all the Barberries, deciduous or evergreen. The Japanese Mahonia is a very handsome shrub, producing stout unbranched stems, clothed with leathery, dark green pinnate leaves, which in good soil attain a length of nearly a couple of feet. It is a stately growing subject of a sub-tropical aspect, and is therefore highly ornamental at all seasons; but when in flower, of course it is additionally attractive. The blossoms, which are borne in erect spikes overtopping the foliage, are of a pale lemon-yellow; and this year, owing to the long period of mild weather that we have experienced, they are unusually fine. The blossoms are succeeded by large berries of a rich bluish purple, and covered with a beautiful bloom. Where birds abound, however, they often rob the specimen of the fruits, though they are very sharp to the taste. This is the hardiest of the large Asiatic species of Mahonia, while perhaps the most tender is *M. nepalensis*, which needs protection except in the more favoured parts of England. In this the leaves are longer and more spiny than in *M. japonica*, while it is altogether a taller growing shrub. It is an extremely valuable subject for planting out in a large cool conservatory, as it is very handsome at all seasons, and flowers early in the year, when but few of its associates are in bloom. The North American species of Mahonia are beautiful flowering shrubs, all of which possess the great merit of thorough hardiness. The finest of all is *M. aquifolia*, than which there is not a more handsome flowering shrub in our gardens. —Field.

THE RED CEDAR AND ITS VARIETIES.

THOUGH in its native country the Red Cedar is greatly valued for its timber, the rate of growth in England is too slow to admit of its being cultivated for that purpose; still, the Red Cedar forms a very handsome specimen, quite distinct from any other Conifer, and what cannot be said of all of them, it is perfectly hardy. It usually makes a medium-sized pyramidal tree, the upper branches of which are somewhat ascending, while the lower ones are horizontal or at times drooping. The Red Cedar is a very variable plant, for where there is a bed of seedlings it is usually possible to pick out many distinct forms, varying from each other in growth and also in the texture or colour of the foliage, as some are of a deep glossy green, others of a glaucous hue, while the leaves are often tinged with red or brown. Generally speaking, the Junipers are dioecious, the species under notice being no exception to the rule, as the male catkins and the berries are borne on different plants. Considering the variable character of this Juniper, and the fact that considerable numbers are raised in different countries, the occurrence of several distinct varieties will be easily accounted for. A few of the best would include the Silver Juniper (*glauca*), a very beautiful form, with branches somewhat more slender than those of the usual type, whose foliage is of a very glaucous hue, more especially during the summer. But though less conspicuous in the winter, it is then quite distinct and pretty. From the light glaucous character of the foliage it serves as a contrast to the more sombre hue of many of its relatives. In *Bedfordiana* the branches are altogether longer and more slender than in the common form, and besides this the foliage is of a bright lively green, which is retained throughout the year. This and the preceding are perhaps the two finest varieties of the Red Cedar that we possess, though there are others, notably *pendula*, of which there are many forms. That known as *pendula viridis* is very pretty, as besides the weeping character of the branchlets the foliage is of a pleasing shade of bright green. There is a dwarf variety (*dumosa*), which is, however, but rarely seen, while the white and yellow variegated forms are worthless, at least I have never seen them in a satisfactory condition. The last variety to mention is *Schottii*, which is far more compact than the others, and forms a strictly pyramidal specimen with very bright green foliage. The Red Cedar is

not particular as to soil, though it succeeds best in a fairly good and deep loam that while perfectly drained is not dried up at any time of the year.

T.

THORNS AND LILACS.

COMMON as these are, they are not always made the best of. Lilacs are among the most useful shrubs for forcing in winter. Late though it is, old bushes taken up now and brought on in the genial heat of vinery or Peach house will produce blossoms that will be nice for cutting. Thorns also, especially the double varieties, force easily, but they should be potted the year previously, plunged out, and well supplied with water. Indeed, all things intended for flowering early should undergo some preparation to fit them for the work. But it is in the open air that Thorns and Lilacs are most enjoyed. No one who has lived amid country scenes ever forgets the perfume of the Hawthorn as it is wafted across the park or the meadows. The common Whitethorn, or May, as it is generally termed in the country, is a favourite everywhere, and lives to a great age, several centuries at least; but what I cannot understand is that so little use is made of the numerous distinct and beautiful species of Thorns that have been at different times introduced to this country, but which are rarely seen outside the botanic garden. Even the beautiful coloured varieties, the pink and scarlet forms of the common Whitethorn, are not made so much of as they ought to be. In park or garden scenery, when judiciously grouped, they seem to light up the place in May and June. I know one or two places where Thorns are made much of, and in May and early in June when the blossoms are unfolding, they form amid the young foliage of the forest and other trees and shrubs a charming picture that is scarcely equalled by any other combination of trees or flowers during the season. The number of species of Thorns that have been introduced to this country from many parts of the globe in the past are considerable. Old catalogues give something like sixty different names, but of these how few have been made use of by planters. It is true curators of botanic gardens have in some instances got together a good collection. I remember seeing in the Birmingham Botanic Gardens a considerable group nearly forty years ago. Some kinds possibly are not required by the general planter, but an interesting group might be made of such distinct kinds as *Crataegus grandiflora*, *C. caroliniana*, *C. glandulosa*, and others. Occasionally, in some old garden one comes across a good specimen of the Cockspur, or some less well-known kind, but, as a rule, the Thorns, beautiful though they are, have suffered from neglect, to the manifest loss of English landscape scenery. This will not always be the case. Someday there will, doubtless, be a liking for this family of trees which possesses so many attractions. Fortunately, when planters and owners of estates arrive at a just appreciation of their merits, it will be a comparatively easy matter to work up a stock by budding on the common Whitethorn.

Unlike the Thorn, the Lilac has never suffered from neglect, and thanks chiefly to continental sources there are many new varieties, but the old white and purple Lilacs of the shrubbery still hold their own. A well developed specimen of the white Persian Lilac rising out of a low mass of dwarf evergreen, when in blossom, is always an attractive sight, and it is one that even the person of limited means may enjoy.

E. H.

Myrica Gale.—This is the Sweet Gale or Bog Myrtle, the badge of the clan Campbell in Scotland. It is a hardy deciduous shrub about 4 feet high, well furnished with twigs and dull green leaves, and has a remarkably sweet, fragrant aroma. It blooms in June and July, and although the flowers are not conspicuous in point of size, yet their sweet scent renders them attractive and favourites with most people of refined taste. In Great Britain and Ireland it inhabits damp boggy ground that has never been thoroughly drained, and I have often found the plant in perfect health in the

boggy tarns of the hills at an elevation of upwards of 2000 feet above sea level. The species, however, is by no means confined to the British Isles, as it has been found in different parts of North America as well as Europe growing under similar conditions to that described for this country. When planting bare, barren tracts of heather ground I have found the roots, stems, and branches of this plant very useful for the erection of screen fences, as they can be woven in between paling rails with great facility as a shelter for the plants in the vicinity. They are also capable of being utilised for the making of rough hampers, creels, and baskets, so that the plant can often be turned to good account in more ways than one. The wax-bearing Candleberry Myrtle (*M. cerifera*) is an evergreen species found in the United States and Canada, and was introduced into this country in 1699. It attains a height of from 6 feet to 8 feet, flowers in May, and produces its pure white waxy berries in October. It is very ornamental, well clothed with shining leaves which possess a fine aromatic fragrance. The Californian Candleberry Myrtle (*M. californica*) is an evergreen shrub of from 8 feet to 12 feet high. It is a native of the north-west coast of America, whence it was introduced into this country in 1844, and has proved to be perfectly hardy. It flowers in July and produces its fruit in September. The whole plant has a fragrant scent.—J. B. W.

KITCHEN GARDEN.

PEAS WITHOUT STAKES.

IN private gardens, where everything in the shape of stakes has to be paid for, Peas prove a very expensive crop. Various substitutes are tried, from the ordinary Hazel and other branching stakes, including wire netting supported with stout stakes, and folding or latticed supports made into handy lengths, all of which are of doubtful service, unless they are used on both sides of the rows. Few who have tried the experiment need to be told that if stakes or supports of any kind have to be bought that the crop is not a profitable one as far as supplying the markets or shops is concerned, and even if no stakes are used, there is still much uncertainty about the results, so much depending upon the season. This being so, the question naturally arises, How is it that the metropolitan and provincial town markets are so well supplied? The answer is simple enough, and it is this: The bulk of the Peas which find their way to the markets are grown in the open fields, and without the aid of stakes. This practice of growing Peas without stakes does not, however, find much favour with private gardeners, but why such should be the case is not altogether plain. Probably it is thought that the rows of neatly staked Peas are more in keeping with the surroundings or more pleasing to the eye than they would be if allowed to grow in a natural manner, and I must confess to a preference for stakes, though if it came to the question of paying for them, it is very doubtful if many of them would be used.

If we had to dispense with stakes, this would necessitate passing over some of the superior tall-growing varieties when the seed order is made out, these not being so well adapted to the purpose as those of medium height. Luckily, the list of the latter includes abundance of varieties good in every respect, most of which I have seen growing or have tried without stakes. The very dwarf American Wonder, William Hurst, and Chelsea Gem I would always lightly support with spray, though they succeed very well without it. Either of the early round-seeded varieties, of which Sangster's No. 1 and First Crop are good types, are suitable for the experiment, hundreds of

acres probably being sown every season with the former alone. William I. does equally as well without stakes, another somewhat early and favourite variety being found in Day's Sunrise. The old Hair's Dwarf Mammoth, if it could be obtained true, would form a close succession to the foregoing, Laxton's Supreme being also a heavy cropping second early, though scarcely sweet enough for many palates. There are few to equal Wordsley Wonder for culture with or without stakes, and the more vigorous Stratagem and Pride of the Market are well adapted for growing without supports; so also are Dr. McLean, Marvel, Triumph and Gladiator, all these being good for successional and main crops. For the main crop and later supplies, Princess Royal, G. F. Wilson, Veitch's Perfection (the Yorkshire Hero of market gardeners), Sturdy and Omega are all suitable and good. I do not recommend anyone to try all the varieties named, but have mentioned so many in order to meet the wants of as many gardeners and amateurs as possible. Another dozen of newer varieties might be added, but I will merely point out that all stated in catalogues to attain a height of from 3 feet to 4 feet may be grown without stakes.

Placing stakes to Peas and otherwise pampering them really has the effect of causing the growth of much more haulm than would otherwise be the case if more naturally grown, but it does not materially favour productiveness. In the open fields where the ground is fairly rich and more firm than is the case with garden soil, the haulm is short, what are known as 3-feet varieties rarely attaining a length exceeding 2 feet, but they are more quickly productive and bear well. If I remember rightly, the seed is sown very thinly in rows from 2 feet to 30 inches apart, and it has been found that the best crops resulted from the rather laborious practice of dibbling in the seed, two or three seeds being dropped into holes formed about 6 inches apart. In deeply cultivated sheltered private gardens the haulm in any case will grow rather more strongly, but, as before stated, not so much so as in the case of staked rows. The ground intended for them should be well manured, deeply dug and made as firm as possible short of making it bind together badly. A distance of 3 feet ought to divide the drills, and in these the seed should be sown sparingly, a single thin row of plants being ample. In all other respects, short of placing stakes to them, the cultural details need not vary from those considered necessary for staked Peas—that is to say, the rows should be early moulded up, and particular pains be taken to keep the intervening spaces free of weeds. The Peas will not ramble in all directions, but, as a rule, will draw over to the sunniest side of the rows, and again take an upward curve, the bulk of the pods being formed well clear of the ground. In gathering the latter when fit care should be taken not to twist the haulm roughly, or this may check much further progress, and there will be no need to trample on any of the haulm. It is my belief unstaked Peas are not so quickly affected by either drought or mildew as those grown in the usual manner, and the pods fill well even in a dull wet season.

W. IGGULDEN.

SHORT NOTE.—KITCHEN.

Pea Triumph.—This is a dwarf blue wrinkled Marrow with an excellent flavour, and, in my opinion, will make a very useful Pea for amateurs about large towns, being of a hardy constitution and a prolific bearer. On our deep cold clay with an atmosphere loaded with smoke many of the better class of Peas are quite useless. Last season I tried this Pea and the plants made a free growth, about 3 feet high, producing

a heavy crop of well-filled pods. The sticks should be placed in a slanting position outwards, leaving the centre open, thus giving more room and light, and causing the pods to fill well to the bottom.—JAMES SMITH, *Waterdale, St. Helens.*

GROWING MUSHROOMS.

THIS now seems to be one of the most profitable industries, that is during such winters or seasons as that just passed through, but in ordinary years, when there is much frost, wet, or snow to contend with, crops are obtained under great difficulties, and often fail from beds that are outdoors altogether. If it is worth while building houses for growing so many other things for market, surely it is quite as much so for Mushrooms, which always appear to be scarce and command good prices. I have thought of a plan for doing this that would not be costly, and would answer the double purpose of forcing them above and below ground. This might be done by running up 4-inch side walls at 9 feet or so apart, and throwing arches of the same thickness across from one to the other, and then cementing them over. This would make all watertight, and then any rain that falls might easily be carried away between the arches where there would be a sort of gutter at the spring, which gutter should have a drain made with either drain tiles or brickbats, and then covered over with soil. This might then be utilised by planting it with Rhubarb, Seakale, or Asparagus, either of which would be warmed from the Mushroom cellars under and so forced after being covered, or Mushroom beds formed instead, and thus no heat would be lost, but the spawn kept gently running in all conditions of weather. The cellars under would be wide enough for two 3-feet beds on the floor of each, and might be made just high enough for two more above. A single hot-water pipe through each would afford plenty of heat, as all that is needed is a temperature of 55°, and this would be regular and uniform all through the winter. For the little warmth required, any ordinary saddle boiler would be powerful enough to work a dozen of such cellars or houses, if they were 50 feet long, and the labour entailed in the whole management could only be small. The venture looks to me a very profitable one and may not have occurred to anyone before, and therefore I throw out the hint for what it is worth. Railway arches, if there are any not in use, might be turned to good account for the same purpose as the cellars or houses such as I suggest, and the companies owning them should be ready to let at a small rent. In either case it will be necessary to start where plenty of horse manure can be obtained to make the beds and carry on the business, and near towns of any size there is generally any quantity to be had for little more cost than the carting.

S. D.

A productive Potato.—At the last meeting of the Paris Academy of Sciences, M. Aimé Girard gave some interesting information respecting the Emperor, or Richter's Emperor Potato. He stated that, after testing it on a small scale for some years, he grew it largely in 1888 and 1889, and also gave out tubers for experiment to forty growers in different parts of France. It appeared that, while the average yield of tubers in France does not exceed 147 cwt. to the hectare, a hectare being 2.4 acres, the variety known as the Emperor may, under certain conditions, yield as much as 683 cwt. to 781 cwt. per hectare of tubers, with more than 20 per cent. of dry starch. These figures were quite borne out by M. Girard's own experience, his crop of 1889 yielding 761 cwt. of tubers per hectare, with 20.4 per cent. of starch, equal to 156 cwt. of dry starch, which is more than the general average weight of tubers themselves in France. In thirty-three out of forty experimental cases throughout the country the general result was a yield ranging from 624 cwt. to 856 cwt. per hectare, with a proportion of 20.4 to 24.2 per cent. of dry starch, the average yield being 703 cwt. per hectare and 155 cwt. of dry starch.

Blanching Seakale.—When grown and cut in the open without having been lifted for the

special purpose, I have for several seasons used inverted flower pots with most satisfactory results in every way. The pots I use are those out of which the old Chrysanthemum stools have been turned; this permits of sufficient room for growth without any danger of injury from frosts. The pots are pressed down firmly over each stool or set of crowns, which should, in order to make the most of the pots, be planted in a triangular manner, so that three sets can be covered by one pot. A little clay pressed down firmly on the drainage holes precludes the admission of light in an effectual manner. Some years ago, when an abundance of Oak leaves could be had without any difficulty, I remember these were spread over the late Seakale, and a light shaking of long straw upon them. This plan answered very well, and kept the crop in a fit condition for cutting for a greater length of time. Since last Christmas I have been cutting regularly from roots lifted and placed at intervals in the Mushroom house upon a slight hot-bed. This plan answers well where a regular supply is indispensable before it comes naturally from the open ground.—J. H.

CUCUMBERS.

Two essential features in successful Cucumber culture, by which I mean the production of plenty of Cucumbers from the same plants for some six or seven months, are a robust and sturdy plant to start with and an abundance of food. It is not always easy to secure the first, as in many of the Cucumber houses one has to deal with, the bed is so far from the glass, that the plant has a natural tendency to become drawn. Such plants will produce a crop, but they are not of the "cut and come again" class, and are of comparatively little service where there is a large demand. To ensure a stocky, short-jointed growth the top of the ball at planting time should not be more than 18 inches from the glass and might be even closer, were it not that the foliage is thereby liable to early injury by coming in contact with the glass. Another source of weediness is a very high night temperature. I have known Cucumber houses and pits kept up to 70° and over at night directly after planting, but this is a mistake. Growth may be secured, but not the growth likely to stand the wear and tear of seven months' cropping. A minimum of 60°, or if the weather prove very cold even a few degrees lower, is a far preferable figure. One more source of an early weedy growth is planting in very rich soil. Feed by all means when the crop is swelling, and if it is very heavy, no amount of good food will then cause a too luxuriant growth; but the building up of the plant is best done without stimulant, and an open rather sandy loam and leaf soil in the proportion of six to one is a very good planting compost. As soon, however, as the first lot of fruit is set and swelling away the stimulants may be applied and continued with only slight interruptions nearly to the end of the season. The first stimulant used is generally a mulching of horse droppings some inch and a half in thickness with a little rough soil shaken among the interstices, and when the roots have found their way into every part of this and the virtue of the droppings is exhausted, cow manure in a liquid form is applied at intervals. There are doubtless other stimulants equally effectual, but the above can be thoroughly recommended, and they can be easily obtained.

All the time the plants are in robust health and bearing freely this feeding cannot well be overdone, for when we consider the great weight taken from a single plant through the cutting season, it is a natural inference that the roots must require some very substantial food. There is one period of the year when the ama-

teur grower is often apt to fail, and respecting which it might be advisable to offer a hint. One goes sometimes into a Cucumber house or pit to see a fine crop and the plants in robust health, and then again in two or three weeks and the fruit is all gone, and not only this, the condition of the plants is unhealthy, they have a sickly yellow tinge, and the very little inclination to break holds out no promise of any immediate cutting. This condition of things is generally put down to overcropping, but is, as a rule, the result of a persistence in very rich food at a time the plant does not require it. It may sometimes happen at the outset that the fruit swells very evenly, and there is little chance of relieving the plants to any extent before a heavy crop is hanging. Under these circumstances the vine grows slowly, and if the young growth is not well developed before the majority of the fruit is cut and heavy manurial waterings are still applied when the plants are relieved, the result seems to be that they are unable to digest the rich food, they become yellow and sickly, and if some alteration in the treatment is not adopted will canker and die. It may be urged, Why not thin the fruit? Well, we like to get as much as we can, and I never care to take anything off that will grow into a presentable fruit, and the plants can generally be taken well through this critical time with an increased temperature and increased artificial feeding to hasten the swelling, dispensing with the stimulant just at the right time. If, however, there should be the decline in health, the course of procedure to be adopted in the early stage of this is to withhold water, and particularly manure water, for some days, but keep the surface of the bed and the vines, indeed the whole of the house, continually moist, by the free use of the syringe, slightly shading the plants to preserve the old growth as much as possible until the young wood is well advanced. Under this treatment the vines will be quickly clothed with new growth and with plenty of young fruit, when the extra atmospheric moisture can be gradually dispensed with in favour of abundant supplies for the root.

Claremont.

E. BURRELL.

FERNS.

POTTING FERNS.

IN the culture of Ferns much depends upon how they are potted, as well as the condition of the plants when repotted. Ferns should never be disturbed while they are in a dormant state; it is much better to wait until they have started into active growth. If care is taken not to expose them to cold winds during the operation, and a little extra shade given for a few days, the young fronds will not suffer in the least. The old system of using peat and leaf mould almost exclusively for Ferns is now pretty well understood to be an error. Nearly all Ferns succeed better if some loam is used in the compost, and many may be grown almost entirely in loam. Many of the Adiantums will grow freely enough in good fibrous loam, while if potted in peat they refuse to make any progress, not perhaps because there is anything objectionable in peat, but because it gets sour through excess of moisture. If the loam is too heavy, a little fibrous peat may be used with advantage, but I prefer to limit its use as much as possible. An important point in potting Ferns is to keep the crown of the plants well down on to the soil, more especially in the case of those sorts which make new roots just below the crown. The Aspleniums will soon get weakened if not kept low enough for the new roots to take hold of the soil. The same may be said of many of the Pterises, Gymnogrammas, &c. All the vigorous growing kinds which root freely should be potted

loosely, and those with less vigour and slender roots should have the soil pressed moderately firm. The Davallias and others which have the rhizomes on the surface require more drainage, as the roots do not penetrate so deeply, and the lower portion of the soil is liable to get sour through the constant watering required to keep the surface moist. Shallow pots or pans are best for growing all such sorts as do not root deeply, and for those which have the rhizomes spreading under the surface, either wooden or wire baskets should be used. In the case of all the delicate small growing Ferns care should be taken not to overpot them; large pots for small plants are very unsightly, as well as injurious to the health of the plants, and in no case does this apply more forcibly than to Ferns.

F. H.

Onychium japonicum.—This is a very pretty free-growing Fern and one of the most useful for winter work. Being nearly hardy, it may be used where many of the tender sorts would soon be withered up. As a pot plant it is very pretty, either in a small state for the tiny fancy pots which are now so much in use, or as a plant for a 4½-inch pot. The slender finely-cut fronds are also very serviceable when cut, as they last a considerable time. All who have to provide material for decoration should grow this useful Fern extensively. It may be readily obtained from spores, which germinate freely, and useful plants may be established in a very short time. Although nearly hardy, young plants may be grown on in heat, where they will make more rapid progress, and after they are large enough they may be hardened off for use. During the winter this Fern should be kept in an intermediate temperature, otherwise the fronds will die off. *A. auratum* is a more elegant Fern than *O. japonicum*, but it is very tender, and cannot be so readily obtained, for although apparently good spores are produced freely, it is very rarely that they germinate—at least, such has been my experience. Only on one occasion have I succeeded in raising a good batch, and that was from some spores sent from India. This beautiful Fern should be grown in the stove, and succeeds well in a compost of loam, leaf-mould, and peat with plenty of sand added. The plants should be potted low enough to keep the crown of the caudex firm. With this Fern this is an important point.—F. H.

Microlepia hirta cristata.—This is a most elegant Fern. The large, spreading, finely-cut fronds are, unfortunately, very tender, otherwise it would soon become one of the most popular of Ferns for decoration. In the stove, however, it makes a grand ornament. It is of rapid growth and may be increased by division. The plants, potted in a loamy compost and confined to comparatively small pots, should be well exposed to the light and must be liberally supplied with water, as if once allowed to get too dry it will lose all its fronds. *Microlepia platyphylla* is another pretty species. In this the fronds are not so finely cut, and they have a pale glaucous shade. This may be grown in a lower temperature. I think it should make a useful plant for decoration, as it is of free growth, and can be easily obtained either from spores or division. It may not last so well as some of the Pterises or stand exposure so well, but it will provide a pleasant change. *Microlepia strigosa* is a dwarfier-growing species, with spreading rhizomes, and very useful for the rock fernery.—F. H.

Women and gardening.—Private gardeners who know how comparatively light and free from rough exposure are the labours of women under their charge can hardly be expected to understand the coarse and laborious kind of work to which females are exposed in market gardens and fields. "H. M. W." makes the very proper suggestion that women's attire should be modified to suit weather and labour, a matter which thoroughly deserves the attention of dress reformers. As to the query why women should be compelled to work outdoors in wet weather, it may be replied that whilst men and women may come and go, market days come with inexorable regularity, and their demands must be satis-

fied. Let the weather be what it may, rain or wind, blistering heat or withering frost, the work of providing the needful material for a load of vegetables for the ensuing morning's demand must go on. The chief relief to women in onerous and often distressingly unpleasant work of this kind is found in association. A number of them invariably work together. I do not think one woman in a hundred who has been bred up in field labour could endure the torture incidental to solitary labour. Compared with a woman's ordinary unskilled labour, the market garden women are not badly paid. All the same, the spectacle of a large number of women working as ordinary labourers is far from being a pleasant one, and offers little for us as a nation to be proud of.—A. DEAN.

NOTES OF THE WEEK.

Variegated Aralia Sieboldi is hardier even than the common green-leaved type. It stood 26° of frost at High Beech, and that without a single leaf suffering. Its variegation is good, not "spotty."

A delicate combination of colour is made at Kew by the blooms of *Chionodoxa Luciliae* coming up through Cyclamen leaves, which enhance the charms of the pretty blue flowers of the *Chionodoxa*.

A fine seedling *Clivia*.—Mr. E. H. Woodall sends from his Scarborough garden a magnificent spike of the richest coloured variety of *C. miniata* we have seen. The head carried twenty-six blooms of the deepest orange-scarlet, a superb colour. It is well worth a distinct name.

Galanthus nivalis æstivus improves year by year. This, when the common *nivalis* has finished blooming, is now coming to its best. It is a vigorous kind, as the handful of flowers sent herewith will testify, and quite doubles the length of the Snowdrop season, from the *nivalis* point of view.—T. SMITH.

The **Castlewellan Daffodil**, also called, we believe, Countess of Annesley, is a most charming variety, and one of the very earliest of the large trumpets. It will prove a most useful addition to garden bulbs, although for market we fancy it has not substance enough to stand long in a cut state.

Tecophylæa cyanocrocus, in both light and dark blue varieties, is now in full bloom both in a cold house and in the open air, and the curious thing is that it came into flower both inside and out on the same day. What a lovely thing it is! But one despairs of its ever becoming a garden plant, as it is such a favourite with slugs.

Apple French Crab.—We are pleased to see this despised Apple selling in Covent Garden at 10s. per bushel in March. Can the same be said of any of the new Apples sent out within the present generation? Some samples we tasted on March 15 retained their fresh juice and were delicious. It ought to be called the Iron Apple, its old French name, and not the French Crab.

Iris sindjarensis is still in flower at Kew, and proves a most interesting species. It has the habit and general appearance of *I. caucasica*; indeed it may be called *I. caucasica*, with bluish flowers and a distinct crest, which is wanting in the old species. It flowers, however, at a time when no other *Iris*, except *I. reticulata*, is in bloom, and as it is not without a charm exclusively its own it is well worth cultivation.

—We send you herewith a plant of *Iris sindjarensis* flowering at present at our Long Ditton nurseries in a cold frame. You will note its resemblance, form, and growth to *I. caucasica*.—BARR & SON.

Blue winter Windflower (*Anemone blanda*).—This lovely early spring flower becomes a greater favourite each year. We like to see it spreading about in big clumps, as on the rockery at Messrs. Paul and Son, Broxbourne, where it gives no trouble, but grows very freely. It wants planting deeply in a light sandy soil, and then to be left alone. The flowers vary in intensity of colour. A beautiful companion to it is the white Apennine Windflower, which is just as free and vigorous.

Chionodoxa sardensis.—A large group of this in the rock garden at Kew has lately attracted much attention. It is the brightest of all the forms known to us, and seems amenable to almost any position or soil. Groups of such brightly-flowered bulbs in the rockery at this early season well repay a little trouble, and such a bulb as the present one may be planted over in the summer without suffering from shade, &c.

This, as well as its near ally *C. Luciliae*, does well in the Grass, and annually gives abundance of bloom.

National Rose Society.—We learn that the committee have altered the date of the annual dinner to June 24, the day on which the exhibition of Tea Roses will be held at the Drill Hall. The dinner will take place at the Hotel Windsor at six o'clock, and the chair will be taken by the Dean of Rochester.

Hall for horticulture.—At a meeting of the "Sites Committee," held on Monday last, it was resolved to call a great meeting, of which due notice will be given, of horticulturists and the horticultural trades throughout the kingdom, when the whole scheme and present position of affairs will be explained.

Sisyrinchium grandiflorum.—By far the finest of this large genus in cultivation is now in full flower in the alpine house at Kew; its rich purple flowers and distinct habit mark it even amongst many other interesting plants. It is one of the few *Irids* that do well in pots, and with simply a slight top-dressing it will continue to flower freely for several years. The white form is also an acquisition. Both are quite hardy in the open border where they increase rapidly in rich soil.

Narcissus Primrose Dame.—This has been in bloom in the greenhouse here for the past three weeks and the flowers are still quite fresh. It is like an improved form of *Ard-Righ*, with a perfume something between that of a Primrose and a Violet. *Narcissus Ajax* Rev. M. J. Berkeley, planted outdoors side by side with *Ajax maximus* for trial, is vastly superior to it, being larger in all its parts. Countess of Annesley planted round a small bed is much finer this year than last, the blooms being nearly twice the size.—M. LEARY, Belgrave, Queenstown.

Cattleya Trianae.—We have received from Mr. John Gabriel, Streatham Hill, a spike of an exceptionally fine variety of *C. Trianae*, cut from a specimen carrying seven blooms. It is one of the best forms we have seen, and that is saying much with the large number of good types now in collections. The sepals are almost pure white, but just tinted with pink, the sepals broad and massive, but wholly of a lovely pink shade; the lip rich purple-crimson, deepening to an intense shade at throat, the only yellow colouring appearing deep down in the throat.

Hæmanthus multiflorus is the most brilliantly coloured flower in the stove at Kew. It is an old introduction, having been brought from Sierra Leone in the latter part of the last century, but the plant should be well grown. Its dense umbels of star-shaped intense scarlet flowers are about 6 inches across, and contain numerous blooms, sometimes, we believe, as many as 100. It is one of the showiest of the genus, and resembles *H. Kalbreyeri*, of which a coloured plate was given in THE GARDEN, Nov. 15, 1879.

The Horticultural Club.—The usual monthly dinner and meeting took place on Tuesday, March 11. Dr. Hogg, in the absence of Mr. John Lee, presided, and there were present the Rev. W. Wilks, Rev. F. H. Gall, Messrs. T. W. Girdlestone, H. J. Veitch, A. Veitch, George Bunyard, H. J. Pearson, C. E. Pearson, T. Francis Rivers, C. T. Drury, &c. The subject for discussion, Plant Hybridism, was opened by an interesting paper by Mr. Lewis Castle. Mr. Veitch dealt with the subject in relation to Orchids, Mr. Drury to Ferns, Mr. C. Pearson to Pelargoniums, and Mr. Rivers to fruits, while most of the members present joined in the discussion.

Beautiful Camellias.—We have received from Messrs. W. Paul and Son, Waltham Cross, a beautiful variety of *Camellia* flowers, some of the most charming shades, soft pink, others deep, and a few pure white. In the Waltham Cross nursery the *Camellias* were, until quite recently, a splendid sight, as the plants are in the rudest health, and in the case of such varieties as *Commodore Betti* the branches were weighed down with the mass of heavy flowers. This rich collection includes all the finest varieties in culture, and the frequency of Italian names suggest the origin of the majority of the types. A beautiful carmine-coloured flower, in form like a *Marquise de Castellane* Rose, is *Principessa Prospigliani*, and the American varieties, *C. M. Hovey* and *C. H. Hovey*, were both a mass of bloom. A few of the finest in flower are *Mathotiana*, a very large, deep crimson flower, and one of the best of the *Camellias*; *Adelina Benvenuti*, an exquisitely shaped bloom, rose colour, charmingly splashed and striped with red; *L'Avenir*, carmine, very free; *Marchioness of*

Exeter, the old Cup of Beauty, two favourite kinds; Rafia, pure white, excellent petal; Princess Charlotte, also pure white, and one of the best; the showy, but still valuable Donckelaari; Eugène Masset, lovely pink and white colour, like a Baroness Rothschild Rose; Countess of Derby, rich pink; Montironi, white, margined with pink; Comtesse de Hainaut, pink; Mrs. A. M. Hovey, finely coloured pink and white; Archiduchesse de Toscana, bright carmine, and Beali.

Brodiaea (Triteleia) porrifolia has a great advantage over the better known *B. (T.) uniflora* in the absence of the Garlic smell so objectionable when used as a cut flower, or even as a cool conservatory subject. *B. porrifolia* instead of one has many flowers on a stem almost as large as those of *B. uniflora*, white with the distinct green midrib, and with a sweet fragrance which much enhances its usefulness. Should it prove hardy, and there is no reason why it should not, it will be a great acquisition to the early bulb garden.

The New Zealand Clematis.—*C. indivisa* and its variety *lobata* are very beautiful in Messrs. Wm. Paul and Son's nursery at Waltham Cross, the plants smothering a rafter in one of the houses with graceful sprays of pure white flowers. The leaflets of the type are usually undivided, but in *lobata* they are distinctly lobed more or less. From the gracefulness and profuse display of flowers we can well imagine the beauty of *C. indivisa* in New Zealand, where it is common, festooning lofty trees, especially those on the outskirts of the forests, with the rampant shoots in the same way that our own Traveller's Joy hides the wayside hedges beneath a covering of growth and flower. The New Zealand Clematis grows with remarkable rapidity, and will suit all who want a quick and beautiful display. A coloured plate of the variety *lobata* appeared in THE GARDEN for October 27, 1877.

Chionodoxas.—We have now half-a-dozen or more kinds of these pretty spring flowers, but we think it will be difficult to surpass the old *C. Luciliae* and its charming variety *C. sardensis*. We have seen the new gigantea, the colour of which, though softer and nearer violet than that of *C. Luciliae*, does not seem to be decided enough. Until we get something more fixed we will prefer the older and better known forms. Our flowers from old established bulbs of *C. Luciliae* are larger even than those of *C. gigantea*, and more attractive than those of *C. Timolusi*. A new hybrid between *Scilla sibirica* and *C. Luciliae* has flowered this year for the first time, but nothing seems to have been gained; we have a flower of the same blue as the Squill, the segments free, or nearly free, to the bottom, the filaments, as in *Chionodoxa*, broad and nearly sessile, and, what is most important, no increase in size or quantity of flowers. It is very interesting, but of no importance, so far as we can see, unless showing the affinity of the two genera.

Seedlings of Sugar-cane.—Mr. Morris, of Kew, recently exhibited before the scientific committee of the Royal Horticultural Society specimens of mature seeds of the common Sugar-cane (*Saccharum officinarum*). It was stated that there appeared to be no authentic record of any really wild station for the Sugar-cane; further, that the fruit of the Sugar-cane had not hitherto been figured or described. At Barbadoes several times during the last twenty years, and more recently by Professor Harrison and Mr. Bouch, self-sown seedlings of the Sugar-cane had been observed. The subject was taken up systematically in 1888, and about sixty of the seedlings had been raised to mature canes. Many of these exhibited well-marked characteristics, differing from the varieties growing near them. Careful inquiry had shown that canes known as the Purple Transparent and White Transparent, and possibly also the Bourbon cane, produced seeds in very moderate quantities. Spikelets received at Kew had been examined and the seed found *in situ*. It is anticipated that by cross-fertilisation and a careful selection of seedlings it will now be possible to raise new and improved varieties of Sugar-cane, and renew the constitutional vigour of plants that have become deteriorated through continuous culti-

vation by cuttings or slips. Great importance is attached to the subject in Sugar-producing countries, as it opens up an entirely new field of investigation in regard to Sugar-cane cultivation.

The Wand Plant (*Galax aphylla*) appears to be a very useful one in its native home, Carolina, &c., the leaves, of many tones of deep, rich purple-red, being largely gathered and used for decoration in the large towns and cities. Our plants grown in England, although established for many years, and with full exposure to the sun, have a very small percentage of the leaves, as above described. In large plants one may pick a dozen or so now, most of the others being green, purple only round the margin. In summer, however, it is a beautiful sight to see a well established plant with its long wands of delicate white flowers on a charming carpet of the richest and most lovely foliage. As the autumn sun wanes, however, the colour, unfortunately, disappears. It does well in a peat bed not over moist, and when established runs about like an *Epilobium*.

Horticultural Society of Prussia will hold a great international exhibition, lasting from April 25 till May 5. There has been a considerable demand for space, Belgium and the Netherlands besides Germany intending to make a great display. Plants from Great Britain and Ireland, also from Russia, may be sent direct to the exhibition hall, where they will undergo examination by Mr. Perrier, the inspector of the Royal Botanic Garden at Berlin, to ascertain if free from *Phylloxera*. No certificate as to *Phylloxera* is required. English firms who will not venture to send plants are asked to contribute flowers. A supplement to the schedule will shortly be published. Six prizes, each of the value of £25, have been given by the City of Berlin, and a gold medal by the Emperor, besides various other honorary prizes. Those intending to compete should apply to the Secretary-General of the Verein zur Beförderung des Gartenbaues, Berlin, N. Invalidenstrasse 42.

Cereus Mallisoni.—This beautiful *Cereus* is one of the finest of a genus rich in good things, and is of supposed hybrid origin. Dr. Lindley received it from a Mr. Mallison, who stated that he obtained it from a cross made between *C. speciosissimus* and *C. flagelliformis*. As regards the stems, it bears a resemblance to *C. flagelliformis*, but they are less spiny and not so thick. There is a specimen now in bloom in the Cactus house, grafted on *C. McDonaldii*, which is trained up one of the rafters, and is one of the most interesting plants in flower at Kew. The flowers measure when fully expanded about 4 inches across and are exquisitely shaped, the segments pointed, spreading, and rich carmine, shot with a translucent metallic mauvy lustre dazzling in its vividness under a brilliant sunlight; the protruding oatmeal-coloured anthers add to its beauty. The same sparkling colour enriches the flowers of the hybrid *Cereus C. J. T. Peacock*, one of the finest of the genus. Unlike most Cactus flowers, those of *Mallisoni* remain fresh for three or four days. Those who wish to grow succulents should first give attention to the *Cereuses*.

Notes from Almondsbury.—*Hepaticas* are glorious this year. As I have nearly 300 plants of every shade of red, white, and blue planted in very varying conditions of sun and shade my experience may be useful, as it conflicts greatly with ordinary catalogue cultural directions. So long as they can have a deep loam, exposure to sun does not seem to me to matter. On the whole those plants seem to bloom best which get no afternoon sun. All my plants lose every leaf before the autumn, and I think it a great gain. A few angulosa and some very much in the shade keep their leaves; these certainly bloom the worst. I have one plant which has red, white, and blue blooms, evidently three seedling plants. I have some white merely tinged with blue, some just shaded with red. The very deep blues with white stamens I like best. I measured a seedling red recently and found the blooms were 1½ inches across, and there were fifty odd blooms out on the plant. As I am saving seed now I shall be glad to send some of this plant's seed to anyone in a

stamped envelope. The seed should be sown at once in a box and covered with a slate, which should not be moved for six months. Daffodils, Scillas of all kinds, *Chionodoxas* are in great force. I send you a curious bloom to be named. I think it is one of the *Antholyzas*; its blooming now is the result of keeping it in a pot through the winter. I am doing the same with several *Watsonias*, and I know no other way of blooming them, having had many for years in the open. Everyone should grow *Primula verticillata*. I have one now in the greenhouse with nine spikes, about twenty blossoms on each.—C. O. MILES, *Vicarage, Almondsbury*.

* * Yes; *A. bicolor*.—ED.

Ephedra altissima.—Mention is not made in the note on the *Ephedra* last week of *E. altissima*, perhaps the best worth growing of the family, but it is not hardy. A specimen here in the conservatory is 20 feet long; the whole plant is a dense, twiggy, leafless mass, and of very slender growth. As it is not a twiner, nor has tendrils, nor any means of laying hold, it requires frequent supports. It seems to suffer sometimes in the winter from, I suppose, too low a temperature, throwing off quantities of its succulent spray, but it may be a natural release, like the fall of the leaf. It, however, soon recovers again in the summer. The berries, I believe, are eaten by the Tartars, but my plants have never produced any, nor even flowers. Being of a distinct character, easily grown, and not liable to the attacks of insects, it makes a good subject for clothing pillars in lofty houses. I raised it from seed many years ago.—J. M., *Charmouth, Dorset*.

Draba Mawi, a very rare little alpine, is now in flower in the alpine house at Kew. It has the ordinary habit of this genus, dwarf and compact, the tufts close and dense, being just now hidden by the unusually large snowy flowers. This is an alpine well worth looking after. It seems perfectly at home on the rockery, increases fairly fast, and always produces in early spring its attractive flowers in great abundance. *D. aizoides* is also in flower now, and when grown in quantity on suitable spots on the rockery looks very pretty with its numerous golden yellow flowers. *D. aizoon*, a much dwarfier species, with smaller, more compact rosettes and pale yellow flowers, is worth growing on account of its neat mossy habit. *D. lasiocarpa* and *Haynoldi* seem to be large forms of *D. aizoides*, and somewhat resemble it in habit and general appearance.

Primula nivea of gardens has proved extremely useful as a pot plant with us, although under ordinary pot culture it dies out quickly. A few years ago we tried breaking it up when done flowering into single crowns, planting these out in rich soil in a shady spot, and afterwards lifting and potting them. The result has far exceeded our expectations. In this way we get fat, healthy crowns, which give an abundance of bloom every spring. We last year tried this plan with the hard-leaved kinds, such as *P. Wulfeniana*, *Clusiana*, and others, and with them also it answered admirably, the plants being now healthy and full of bloom. Our collection, of course, is kept in pots and grown in cold frames, probably the only way of keeping many of the kinds in the south of England. Where these *Primulas* are wanted for early spring work the above plan will be found to answer well.—K.

Lily of the Valley Tree (*Andromeda japonica*).—This fine shrub was first made known to English gardens by a figure and coloured plate of it published in THE GARDEN, Nov. 3, 1877, from specimens sent by post by Messrs. Thibaut and Keteleer from Sceaux, near Paris, in the spring of 1877. It has since proved in many places to answer all that was then claimed for it, and in few places have we seen it finer than at High Beech, where it is found quite hardy in the thoroughly well drained and not too heavy soil. The bushes of it were veiled over with the pendent, graceful racemes of waxy bell-like flowers, and had an indescribable beauty scarcely conveyed by the specimens sent to the exhibitions. Those who do not know it would soon plant it if only they could see the bushes

weighed down with the precious burden of Lily-of-the-Valley-like flowers. On cold soils in bleak positions it would possibly suffer, but there are hundreds of gardens where it would do well. It is sometimes called *Pieris japonica*, and is, as its name suggests, a native of Japan, where it was discovered by Thunberg. *A. japonica* also makes a good plant for forcing into bloom, but we would rather draw the attention of planters more to its suitability for gardens.

Plum trees in Japan.—Sir Edwin Arnold, in his charming articles on Japan, appearing occasionally in the *Daily Telegraph*, makes the following allusion to the Plum trees there:—

The very Plum trees are peculiar. They have learnt some floral secret by which their blossoms entirely disregard the sharp frosts of the January nights, so as to appear in sudden and splendid beauty with these first days of February. Not only in our own gardens, but on every lane and hillside, this great green city has suddenly become lovely with silver and crimson Plum flowers covering the heretofore bare branches of the trees, and filling the prospect with grace and the atmosphere with fragrance. One spot in the city, at Kameido, is now, or will soon be, a special resort, because of the Gwa-Rio-Bai or "sleeping dragon Plum trees," which are to be seen in a large orchard near at hand. There 500 ancient trees covered with flowers have been trained to creep along the ground, forming thickets of delicious bloom; while stanzas of poetry in praise of their perfume and glory are cut upon the stone pillars round about, or written upon slips of gold paper. At the gate are sold boxes of dried and salted Plums, called *mone-boshi*.

New Chrysanthemums.—An excellent plate of three varieties of new Chrysanthemums appears in the *Revue Horticole* of March 16, comprising M. Bourguignon, Mme. Foucher de Careil, and Maurice. They are distinguished more for their freedom and curious arrangement of their florets than for size. M. Bourguignon has fluted florets of a greenish yellow colour on the inner face, but bright salmon red on the upper part of the tube. Mme. Foucher de Careil was exhibited last season at several of the shows here; the flowers are very numerous and bright lilac in colour, passing gradually to white towards the centre. Maurice resembles the preceding somewhat in form and freedom, but it differs in its violet-coloured florets passing gradually to pale yellow towards the centre. This class of Chrysanthemum represents a new and distinct break, of which we hope to see more.

Varieties of the Mezereon.—The varieties of the common *Daphne Mezereum* as well as the type were fully in flower the other day in the nursery of Messrs. Paul and Son, High Beech, in full exposure to the wind and sun. It is a shrub that loves the sun, and pretty groups of the common kind may be formed on sunny banks that will give pleasure by the profusion and fragrance of the flowers in winter. At High Beech all the varieties are grown. A group of the common kind was the brightest, as the flowers were richly coloured, but a variety called *purpurea* has much darker coloured flowers. The single white and the double white are not so valuable as the type. The flowers wreath the twigs in the same profusion, but are weak in colour—a kind of ivory white. In the Broxbourne Nursery of the same firm there is a plant of the double white, a very scarce variety, and likely to remain so, as it is of no interest to the general planter who wants bright and useful things. The flowers are quite double, as sweet as those of the common kind, but more of a dirty cream colour. At High Beech are small plants of a much better single white *Mezereum* than the ordinary white; the flowers are larger, purer, and therefore showier. Amongst seedlings of *D. Mezereum* if any quantity is raised, variations occur in colour, some paler than others. In the case of the common *Daphne* the flowers are succeeded by bright red fruits, but *alba* has paler leaves and produces yellow berries, as shown by the coloured plate given in THE GARDEN, June 26, 1886, where the varieties are all figured. *Autumnalis* is, as its name suggests, an autumn-blooming form, and is a most desirable shrub, as the twigs are covered with purplish bloom

from November to March. It is very seldom asked for. *Daphnes*, especially the common *Mezereum*, should be found in every garden.

Saxifraga oppositifolia.—The half dozen or so of varieties belonging to the early flowering *Saxifraga oppositifolia* are now in full bloom in the open air, and already the rockery has assumed a different and much livelier aspect after the recent severe weather. The forms major, maxima, pyrenaica, pyrenaica rubra, minor and alba are all of them perfectly distinct and amongst the best of our early alpine. The form *alba* I wish especially to draw attention to, as, in my opinion, the sweetest of all. It is an extremely free-flowering form; the dense dark green closely set leaves, studded with pearly flowers, form one of the loveliest pictures I have seen for a long time. It also proves a charming pot plant, as it does not require much attention and can be grown by those who may have a broad window-sill or sheltered bench where they can admire a few at least of the alpine treasures, now so numerous in all good gardens. All of the above can be readily increased from cuttings or from seed, which they ripen freely.

LAW.

DAMAGE TO PLANTS.

AN action was heard at the Westminster County Court on the 12th inst., which was brought by M. August Van Geert, of Ghent, against Messrs. James Carter and Co., of High Holborn, to recover the price of some Camellias supplied in the autumn of last year, and which reached Messrs. Carter and Co. in an unsaleable condition, the leaves and buds having fallen from the plants; and as M. Van Geert would neither make any allowance nor replace the plants, Messrs. Carter and Co. were compelled on principle to defend the action. The defence involved the important question as to who was responsible for the damage, as the plants were sent to the agents of M. Van Geert in the city, and the defendants had no knowledge of the carriers or the route by which they were sent from Ghent, although they appear to have paid the freight to the carriers in a lump sum with the charge for bringing the plants from M. Van Geert's agent to Messrs. Carter's warehouse in High Holborn, and upon this fact coupled with the statement in a printed catalogue of M. Van Geert's that "all plants travel at expense and risk of purchasers," it was decided by his Honour Judge Bayley that the defendants were liable. In the case of another consignment which Messrs. Carter received from M. Van Houtte about the same time in a damaged condition it was unnecessary to bring the matter into a county court, as M. Van Houtte very promptly and liberally met Messrs. Carter in the matter by sending other plants to replace those which had been injured.

Gardeners' Orphan Fund.—A meeting, convened by the committee of the Gardeners' Orphan Fund to confer with the stand-holders in the flower market, Covent Garden, as to carrying out another floral fête in aid of the fund, took place in the Hummums Hotel on Friday evening, the 14th inst. Mr. George Deal presided, and there was a good attendance of both market growers and of the committee. The chairman read a letter from the agent of the Duke of Bedford, in which it was stated that His Grace would be very pleased if the committee would make use once more of the flower market in promoting a fête in aid of the Gardeners' Orphan Fund at such a season as may prove convenient; also a letter he (the chairman) had received from the secretary to the Lord Mayor, informing him that the Lord Mayor and Lady Mayoress will be very happy to become patrons of the fête, and, if possible, attend the same. The opinion of the meeting being decidedly favourable to the project, it was proposed by the chairman, seconded by Mr. J. Walton, and carried: "That this meeting cordially agrees with the proposal to hold a third evening floral fête in aid of the Gardeners' Orphan Fund, and having learned with pleasure that His Grace the Duke of Bedford has kindly

granted the use of the market for the purpose, hereby pledges itself to render the best assistance in its power to successfully carry out the same, and to co-operate in general with the committee of the fund." The following as representing the stand-holders were appointed to act with the committee of the fund: Messrs. W. Baker, G. May, W. Gregory, J. Walton, G. Messer, G. Bannister, G. Poulton, J. Lewington, H. B. May, E. Sawyer, T. A. Dickson, A. Cattaneo, E. Rochford, A. Bullen, G. Wermig, and J. Williams. The consideration of the most appropriate date for holding the fête was also considered, and the majority were in favour of Wednesday, May 21. The joint committee will meet at the Caledonian Hotel on Friday, the 28th inst., to take the necessary steps. The proceedings closed with a vote of thanks to the chairman.

OBITUARY.

Dr. Parry.—We learn that Dr. Parry, the celebrated botanist, died on the 20th ult., at Davenport, Iowa, from pneumonia, following on an attack of influenza. Charles C. Parry was an Englishman, having been born in Admington on Aug. 28, 1823. The family emigrated to America nine years after his birth, and settled in Washington County, New York. Dr. Parry at first studied medicine, but the whole bent of his energy was directed to the study of natural history, and in 1846, when his family removed to Davenport, medicine was given up for his more favourite pursuit. In 1849 Dr. Parry commenced his great work as an explorer, and was attached to David Dale Owen's survey of Wisconsin, afterwards joining the Mexican Boundary Survey botanical staff. He found rich treasures when a member of this survey, which brought him across the great plains of the Southern States. In 1861 he studied the flora of the central Rocky Mountains, and made valuable discoveries when exploring the region of Nevada, Utah, Mexico and California. Davenport, however, was his home, and there his rich herbarium remains. Dr. Parry brought to light many new plants, described by Dr. Gray and Dr. Engelmann, and his name is associated with several noble Pines, as the Blue Spruce (*Picea pungens*), Pinus Parryana, P. Engelmanni, and P. Torreyana.

Dr. Ainsworth.—We regret to record the death of Dr. Ainsworth, one of the most famous of Orchid growers, and whose name will ever be remembered by the charming hybrid *Dendrobe D. Ainsworthi*. Dr. Ralph Ainsworth lived at Lewes, Broughton, Manchester, where he died on the 6th inst., after a short illness, at the age of seventy-nine. The Manchester Royal Botanic Society always received his active support, and he was a member of its council. To the horticultural world he will be best remembered by his love for Orchids, of which he was a constant exhibitor at the Manchester shows. East Indian Orchids were cultivated with marked skill by his gardener, Mr. Mitchell, and the noble specimens of *Dendrobium Ainsworthi* that were grown at Broughton created no small excitement some years ago. In recent times, since Orchids have ceased to be treasures alone for the few, Dr. Ainsworth has in a sense retired; but the beautiful hybrid *D. Ainsworthi*, raised by Mr. Mitchell, will long keep his memory green. It is not too much to say it is the finest hybrid *Dendrobium* that has ever been raised.

Treatment of seedling Plum trees.—Last year I topped back some seedling Plum trees in my town garden, with the view of producing horizontal branches along the wall. The seed was from the Victoria Plum, according to the generally received opinion, one of the most prolific and certain bearers, and that given the preference to in the Nottingham district. Would you kindly say if I must graft to have fruit? or with proper training and pruning, shall these seedlings produce fruit on their own stems as soon and as good if I do not graft at all?—W. J. MURPHY, Clonmel.

Names of plants.—C. E. M. M.—1, common *Mezereum*; 2, common *Arbutus*. Please send flowers of the others; we do not name *Daidyodils*.—A. B.—*Cattleya Trianae*.—G. Roy. *Gesneria elongata*.—C. F. Howell.—*Azalea Boule de Neige*.

WOODS AND FORESTS.

NATIVE AND FOREIGN LARCH.

IN THE GARDEN (March 8, p. 236) there is a paper on this subject from the pen of Mr. Rich. Hartland, nurseryman, Cork, Ireland, in which he tells us that—

About forty years ago the Tyrolese seed was first introduced. . . . At that time the seed was collected on the higher ranges. The produce was remarkably fine, and commanded a higher price than the native, but the supplies were soon exhausted and the collectors came down to the lowlands, where large quantities of seed were more easily obtained.

It is not easy to understand how the collectors could climb trees with naked shanks for a distance of some 60 feet or 80 feet from the ground in the lowlands and procure seed at a cheaper rate than by going higher up the hill, where, I am told, many of the trees are isolated specimens and almost branched from the ground upwards, so that the cones could be gathered with comparatively little trouble. The same rule holds good in collecting Scotch Fir cones in the natural forests in the highlands of Scotland. I never saw the seed collectors attempt to climb the tall naked trees in the glens nor in the Ballochbuie Forest; they always directed their course to higher ground, where the trees were well furnished with branches. Mr. Hartland, however, admits the superiority of the foreign Larch seed when it can be had of good quality, which is a step in the right direction. Further on the writer says:—

In trees planted side by side, the difference is most marked; while one yields valuable timber, another is perfectly worthless, and I have seen many plantations both in Scotland and in this country which after years of waiting can never prove of any value.

Now this statement is altogether too sweeping, as I can show plantations both in Scotland and Ireland where the Tyrolese Larch is growing side by side with trees raised from home-saved seed, and the difference after many years' growth is so slight that it cannot be distinguished. In a paper before me from the pen of Mr. C. Y. Mechie, who has had large experience as a planter in the north of Scotland, the following passage on this subject occurs:—

There appears some difference between trees raised from seed received direct from the Tyrol, and that of home-grown Larch, in their first and early stages of growth. The difference in the nursery ground, especially in the seed bed, is at times quite obvious, and in other cases quite undistinguishable. . . . When the plants grew older, the marks of distinction became fainter, till at last they quite disappeared. . . . An example of this appeared in a plantation on the estate of Invercauld, Aberdeenshire, which was planted by Mr. Morrison, nurseryman, Elgin, in 1854. One of the conditions in the contract was to plant a certain quantity of Tyrolese Larch in stated parts of the enclosure. . . . I examined very minutely the Larches in this plantation when thirteen years old, and on comparing the Tyrolese groups with those of Scotch produce, taking soil, situation, altitude, &c., into account, I left the plantation quite unable to say which had the superiority, or whether or not there was any difference between the two sorts. . . . The greater part of the Larches in this plantation are in a very thriving condition, both those from foreign and home grown seed. . . . On the hillocks alluded to, both Scotch and Tyrolese plants are in vigorous growth, with scarcely any sickly plants among them. . . . To me there appears so very little difference between the Scotch and Tyrolese Larch, that planting should be conducted as if they were one and the same sort of trees.

Now it happens that I know all about the history of this plantation, having been employed by the commissioner to inspect and report on the progress of the work during and several years after its formation, and can corroborate Mr. Mechie's statement. But I can go further than that, as I visited the plantation only a few years ago, and after thinning became necessary and the first parts that required to be dealt with in that respect were the hillocks where the Tyrolese Larches were planted. Mr. Hartland quotes largely from "Grigor's Arboriculture" in support of his theory. That author places great faith in the hardiness of plants raised from trees that have been acclimatised in this country, as they never start to grow so early in spring as plants raised from foreign seed, and there is no doubt but this is an advantage, as they are not so apt to be damaged by late spring frosts. Again, the difference between the vitality of foreign seed and home-saved seed is so great, that 1 lb. of the former often yields as many plants as 5 lbs. of the latter, thus showing clearly that the finest samples are always to be found on trees growing in their native habitat.

J. B. WEBSTER.

THE WOOD SUPPLY OF GREAT BRITAIN.

At the Whitehall Rooms, Hôtel Métropole, a paper on "Forestry in the Colonies and India" was read on Tuesday by Dr. W. Schlich before the members of the Royal Colonial Institute. Dr. Schlich in his lecture said that it appeared that from tabulated statements of figures about £12,000,000 are paid every year for timber by the British Empire, and that while the United Kingdom alone required annually timber to the value of £15,000,000, its dependencies can furnish no more than might be valued at one-fifth of that amount. More than one attempt to develop systematic forest management has come to nought owing to the short-sightedness of the policy adopted. The United Kingdom had, said Dr. Schlich, an area of waste land amounting to over 26,000,000 acres, one-fourth of which would be sufficient to produce all the ordinary timber now imported into the country. It was urged that these lands were wanted for other purposes, but this argument would by no means hold good in the case of most of our colonies, and yet several of them, although possessing enormous areas available for forestry, were already importing timber on a considerable scale; and it could not be doubted that, unless measures were speedily taken, the imports into the Empire would increase as time went on. Then they had also to consider the question whether foreign countries would be able to continue to supply our needs. Some of the colonies had endeavoured to grapple with the question, but in many little or nothing had been done. In spite of the constitutional aversion of Englishmen to State interference in anything like an industry, he considered it essential that energetic steps should be taken to prevent the serious consequences that would arise from a failure of the wood supply of the Empire. Nominal interference only would be disastrous. The forests must be treated in a systematic manner, and the State should either set aside certain areas for forest purposes, or by legislation take upon itself the management of communal and even private woodland. Dealing with India, the lecturer said that for 700 years a gradual destruction of the forests of that country had been going on, and had become fiercer under the British rule, by reason of the extension of cultivated and pasture land and of the laying down of railways. After a time difficulty was experienced in meeting demands for timber, and in the early part of the century a timber agency was established on the west coast, while in 1873, a teak plantation on a large scale was made at Nilambur. Through the energy of a few officials the matter was kept before the public, and in 1882 the Forest Department of Madras was entirely re-organised. Several Acts were passed to provide for the management of the forests under the protection of the State, and a

competent staff of officers was provided, to be reinforced from time to time by those educated at Cooper's Hill College. Under the charge of the department were some 55,000,000 acres of forest lands, and the figures relating to the cost of the work done were very satisfactory. Dr. Schlich then placed before his hearers an exhaustive account of the action of the Australian colonies with regard to the regulation of wooded lands by the State, contending that in no case had sufficient steps been taken to ensure a lasting and continuous supply of timber. He did not overlook the difficulties of the several Governments, but said that they ought not to shrink from the duty, even though it might be contrary to the wishes and interests of individuals.

When to cut timber.—A correspondent of an American paper says: "I have found August, September, and October the best, and February, March, and April the worst months to cut wood. A red maple cut in September will keep in a round log white and sound until the next August; while one cut in March will begin to turn black and decay by the middle or last of June. Grey Birch cut in September will keep in good condition until the next September if left in the woods cut in 4-foot lengths; while if cut in March and left in the same way it will be nearly worthless by the 1st of August. White Pine, like red maple, keeps white much longer if cut in September than if cut in March, and is not injured by the worms so much. Wood dried slowly in a low, cool place is better than if dried quickly in the hot sun, even though cut in summer. May this not in a measure account for wood being better cut in autumn, it having the winter to dry in?"

Renewing worn-out hedges.—We often hear it said that Quicks will not grow in the same soil from which an old hedge has been removed; and, if the old hedge has simply been grubbed up, and the young Quicks planted without further preparation, they will certainly not thrive any more than any other crop would under such conditions. When an old hedge is removed, it must be done thoroughly, not leaving quantities of old roots in the soil to decay and breed fungus to attack the roots of the newly-planted fence. The ground must be properly trenched, working into it plenty of manure as far as the roots of the new Quicks are likely for some time to extend. Select, plant, and, above all, keep the young fence perfectly clean from weeds, and mulch the surface with a little manure every spring, until the hedge gets up. In short, give it similar attention, with a little more manure than would be considered necessary for any fence newly-planted, where none other had previously existed; and there need be no misgivings as to the result. This replanting on ground previously occupied by old hedges more particularly applies to boundary fences, where there can be little or no deviation from the old line. Where divisional fences are worn out, it is often practicable to prepare for and plant the new fence on the opposite side of the ditch, or even further to deviate from the old line, which frequently presents other advantages, in addition to new soil for the Quicks.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

TUB GARDENS.

Most people have useless empty barrels, once filled with petroleum oil, but now lying about in the yard or only worth a few pence. It is not uncommon to see them used for the purpose of a tub garden, and for that purpose they are well qualified. It is best to cut the barrel in two, burn out the oil which still clings to the wood, and then make each half a receptacle for flowers. But, if possible, before this is done the sides should be well covered with cork, which will hide the hideous exterior before plants droop over it.

The great advantage of such tubs for flowers is that they can be placed where it would be impossible to have any flowers otherwise. There is often a space covered with large flagstones outside a garden door, or in some side corner of the house, where it would be most desirable to have flowers, but a border is impossible, as the ground cannot be dug. Such a place is often sheltered and sunny, and thus flowers, in a warm corner where frost has little power, can be made to come early before their brethren in the open garden. Another advantage is that one has such complete power over the soil, and the depth of it in a tub of this kind keeps the earth cool and moist for the plants in the summer-time. Moreover, the height of the tub brings the flowers near the eye, and this is a great advantage, for the small things which are suitable for such a purpose show themselves a great deal better for being raised up nearer the eye, and it is not necessary to stoop down low to smell the delicious perfume of the Hyacinths.

It is easy to change the plants in tubs of this kind at least twice a year, and so to have a succession of flowers from February to November. They are specially suitable for bulbs. The soil should be removed in November, or earlier if the summer beauty is quite gone, to the depth of several inches, and then the whole surface covered with a variety of bulbs put thickly together, but arranged so as to look well by and by in early spring. Snowdrops may be dotted over the whole, and Crocuses of the three colours—yellow, white, and purple—thickly round the edge. Then Hyacinths placed in and out according to colours, and the dark blue Squill, or *Chionodoxa Lucilia*, scattered everywhere that room can be found for them. Places might still be left round the margin among the Crocuses for coloured Primroses, which should not be planted till the bulbs are well covered with soil. With the early days of January such a little tub garden will begin to be interesting. The Crocuses, Snowdrops, and Primroses will flower earlier than in the garden, and the Hyacinths will cover the ground early with green leaves, and their spikes of bloom pushing up amongst them. The Squills will be out in flower as the Crocuses and Snowdrops are passing away, and will continue to bloom with the Hyacinths. Just at this time, when our indoor Hyacinths are beginning to fail, and even those kept back in a perfectly cool greenhouse are nearly over, those in the tub garden are beginning to come out in full beauty, and they will thus prolong the season of those lovely flowers. They will again be succeeded by Hyacinths in the open border.

In summer the planting would, of course,

be according to taste, but the beauty of trailing plants hanging over the sides with clustered flowers must be seen to be appreciated. The old-fashioned Canary Creeper (*Tropæolum canariense*) does admirably in this position. The common *Nasturtium* grows almost too luxuriantly, but if care is taken with it, and if the fine red and clear yellow varieties only are used, they add very much to the summer beauty of the tub garden.

Another old-fashioned flower, *Lobelia gracilis*, always looks well rambling among the interstices of the cork, its bright blue flowers forming a pretty contrast to the light brown colour of the cork, amongst which the *Lobelia* will delight to throw its graceful stems, covered, as they always are, with small, but pretty flowers.

A great deal might be done in this way to make a dull corner bright with flowers and specially interesting during the winter season. Bees, at all events, will be grateful to those who will thus utilise the barrel, which has long perhaps been worthless lumber in the back yard.

A GLOUCESTERSHIRE PARSON.

THE WILD PLANTS OF SELBORNE.

TO THE EDITOR OF THE GARDEN.

SIR,—Your interesting notice on the "Wild Plants of Selborne" (*GARDEN*, March 22, p. 274) tempts me to make a few remarks on some of those specially mentioned. I am sceptical as to *Tulipa sylvestris* having disappeared from the park of "The Wakes." It is not very easy to find, because it comes up along with the Grass and never flowers. The late Professor Bell paid great attention to the wild Tulip, and transplanted some roots into his garden where it flowered on two occasions only; one blossom he sent to the Linnean Society and one he gave me. I am unable to give a reason why it flowered so seldom in the garden, but it would be sufficient to account for its not flowering in the park, that the Professor cut the park for hay every year, and the leaves of the Tulip being cut before they were fully withered the bulbs got weakened. I once saw a blossom in the churchyard at Selborne from some bulbs that had been transplanted from the park. I have not myself had the opportunity of looking for the Tulip in the park since Professor Bell's death, exactly ten years ago, but up to that time it was there and long after the transplanting of a small portion of it by him into his garden. Tooth-wort grows here, but I think it is a plant easily overlooked. I do not believe *Parnassia palustris* to be a native, but to have come from seed which White mentions having sown. That accomplished botanist, Lord Selborne, was the fortunate finder of this lovely plant.

It is long since *Asplenium Ruta-Muraria* and *A. Ceterach* grew on the church wall, for Professor Bell in his list adds "formerly" to each of them. However, I have seen the former growing on the wall that separated "The Wakes" from the street, but this wall was taken down in 1882 and the Fern disappeared. The narrow-leaved Everlasting Pea is exceedingly abundant in all this district. There are two beautiful plants abundant in this district, which have certainly extended their areas within my observation; these are *Epilobium angustifolium* and *Narcissus pseudo-Narcissus*.

WM. WICKHAM.

Binsted Wyck, Alton, Hants.

Hardiness of *Abutilon vexillarium*.—There is no doubt of the complete hardiness of this plant. I have grown it here in the open ground for a dozen or fifteen years under a wall, but not

trained to it. In a very severe winter it may get cut to the ground, but shoots up again. It flowers nicely nearly all the summer; if trained to the wall it would probably flower better. I had it first from Mr. Wilson Saunders, who grew it beautifully as a conservatory pillar shrub, and that is no doubt the best place for it.—H. N. ELLACOMBE, *Bitton*.

ROSE GARDEN.

THE FROST AMONG THE ROSES.

THE Roses at the end of February seemed all unconscious of the hard fate that hung over them; hence the hard grip of lion-like March found them almost as advanced and tender as the 1st of May. The effect of from 20° to 30° of frost on Rose branchlets studded from base to summit with growing shootlets from 1 inch to 3 inches long can be more readily imagined than described. The shootlets are quite blackened, and many of the branches that bore them are cut down level with the ground. Roses on their own roots have been thrown back for a month or more, but not greatly injured otherwise. Worked and standard Roses have suffered more seriously and fared much worse. This ruthless cutting back or pruning through the frost has settled for the time the controversy that arises almost every spring as to the wisdom or otherwise of cutting off or back the highest or terminal buds of our Roses that break into leafage and insist on growing at seasons abnormally early.

Some rosarians assert that by cutting these off as soon as the buds break into shoots, further growth is checked, and the semi-dormant buds near to the base of the Rose trees or bushes remain longer dormant. There may be some grain of truth in this theory and practice of early pruning to check growth. Doubtless the growing shoots tend to draw up more sap from the roots. In the ratio they do this they foster the general growth of the Rose. Cut them clean off down to the dormant buds, and their attractive force is suddenly got rid of. But this is but one side of the complicated question of the action and reaction of the removal of prematurely early growths of Roses and other plants. These early growths are safety-valves as much or more than stimulants. The growth expends force; its removal suppresses and concentrates it into the semi or wholly dormant buds left. The check caused through their removal is temporary; the stimulus arising through the concentration of force into smaller areas is permanent; hence, on the whole, the removal of precocious growths with the view of ensuring a finer and fuller blossoming time in due season is a mistake. If anything is done in this direction, the safer course is to rub off the more advanced shoots from the heads of our Rose branches. A portion of the sap set or sustained in motion through these growing shootlets would still flow into these budless branches, which would become storehouses for the all too active growing force of the early-stimulated Rose trees. This sap would virtually be lost; but that matters not, as its diversion into those useless channels would remove the pressure from the dormant buds, and thus retard their breaking into growth by possibly a month or more.

Amateurs are mostly unduly alarmed at the prodigal waste of vital force and blooming power involved in the early development of Rose shoots doomed to future destruction either through the knife or killing frosts. Rosarians of greater practical experience more versed in the prodigal provisions of Nature trouble little at the great waste of force involved in unseason-

able growth, and very much about timing the growth of the Roses to suit their climate and provide for their wants. Besides, in the majority of our seasons, however much and skilfully rosarians may plan or purpose in reference to the time and manner of the blossoming of their Roses, our climate most tyrannically disposes of the matter. For example, up to the 1st of March this year we were all on the outlook for an exceptionally early season. Now it is more than probable it may prove exceptionally late. Why? Two nights' frost of exceptional severity passed over them early in March, and these have caused all the difference, for they have not only virtually destroyed all precocious growths, but have so severely nipped the dormant buds, that the latter will be in no hurry to start, even were all the branches with started buds to be pruned hard back to their dormant base to-morrow.

D. T. F.

Rose Gloire de Dijon.—It is not too much to say that this is the best Rose ever sent out, as for freedom of blooming and general usefulness it has no equal, for whether indoors or out there is scarcely a week or day during the time plants of it are in leaf that flowers of it cannot be had. Some years ago I tried a Climbing *Devoniensis* in one of the houses, but the growth was so strong and rampant that it did not bloom satisfactorily, and I budded a *Gloire de Dijon* on it. This now covers nearly the whole roof, and would have done double or treble as much, but it had to be restricted for the sake of other plants growing below. The trunk is like a tree, the main stems and branches very large, and the quantity of flowers that may be had during the season is enormous. The way I manage it is to cut out the wood that has produced the blooms and lay in or leave as much of the young as there is sufficient room for; all the very strong wood is taken out as soon as it shows.—S.

Variation of colour in Marechal Niel Rose.—I have got about 1000 blooms and buds on a *Marechal Niel* Rose on the back wall of ainery. I send you two buds, both of which came off the same branch. Is the sport worth propagating?—D. MCARTHUR.

* * Variation of colour, as displayed in two blooms of *Marechal Niel* Rose, is by no means uncommon—more common even out of doors than under glass—but, as a rule, quite inconstant. Should Mr. McArthur propagate the two shoots side by side, there is little if any probability that he would be able to distinguish between the blooms produced by the two sets of plants next season. The causes that produce these variations of shade in the flowers of *Marechal Niel* appear to be various, and by no means exactly defined, but their effect is very temporary.—T. W. GIRDLESTONE.

Spineless Roses.—I have noticed for some years past that the Roses without spines or that have only a few always do the best in pots when forced, and I shall be glad to hear if others have experienced the same thing with those they grow, as Roses without thorns are far more desirable than those with, and it would be easy to select a good many that are almost free from them. I find the old John Hopper is one of the best for pot culture and a most excellent Rose for cutting, as the flowers stand up well and show the rich satiny backs of the petals off to advantage. This is one of the few English raised Roses that have ever taken any position, and although it is now seldom seen on exhibition tables, I think it will always be grown, as, like *Devoniensis* among the Teas, John Hopper is distinct and of a high order of merit among the Perpetuals. Although it was in demand when first sent out, its raiser did not reap much benefit, as it was issued before he had much stock, and others propagated and supplied the public.—D.

Rose William Allen Richardson.—This is a lovely little Rose when the bud is about half open, at which stage it is very choice for button-holes, as the form is perfect and the colour exquisite, the flowers

being much deeper and richer in shade than those of the well-known *Safrano*, that has been such a favourite for so many years past. William Allen Richardson, I fear, is rather a weakly growing variety, but no doubt it has been so forced and worked up to get a good stock that this may have had something to do in reducing its strength. The first plants I had I could not get to start and they died, but those obtained since have flowered and are now doing well.—S.

ORCHIDS.

TRICHOGLOTTIS FASCIATA.

THE flowers which were sent me by Mr. John Harris were of this species, and I am much obliged for them. *Trichoglottis* is a small genus of Eastern Orchids belonging to the *Vandee*, and in habit of growth the present plant much resembles a *Renanthera*, but it produces its flowers more freely than the old and well-known *R. coccinea*. It is an evergreen plant, with a somewhat stout stem, from which it makes roots very freely, and upon either side are produced the oblong-obtusate leaves, which are about 3 inches in length by about 1 inch in breadth. The peduncle is short, few-flowered, and erect. The spike sent me bears four blooms, which, I think, is the usual number. The flowers, springing from the base of the leaves, but on the opposite side of the stem to the leaf, are very freely produced. Although they cannot be called very showy, they are very distinct, spreading, and some 2 inches across. The sepals and petals are about equal, the ground colour pale yellow, transversely barred with dull brown. The lip is white, tinged with pale mauve. The flowers are of good substance, and last a long time in perfection. Naturally I believe these plants are epiphytal, but under cultivation they succeed best grown in pots, as their stout stem and leaves do not receive sufficient nutriment under any other system. The *Trichoglottis* likes sunshine, and therefore it should be well exposed, the shading being kept on it more than on other plants. The pots used for it should be well drained, as during the summer months it requires an abundance of water. It grows best in living *Sphagnum*, without the addition of any other substance. Treated thus it will thrive admirably and bloom freely. I am not aware of its exact habitat in the East, but I think it must be in some of the Philippine Islands, and I also think this is the only species in cultivation. W. H. GOWER.

Odontoglossum madrense.—This is both a pretty flower and very distinct. I was much gratified a short time since to see a fine spike of it on a plant in Mr. Dorman's collection at Sydenham. It is a charming plant, and its flowers are fragrant. The whole flower is of the purest white, the sepals and petals blotched at the base with reddish purple, the lip being stained with yellow on the disc. This plant was figured in the *Botanical Magazine* some fifteen years ago under the name of *O. maxillare*. It had been collected by Roezl, and had been named *madrense* by Reichenbach. It is a native of the Sierra Madre, of Mexico, and likes a little more warmth than the majority of the *Odontoglossums*.—W. H. G.

Cattleya Trianae.—A remarkable and very fine variety of this is to hand, sent by Mr. Moss, of Bishop's Waltham, near Portsmouth. He says in his letter that it puts him very much in mind of a *gigas*, but in this respect I must differ from him; it does not resemble that kind in the least. In the first place, it is a round flower, the segments being broad and of good substance, the colour of the sepals and petals being deep rose; the lip has a wide open throat, and it is not so closed in front as in the majority of the varieties of this species; it

is rose-coloured, the front portion being deep maroon, and the whole ground at the back being rich orange-yellow, the throat rose-coloured. It is a very rich coloured and handsome variety. Mr. Moss tells me it is from an imported plant, and that it has red pseudo-bulbs.—W. H. G.

Laelia harpophylla.—A very fine truss of bloom of this species comes from Mr. White's garden at Arddarroch; the truss is more compact than one usually sees, and it bears eight flowers of a rich orange-vermilion. I think Mr. Brown says this *Laelia* has been growing with his *Cattleyas*, which is a higher temperature than I have seen this plant doing well in; nevertheless, this truss of flower unquestionably proves the plant has enjoyed its surroundings. I have seen *L. harpophylla* thriving best in the *Odontoglossum* house, and upon one occasion I saw plants of it standing upon a shelf. The soil was quite frozen hard, and yet they flowered the following spring and are now in excellent health, so that it would appear to submit to a great range of temperature.—G.

Phajus tuberculosus.—This beautiful species is now flowering very freely in Mr. Measures' garden at Camberwell, but at the same time the plants appear to suffer a great deal from the blooming. Unfortunately, this is one of the plants that at present we are not able to grow well, and thus we lose much of its beauty, for when properly established it must be magnificent. This *Phajus* evidently comes from the low-lying country, for it requires a maximum of heat and moisture, but at the same time we, as a rule, exclude air from the hottest houses. It is grown by Mr. Simpkins, gardener to Mr. Measures, in the house with the *Phalaenopsids*, and both plants are showing unmistakable signs of improvement. The scape, produced from near the top of the bulb between the lower leaves, is erect, and bears from four to six or more flowers, each measuring about 2½ inches across. The sepals and petals are pure white; the lip is peculiar, funnel-shaped, the side lobes very large, erect, the ground colour yellow, profusely studded with large dots of deep crimson, front lobe much smaller, white, with large, irregular blotches of rosy purple, whilst on the disc it bears three orange-yellow ridges, column large, but slender, white, tinged with rose-purple. It is one of the most beautiful plants when in flower, but one of the most unsatisfactory when growing.—G.

SHORT NOTES.—ORCHIDS.

Chysis bractescens.—I have this Orchid in flower, one plant with nine blooms—also *Cypripedium callosum*.—C. H. F. STROUD.

Dendrobium nobile.—From Mr. Brown, gardener to Mr. White, of Arddarroch, come some fine sprays of this species. Mr. Brown refers to the fact of there being four flowers from each node, saying, "I do not remember seeing this before," and we also do not remember to have seen more than three.

Laelia superbiens not flowering.—Can you tell me the cause of the enclosed *Laelia superbiens* not flowering? The plant, growing on a block of wood, is perfectly healthy, and has made a flower stem 4 feet long. The temperature is never lower than 55° by night and 65° by day.—T. A.

* * Can only imagine it arises from want of strength to mature its flowers.—ED.

Ceoloygines.—Some fine flowers of the pure white form (*hololeuca*), *Lemoniana*, and what appears to be the *Chatsworth* variety comes from Mr. White's garden at Arddarroch; they certainly are lovely. These plants appear to be later than the plants about London. It is a happy condition of things to be in a locality where fog does not play such havoc as it does in the London districts.

Leptotes bicolor.—I have received from "H. H." a spray of this bearing five flowers. This is a very unusual number, but I think I have some records of five flowers before. It does not always bloom with such vigour. In all probability it will not another year. The growth should be marked, and should it do so, it will become a valuable form of this beautiful and interesting plant.—W.

Odontoglossum Pescatorei melanocentrum.—Flowers of this beautiful variety, which was

exhibited at the meeting of the Royal Horticultural Society recently, have been sent by Mr. Tautz, of Studley House, Shepherd's Bush. It is a great novelty, and a real gem. The flowers are about the normal size, the whole pure white, saving a broad band of deep crimson at the base of the lip and extending right across it. The column is also of the same colour, in front of which are the pair of horns on the crest, which at the base are enveloped in the crimson band, but the tips are yellow.

ALPINE PINKS.

TO THE EDITOR OF THE GARDEN.

SIR,—When I received the No. of THE GARDEN (for Jan. 4) containing the article on alpine Pinks and the coloured plate of *Dianthus neglectus*, with which M. Froebel has found fault, my first impression was that the coloured plate did not exactly represent the character of the plant which Loiseleur named *Dianthus neglectus*, and which I have cultivated for a long time in my own garden. However, the colour or tint of the flowers in the plate is not so untrue as M. Froebel asserts it to be, and, besides, the question of colour or shades of colour is of no importance from a botanical point of view. What struck me most particularly was the manner in which the foliage (which in a living plant of *Dianthus neglectus* is glaucous) was represented in the plate; but, knowing something of the difficulties of the chromo-lithographic process, I had not the slightest doubt that the artist had for his subject a true specimen of *Dianthus neglectus*, for this species is cultivated in this country and does well here. I am still of the same opinion. After reading M. Froebel's letter, I again carefully examined the coloured plate, and came to the conclusion that it represents a plant of the true *Dianthus neglectus* modified by cultivation in England. It should not be forgotten that many mountain plants undergo modifications of form and colour when cultivated in the climate of England. I have not the least doubt that such has been the case in the present instance. I will even go farther in saying that I believe M. Froebel is wrong in questioning whether "D. K." ever saw a true plant of *Dianthus neglectus*, and I am not sure that M. Froebel has himself ever seen one, and that he has not got some other species in mistake. I have in my collection, under the erroneous name of *Dianthus neglectus*, a form of *D. glacialis* which M. Froebel formerly sold under the name of *D. neglectus*. If he still sells the plant under this name I regret it very much, as his interests will not be served thereby. *Dianthus neglectus* has no affinity with *D. alpinus* or *D. glacialis*, but comes under the classification of *D. cæsius*, for a dwarf form of which it might readily pass. I am inclined to think that the *Dianthus* which M. Froebel formerly sold as *D. neglectus* is *Dianthus nitidus* of Poir. (not of W. K.).

M. Froebel makes a very great mistake when he asserts that *Dianthus neglectus* "has been found neither in Switzerland nor in the Pyrenees, it being a native of the Maritime Alps south of Mont Cenis only." He will, perhaps, permit me to point out to him, from amongst numerous authorities, the following few extracts from standard works: Steudel's "Nomenclator Botanicus," p. 500; "Dianthus neglectus (Loisl.), Alps, Switzerland;" Lamotte, "Catalogue des plantes vasculaires, &c.," p. 18; "Dianthus neglectus, Alps, France;" Koch, "German and Swiss Flora," p. 67, *Dianthus neglectus*, "On the highest Alps in Switzerland, very rare; Umbrail, in Graubünden; Glarner Alps, near Graubünden, South Tyrol." Gremli, "Flore analytique de la Suisse," 5th edition, p. 572, appendix; *D. neglectus*, Umbrail, Glarner Alps.

I have found this plant in abundance on all the Alps of Aosta and on all those of Dauphiny. *D. neglectus* (Lois.) is properly a plant of Dauphiny, and although it is found here and there on the Maritime Alps, the geographical centre of its distribution is on the Alps of Dauphiny. It is also found in other localities, and it is incorrect to say that its habitat is confined to the Maritime Alps.

In conclusion, I may remark that "D. K." was not wrong in stating that *Dianthus neglectus* is found in Switzerland, although it is of rare occurrence in that country. As regards the coloured plate, I may repeat that I consider it represents a true *Dianthus neglectus*, the aspect of which has been modified either by the colour-printing or in consequence of the plant having been grown in the climate of England. This modification, however, is in reality very slight, for one can at the first glance recognise in the illustration a plant of the type of *Dianthus neglectus*.

DAPHNE.

NOTES OF THE WEEK.

Chionodoxa Tmolusi and *C. Luciliæ* are identical, yet labelled as if distinct in some collections. If the flowers of both were mixed together it would be impossible to separate them.

Cymbidium Lowianum.—A spike of an excellent variety of this comes from Mr. Dale, Bromborough Hall, Cheshire. The flowers are very fine, the crimson on the lip deep and covering almost the whole surface.

Scilla bifolia alba, as shown at the Drill Hall by Messrs. Barr, is a vast improvement on the old form known in our gardens. It is more free-flowering, the flowers are larger, more compact, and the spike, instead of being loosely scattered, has a neat pyramidal form. It promises to be a real acquisition to our list of spring flowers.—K.

The *Triteleia uniflora* shown amongst the Kew alpinæ shows what can be done with this bulb when grown in pots. The flowers themselves are perfect both in form and colour, the only objection that can be urged against its general use is the more or less Garlic smell, which in small rooms or houses is disagreeable, but which in large structures will not be much noticed.—K.

Rhododendrons Celestial and *omniflorum*.—These two valuable hybrids are of the same parentage as *R. Queen of Dwarfs*. *Celestial* has beautiful pale blush flowers, and is very free blooming. *Omniflorum* has dense trusses of white flowers, which are borne in the greatest profusion. Both varieties are invaluable for forcing, and are as easily grown as the ordinary form of *Rhododendron*, being of a hardy and robust constitution.—J. HATHAWAY.

Bletia hyacinthina is flowering freely in the Orchid house at Kew, and though quite hardy, it is a useful plant for the warm house at this season. The flowers vary in colour, the finest the deep rose-purple forms, which also make the richest effect in the open. If planted out it should have a moist peaty spot, shaded from bright sun, and screened from winds by surrounding dwarf shrubs. There are many nooks and bays in rockeries where this Chinese plant will succeed.

Cattleya Trianae from Cheshire.—We have received a flower of a curiously coloured variety from Mr. Dale, Bromborough Hall, Cheshire in which the two lower sepals are transformed into small labellums, each of the same colouring and with a central longitudinal line of orange-yellow, the base bright crimson. We have the same curious distribution of colour in *C. Vanneriana*; but in this variety it is clearer, and not suggesting a "freak," as the bloom sent. The lip of Mr. Dale's flower is well expanded, bold, and rich yellow in the throat, but bright crimson in the front. The flower has lost the grace and beauty of the more normal types.

Clianthus Dampieri in Wales.—The healthiest and finest plant of this I have hitherto seen in the open air is growing against a wall in the kitchen garden at Penrice Castle, a distance of 12 miles from Swansea. Planted out two years ago, it has attained a height of 10 feet, and spread out freely. When

I saw it the other day every shoot was fully furnished with buds, some of which were just beginning to open. In another month it will be one of the brightest plants in the garden. It ought to be planted more frequently in the open air.—J. MUIR, Margam.

Dendrobium Cambridgeanum.—I have sent a flower of *Dendrobium Cambridgeanum* from a plant which we have in bloom just now. Do you think it is a very good form?—W. BOUND, Barrow Street, Quorn, Leicestershire.

*** Excellent variety.—ED.

R. A. Rolfe.—We understand that Mr. Rolfe, of the Kew Herbarium, is about to sever his connection with that establishment for the post of co-editor of the *Lindleya*, published by M. Linden in Brussels. We have not heard if Mr. Rolfe intends to reside in Brussels in order to be on the spot, but we really ought to do something in order to have an Englishman who is capable and willing to devote his time and his energies to the requirements of his own countrymen. It should not be said that the foreigner is able to take away all our talent.—W. H. G.

Bignonia speciosa.—This beautiful *Bignonia* is an excellent garden plant, and is now in flower in the Palm house at Kew, where it has climbed up a considerable distance, so that it is difficult to see the true beauty of the flowers. In colour it is not so brilliant as such kinds as *B. Cherere*, but it blooms several times in the year, and in a stove if planted in a rich soil the growth will be surprisingly rapid, the long string-like shoots filling several yards of space. The flowers appear at the ends of the shoots and in the leaf axils, and are pale violet touched with pink in colour, and pencilled inside with white. It was found in Uruguay in 1840.

Stephanotis fruiting.—In the greenhouse of Mr. B. S. Brundell at Christ Church House, Doncaster, a fine *Stephanotis* is bearing one large plum-like green fruit about the size of a turkey's egg. It had formed last season. Will it ripen? and if so, will the seed take the form of a kernel in a stone as with a Plum, or the form of seeds in pulp as in a Marrow? A friend of mine who has been in India has seen the *Stephanotis* growing wild, but has never known an instance of its fruiting. The plant is trained along a greenhouse roof.—JAMES C. ROSS, Wadworth Hall, Doncaster.

*** In THE GARDEN of Nov. 21, 1874, there is a drawing of the fruit of this, and in a note appended to the illustration it is said that in 1868 a plant of *Stephanotis* bore fifteen fine fruits, each as large as a Jargonelle Pear. The *Stephanotis* has several times fruited in other parts of the country.—ED.

Fruit prospects in Suffolk.—It may perhaps seem rather early to say much as regards fruit prospects, as we may yet get sharp frosts, but if these keep off, the outlook is a very promising one, as trees of all kinds are well set with bud. Much of this satisfactory state of things is no doubt owing to the light crop they carried last year, as unless the season is very favourable as regards rainfall, trees cannot as a rule do two things—carry and mature a crop and form flower buds, and to get them to perform both we must limit the load, or help by giving soakings of liquid manure. Although the winter has been so mild, trees are not any forwarder than usual, as now (March 21) Peaches and Nectarines are only just opening their blooms, which are very abundant and look strong. Apples do not appear to have moved yet, and they, too, are full of buds, but Pears are variable, some being thin and others crowded, and all showing clearly that they will not be long before they are open. Strawberries are holding back, but they have fine crowns, and a little sunshine will soon set them going.—S. D.

Odontoglossum Alexandræ Cooksoni.—This magnificent form is now flowering in the establishment of Messrs. Seeger and Tropp at Lordship Lane, Dulwich, and is bearing two very long and dense spikes from one bulb. The flowers are large, the sepals and petals pure white, the latter very broad and beautifully fringed, the whole heavily spotted with brownish crimson; lip pure white, like the petals, fringed at the edges, and yellow on the disc, with a few blotches of brownish crimson. This variety first appeared with

Mr. N. C. Cookson, after whom it is named. It is a very rare and desirable variety; indeed I am of opinion it is the best of the spotted forms of *Alexandra* which has ever appeared.—W. H. G.

Anemone blanda.—It is certain that frost, rain, and sun cause the deep blue flowers of this plant to become a little blanched, but there are now many shades of colour, from deepest blue to pure white, and thousands of pure white flowers, such as I now have here, are quite as beautiful as the deep blues. There is even much difference in the foliage and flowers according to the respective locality where the plants are collected in their native places. The deep blue colour may be spoiled by frost, but will never change to pale blue. I hope that this year my traveller may come across the original form imported by Kotschy, which is white with a blue rim.—MAX LEICHTLIN, *Baden-Baden*.

Two beautiful *Eupatoriums* are *E. atropurpureum* and *E. ianthinum*, both now in perfect beauty in the greenhouse at Kew. They are better known perhaps under the name of *Hebeclinium*, which was formerly used. *E. atropurpureum* came from Mexico in 1862, and is the more striking of the two, the flowers bluish lilac and produced in a large head, which are in strong contrast to the deep green leathery leaves. *E. ianthinum* was introduced from the same country thirty years before, has purplish flower heads, borne in terminal corymbs, the leaves deep green, large, and serrated at the edges. It is as useful as the other, both making excellent groups in the greenhouse at this season, especially if grouped to bring out the rich colours of the leaves and flowers. Cuttings may be easily struck from the young shoots in spring, and if annual pruning is done after the flowering season, large plants may be produced in time.

Rhododendron Queen of Dwarfs.—This very beautiful hybrid *Rhododendron* was raised by Isaac Davies & Sons, Brook Lane Nursery, Ormskirk, the parent being *R. multiflorum*, crossed with one of the best hardy white varieties. To-day (March 22) it is blooming freely in one of the cool houses in the above nursery. The plant is of bushy habit and very free, the smallest plants being laden with large, well-expanded, snow-white flowers, which are borne in trusses, and are of great substance and very lasting. I counted from ten to fifteen flowers on a truss. A specimen which was planted in the open ground, to test its hardiness, has stood two winters uninjured and is the picture of health, and although only 9 inches high and 1 foot in diameter, it has fifteen flowering points with the buds very forward. It will prove excellent for forcing, as it can be planted out, and when well set with buds may be potted up in October, and had in flower very early with little or no forcing. I send trusses of the above for your inspection.—J. HATHAWAY, *Lathom Gardens, Ormskirk*.

* * A beautiful *Rhododendron*, the trusses large, compact, and made up of well-shaped flowers of the purest white. A most valuable variety.—ED.

Gerbera Jamesoni is flowering in the Cape house at Kew, and is one of those things that should quickly find their way into private gardens. It was discovered a few years ago by Mr. R. Jameson in the Transvaal, near Barberton, and was first flowered and introduced in 1887 by Mr. Tillet, of Norwich. *Gerbera Jamesoni* first flowered at Kew in June, 1889, and from that plant our coloured plate of it which appeared on October 12 was prepared. A plant flowered freely in the open border in the same gardens, and was in bloom even in the autumn, so that the possibility is that this plant may prove hardy; if so, its value will be increased tenfold. As may be seen from our coloured plate, this *Gerbera* has a distinctness peculiarly its own. The leathery leaves are arranged in a rosette, dark green and hairy beneath, while the flowers are each borne on a stem about 1 foot in length, and measure about 4 inches across. The petals are narrow, arranged as to form a large star, and coloured with a distinct and beautiful shade of orange-scarlet, more scarlet than orange. From what we have seen of this new composite it is likely to be much grown in gardens,

and if not sufficiently hardy to stand the winter, may be used in the flower garden during the summer.

Iris persica var. purpurea exhibited at the Drill Hall from the Royal Gardens, Kew, is no advance on the type, whatever may be said in its favour. *I. persica* is one of the most lovely of all spring Irises, and one that deserves a first place in every collection. The flowers are pale Prussian blue blotched with dark velvety purple, which makes a lovely contrast. In the var. *purpurea* the Prussian blue has changed to a dull smoky purple, the blotches being also less distinct and fewer in number. It will be found useful on account of its earliness.—K.

Iris sindjarensis last Tuesday received a certificate of merit from the floral committee. As already stated in these pages, it is very nearly allied to *I. caucasica*; indeed, the forms of the latter plant called *I. coerulesa* and *purpurea* would be hard to separate from *I. sindjarensis* were it not for the characteristic crest so prominent on the latter, and which in this large genus entitles it to specific rank. The colour in all the flowers we have so far seen is poor, and the fact of its flowering early seems to be its only redeeming point.

Lily of the Valley (Fontin's variety).—We have received from Mr. Morse, of The Nurseries, Epsom, a potful of this new Lily of the Valley, which is a beautiful plant, graceful in both leaf and flower and of remarkable vigour. The foliage is strong, large, and of the richest green, the bells being twice the size of those of the ordinary varieties, except the Victoria form of Messrs. Hawkins and Bennett. It is described in the catalogue of M. Paillet, of Châtenay, as "New Lily of the Valley, *Convallaria majalis alba grandiflora* (Fontin's variety true)." It seems to have earned many rewards in France, having been given a first prize by the National Society of France. Such a strongly fragrant, large-flowered, and robust variety should, we think, be grown for market.

Acacia cordata.—This appears to be quite distinct from any other *Acacia* in cultivation. It is flowering in the temperate house at Kew, and differs entirely from all the other species grown there, and these number considerably over 100. The long, slender branches are thickly clothed with the small cordate leaves, and the growths of last season bear numerous brush-like heads of flowers, which are of the palest yellow, almost white. Altogether this is an extremely pretty and graceful plant, and both for its flowers and elegant habit may be recommended for greenhouse cultivation. It produces shoots freely from the old wood, so that, unlike the majority of the Australian *Acacias*, it may, by pruning, be kept in a small state without acquiring a stunted appearance. The plant is in commerce, as we have several times noticed it in the London nurseries.

Hippeastrum doubling.—Enclosed I have forwarded a single flower of *Hippeastrum*, which, you will observe, has a tendency to become double. The bulb has flowered in the same manner the last three years. The first year I thought it must have been crippled in some way in the growth, but I find now it is the natural propensity of the bulb. I was, eight years ago, anxious to save seed from a white variety—the first, I believe, that was raised in this country. I kept the bulb away from the others, and carefully impregnated it with its own pollen. I raised 30 seedlings and all have scarlet flowers, this being one of the bulbs. I have never heard of one flowering like it before, and I should be very sorry to perpetuate it, as it would spoil the shape of what is now a most noble and beautiful flower.—A. CHAPMAN, *Westonbirt, Gloucester*.

* * The flower has a decided tendency to double, having an inner ring of segments of equal width to the outer ring; the colour self rich scarlet. A double *Hippeastrum* would be a monstrosity indeed.—ED.

Saxifraga oppositifolia splendens.—The *oppositifolia* section of *Saxifragas* is not far behind the early *S. Burseriana* and *luteo-purpurea*, and very gay they are on the rockery at the present

time. The vast improvement in these forms within the last few years is a great boon, and although we never could fail to admire the old *S. oppositifolia*, still the same quantity of flowers twice the size and of a more intense colour are certainly more acceptable. The best of the varieties in our opinion is *S. oppositifolia splendens*, a plant that grows freely on a northern exposure, and has large blooms of the most intense rose-purple. *S. o. maxima*, *pyrenaica*, major and minor are all worth growing and should be in every good collection. *S. aretioides præcox* is an early form of the old well-known type, the same in every respect, unless that it flowers a fortnight or so earlier. In these times this is a consideration, as it helps to shorten the dull season, and by creeping on a fortnight at a time we may yet hope to bridge the gulf between late autumn and early spring.

Flowers at Pau.—Lovers of spring gardening should take note of the dwarf annual *Valerian* much used at Pau for winter bedding, as evidently it will be of use where *Erica carnea* does not succeed. In colour its pinky lilac heads of flower make an effect much like good masses of well-flowered *Erica carnea*, and at Pau it is already in flower before *Forget-me-not* or *Lychnis* is out, being earlier even than *Arabis* or *Wallflowers*. *Anemone fulgens*, under the shelter of the big evergreen standard *Magnolias*, gives a welcome blaze of colour when the sun shines, and proves the use of a little overhead protection, for in the open the severe frosts of this winter have damaged even the hardy Japanese *Euonymus*, whose leaves strew the ground, while the heads of *Laurustinus* blossom hang withered on their stalk. Under the leafless Beech trees in the park the dainty little *Thalictrum anemonoides* is in exquisite beauty, its leaves greener and more dainty than *Maiden-hair Fern*, and its pearly white flowers more abundant than I have ever seen them; evidently it is one of the few plants that enjoys the shelter of Beech leaves that generally smother instead of protect.—E. H. W., *Pau*.

Shortia galacifolia.—This remarkable and extremely interesting plant is now in flower in the alpine house at Kew, and, judging from its health and vigour, it is likely to become popular. In its native habitat it grows in company with the well-known *Galax apylla*, and its scarcity, we are told, is owing to its inability to hold its own against the *Galax* in the struggle for existence. However this may be, we know full well what suits the *Galax*, and so far similar treatment has given good results with the *Shortia*. A moist peaty soil in a position exposed to the mid-day and afternoon sun suits it best. Apart from the romance attached to this plant, it has a beauty and grace quite its own. In autumn and winter we have a wealth of handsome purple-red leaves, and in spring an abundance of the most lovely white flowers, shading into rose as they grow old. It somewhat resembles a *Primula*, or perhaps more closely one of our large *Pyrolas*, though in reality it is closely allied to *Schizocodon*, *Conandron*, *Haberlea*, and *Ramondia*.

Chionodoxa gigantea.—The committee of the Royal Horticultural Society at the meeting on Tuesday seemed to take the popular view with regard to *Chionodoxa gigantea* and *C. Tmolusi* in refusing to give the former a certificate. We have seen seedlings from the old *C. Lucilia* almost identical with this giant, and in any batch of good strong plants one will have little difficulty in picking numbers of *C. Tmolusi* from amongst them. Those who hold the opinion that they are forms of one, not even excluding *cretensis* and *nana*, are certainly as near the mark as those who go in for calling them all species. The supposed difference in the bulb of *C. gigantea* and the fact of its being found as stated in a new district does not quite entitle it to specific rank when it offers no distinctive feature to separate it from *C. Lucilia*. They are all lovely, and well worth attention in the garden. They are all most useful for rockery, and specially suited for naturalising, but we should prefer planting them all together and allowing them to take their chance in the struggle for existence among our native plants.—K.

ORCHARD AND FRUIT GARDEN.

APPLE LORD GROSVENOR.

FROM the Jolly Beggar to Lord Grosvenor, the two names under which this Apple is known, is a far cry, but how the elevation came about I am quite unprepared to explain. One thing, however, is pretty certain: this excellent variety, without any history, was originally known as the Jolly Beggar, as we find Veitch, Rivers, Doctors Hogg and Bull faithfully describing the fruit, whilst the two latter give Lord Grosvenor as the synonym. Following the Apple to the congress held in the Royal Horticultural Society's Gardens at Chiswick, in 1883, the Jolly Beggar posed upon nineteen dishes under the more dignified name, and the experts, headed by our friend, Mr. Barron, anxious to get away from the casual ward, allowed the synonym to pass into the substantive, adding three dishes of the Jolly Beggar as synonyms of Lord Grosvenor. By whom this metamorphosis, in the first instance, was made, or why it was made, someone can, and will, I have no doubt, explain, as it is very unpleasant to feel that old friends, always with us, may have been dressed up under a gentlemanly garb, not only to swell our fat lists, but for an unworthy purpose. It is just possible that some staunch Tory may have raised a seedling Apple in every way the counterpart of the casual, but quite ignorant of the fact—strange incident!—he may have jumped to the upper regions for a name good enough to shed lustre on the best Pippin ever grown.

This Apple, however, is not a Pippin, but a Codlin pure and simple, and a good one, too, for it is an immense cropper and very hardy, frequently succeeding where the Manchester favourite, Lord Suffield, fails or becomes prematurely old. A tree worked on the Doucin stock, and supplied to me under the name of Lord Grosvenor some twenty-five years ago, has made a very handsome pyramid quite 12 feet in height, and, provided the fruit is well thinned, for it invariably sets profusely, I think I may venture to say it never fails. This great fertility, it is quite evident, is general in all parts of the country, as the accompanying engraving from a fruiting branch grown at Macclesfield, in the cold county of Chester, bears undeniable testimony. It bears very early, and when grown as a dwarf on the Paradise stock, the bushes, as anyone who understands the culture of the Apple will gather from the above, soon become exhausted unless very freely thinned. When this important operation is neglected, as it appears to have been at Macclesfield, the fruit is about or below medium size and very irregular in shape; but when the imperfect fruits, in some parts of the country known as crunklings, are rubbed off, fair samples run $3\frac{1}{2}$ inches in height and quite as much in width. Skin pale yellow, with a little colour next the sun; eye large and open, set in a puckered basin; stalk short and deeply set; flesh white, tender, very juicy like that of all the Codlins, brisk, and of good flavour; an

early cooking Apple in season as soon as large large enough for use, and good until the middle or end of October. Although apt to come rough, with one side higher than the other, defects which mean waste in peeling, this Apple is one of the most useful varieties for garden culture; whilst for marketing it is invaluable, as it can be gathered and disposed of direct from the trees. The photograph from which the engraving was made was sent by Mr. T. F. Pimlott, Whirley Road, Maccles-



Fruiting branch of Apple Lord Grosvenor (syn., Jolly Beggar). Engraved for THE GARDEN from a photograph sent by T. F. Pimlott, Macclesfield.

field, who says that Lord Grosvenor does well on light soil, growing vigorously and bearing freely.

W. COLEMAN.

Winter moth in orchards.—In answer to "S. D." (p. 242), I do not waver in the least from the statements published at page 199, for said statements were justified by plain practical facts carried out here. Our chief variance appears to be as to whether lime reduced to a fluid state, by adding water to enable it to be passed through a garden engine, does or does not lose any of its caustic and potent properties. "S. D." says it does not, whilst I submit that it does, and that it must be less potent than lime administered hot and dry. In order to amicably settle this, I would suggest that the question be submitted to those of your scien-

tific readers versed in such matters and competent to decide, we meanwhile agreeing to abide by such verdict. I would assure "S. D." it is possible to dust over completely with dry lime all twigs and branches on the trees, and the job is nothing like so formidable as he apprehends when the weather is still and damp, not wet, as such weather only presents itself at short intervals, generally in the early morning after a dewy night (say 6 to 8 a.m.). It is difficult to gauge exactly the number of trees done per day, hence my using the word "probably," which "S. D." finds it convenient to drop out, with regard to contrasting time occupied, liquid *versus* dusting. Moreover, he places in juxtaposition the fact of his one man dealing with 139 trees in sixteen hours, something under seven minutes per tree, including the slaking, straining, mixing, conveying to orchard, journeys hither and thither, with the pumping; in short, a perfect automaton, similar to those sometimes heard of out west. Had these 139 trees been something less than 20 feet high and as much through nearly, I could have entertained the possibility, for my men have gone over 1000 trees in much less time, but then these trees were maidens and dwarf bushes growing in our home nursery. I only hope that "S. D." will find his remedy as effectual as the one I recommend, for every encouragement is necessary to cope with our common enemy, the winter moth, its allies, and their eggs.—W. CRUMP, *Madresfield Court*.

PEACH CULTURE ON OPEN WALLS.

OWING to a long cycle of ungenial spring seasons, that, as a matter of course, have had direful effects on such comparatively tender fruit trees as Peaches, the notion is spreading in many quarters that it is useless to attempt to grow this fruit in the open air. I venture to say that this is a great fallacy, and to in some measure combat this opinion. The greatest success in any and every branch of gardening is only attained by resolutely battling with difficulties, it may be of ungenial weather, insect pests, lack of proper soil and manures and of the necessary protecting material, and of the labour—hands—necessary to do the work at the right time. Having as regards Peaches personally faced all these difficulties, and with a goodly amount of success, I can say that in the warmer parts of Britain Peaches may be grown successfully in the open air. I do not write it in any boasting spirit, but for the last twenty-three years I have not once missed having a crop of fruit, and oftener than not very heavy crops, on the open walls in the gardens under my charge. The situation is thirty miles to the south-west of London, and the natural soil anything but well suited to Peach cultivation, being a light sandy loam, yet by the addition of chalk and thorough consolidation of the soil generally the trees flourish and produce as fine fruit as they do in the best calcareous loam; in fact, I am inclined to think better, and for this reason that the lighter soil is warmer than are soils of a stiffer nature and that invariably have a subsoil of clay, which, being retentive of moisture, must necessarily be colder than those having a subsoil of sand or gravel. This question of warmth at the roots, as regards the successful culture of Peach trees, is of primary importance, being, to my thinking, at least as great a factor in the attainment of success as is genial weather in spring when the blossoms are expanded. Some half-a-dozen years ago I was consulted respecting some Peach trees that had not fruited for several years, and were, in fact, worse than dead, being cankered and mildewed so badly that I advised their destruction. The aspect, a well-sheltered south wall, 10 feet high, was all that could be desired, as was the soil, a moderately stiff loam, but the most retentive, nasty, blue, London clay as subsoil, and added to this, there was the still greater difficulty of draining, or of an outlet for the drains, the garden being but a very few feet above the bed of a river, that in wet seasons rose to near the level of the soil generally. The conditions being such, I could not advise the excavation of the subsoil, as that would have made matters worse, as every station for the trees would then be but so many outlets

for the moisture in the surrounding clay. If Peaches must be grown, and apart from this difficulty everything was favourable, the only alternative was to raise the ground. I advised that this should be done by taking out the whole of the good loam and leaving the subsoil intact, and placing on it a few inches depth of old brick rubble, and over this the good soil. This was done, and to-day the Peach trees there are equal to any that are growing on open walls in the most favourable positions, and that they fruit well goes without saying. That there is some liability of the roots descending through the rubble and into the cold subsoil is certain, particularly in a dry season, and to prevent this happening the surface of the soil is kept constantly mulched with good manure.

Thus much with regard to the roots of the trees; next to this comes the question of top-growth. Good healthy roots, other conditions being favourable, must cause a vigorous top-growth, but, unfortunately, this said top-growth is too frequently handicapped by the weather, and at no time more than when the tender shoots require the most assistance in the way of protection. The cultivator's course is obvious, namely, the application of

PROTECTION

of some sort or other. Ways and means of doing this are numerous, but time for the work with many is lacking, and thus it is the work gets shirked and a crop of fruit lost. Glass copings are excellent part protectors, but only part; the remainder is the hanging of a thick ply of netting from the outside edge of the glass, and securing it in position by stakes fastened in the border, and to which the netting is tied. But these glass copings are luxuries that most of us cannot command, and the next best protection is scrim canvas fixed as curtains are, or to be drawn up and down like window blinds. This is all the covering our trees ever have, and having occasionally had from 15° to 20° of frost while the trees were in blossom and no injury done, is proof positive of the efficiency of such protection. The volume of air between the walls and the covering and the constant circulation of it defies injury by the sharpest frost that is likely to occur at the spring season. Canvas or thick netting protection is equal to any, and I hardly care to advise the application of any that is less effective. Large boughs of Birch, with the thick end pushed into the soil and the twiggy parts secured to long horizontal rods, make a fairly good protection, and Spruce Fir secured in the same way does the same, but the latter darkens the trees very much, and the fruit does not set so well as it does with the protection of Birch. Bracken and evergreen spray worked in amongst the shoots do as much or more harm than good, and should be discontinued. On this question of protection hinges another important matter in the well-being of the trees, and this is insect pests. Cold easterly winds are a certain precursor of attacks of aphides, and once let them get established then woe betide the setting of the fruit. That the pest will sometimes appear on trees well protected I do not deny, but the liability is ten times the greater if they are unprotected, and prevention is ever better than cure. It is only during this early stage of growth that the battle with insects on Peach trees is difficult, and unless taken in time, which is as soon as any insects are seen, the trees are ruined for the season, and the weather gets the blame that by right belongs to the cultivator.

PRUNING.

The sympathy (I do not know a better word to use to explain my meaning) existing between the roots and branches of trees is mutual, for if one fails the other follows suit, and the same in respect of growth; without good wood growth there cannot be vigorous root action. In respect of the latter, no pains is spared in the preparation of the most suitable material, but I am not sure that as regards top growth that this goodness is not neutralised by the system of pruning most generally in vogue. What is called spur pruning may do very well for a few years, but the constant repression of growth within such restricted limits is eventually sure to tell against the practice. Peaches and Nectarines being unlike other fruit trees in this respect, abun-

dant top growth being an essential condition of their well-doing, and this being so, what I call long branch-pruning is the most appropriate. Branch-pruning consists in cutting out in the winter time all the branches that are bare of fruit buds, the new growths of the previous season being left at full length. By this means the trees are always well furnished with young wood, and canker and mildew are unknown. The former (canker) in the majority of instances is caused by the cutting away of big branches that spur-pruning necessitates by the time the trees are five or six years old, and mildew is engendered by indifferent root action, mostly owing to dryness, and the remedy for which is obvious. That certain varieties are more liable to the affection than others is certain, but they are comparatively few, both this (mildew) and the quality of the fruit being much influenced by a healthy vigorous growth of the trees.

Flavour or quality of Peaches is a matter about which much has lately been said in THE GARDEN, and quite a long list of names of best sorts given, and being in duty bound to accept each writer's list as the best varieties from his standpoint, the question arises, In what degree is the flavour of fruit influenced by good cultivation? My own opinion is that there are very few varieties indeed that would be classed as bad, did all alike have the same generous treatment of good soil, mulching, freedom from insects, and the encouragement of a healthy wood growth, in contradistinction to the repeated summer pinching, which is done as often as not from no other motive than that the trees may look neat.

VARIETIES.

Having said a good word, and conscientiously too, for most varieties, I now proceed to name my especial favourites for open-air cultivation. I place them as nearly as possible in the order of ripening. Alexander.—It is four years since our trees of this variety were planted, and we have already had two good crops of fruit. It ripened last year by the middle of July and quite a fortnight in advance of Rivers' Early Beatrice and Early Louise, whilst as regards both appearance, colour, size and quality it is greatly in advance of either, and what is more it is firm-fleshed and travels well, which neither of the other sorts do. Early Grosse Mignonne, one of the largest second early Peaches, is, for hardness, free bearing, and quality, equal to any. Dr. Hogg has all the good qualities of the preceding with the additional one of being the highest coloured (deep crimson) of all the varieties of Peaches. Crimson Galande, large, handsome, fine flavour, and a sure bearer. Royal George is known to everybody as an all-round good variety. Its liability to mildew makes the nervous shy of it, but as mildew can be prevented and is not difficult to eradicate, this should hardly be accepted as a reason for not growing it. Bellegarde is another old favourite, having all the good qualities that a Peach should have. The Nectarine Peach is far too little known. I know no late Peach equal to it, size excepted, and there certainly is not one amongst all the varieties of Peaches that has a better constitution or bears heavier and more constant crops. Noblesse surpasses it in size, but is inferior to it in every other way, flavour perhaps excepted. Rivers' Alexandra Noblesse is a handsome fruit because it colours well. It possesses the same high quality of flesh, and the tree is very hardy and a sure bearer. Barrington, Walburton Admirable, and Princess of Wales complete my list, and the last I class as the finest late Peach extant.

W. W.

Peach Rivers' Early York.—I am obliged to "J. H." (p. 240) for having drawn my attention to the fact that I have omitted from my list this fine early variety. I forced trees in pots for years, and thought it one of the best of the seedlings raised by the late Mr. Rivers, a wonderfully free setter, fruit large, handsome, well coloured, and, as "J. H." justly remarks, of good flavour when gathered a little before it became dead ripe. I have not, however, grown it as a trained tree against open walls; consequently I did not feel justified in including in this special list any variety which I have not

thoroughly tested. I do not for a moment doubt that it would prove quite as satisfactory as Hale's or any other early variety, but had I given the names of all the varieties which I know to be good under certain conditions, I might have made a formidable list, and in so doing I should have destroyed the character of my article.—W. C.

GRAFTING LARGE APPLE TREES.

THE middle of April is quite early enough to commence the grafting of trees of mature age, and the work may be continued until the middle of May, the secret of success resting upon a free flow of sap prior to the insertion of the scions. Opinions differ as to the best mode of heading back the trees, but, provided they are lopped when the sap is down, say early in January, these differences do not affect the mechanical part of the business, as all grafters of old trees proceed upon unvarying lines. In orchards under my own care the branches are sawn off to within a foot or so of the intended point of union, and the more points I can secure, especially in very large trees, the better I like my prospect of success, not only as regards a good take, but also as bearing upon the future fertility of the trees. When the heads are shortened back and the stems cleansed, another equally important matter is the selection of wood for scions, and as these must be retarded until late in the spring they are laid into the soil under the shade of a north wall. When I came into this county I found the native professional operators gave preference to two-year-old wood, and feeling that I had better float silently with the stream, my grafter was allowed to have his own way. After reshortening each branch the end was trimmed and made quite smooth with a long straight-bladed knife. Scions, the thickness of one's thumb, were selected, some of them apparently without buds, and after being pared down to a blunt point they were let in with a saw. The saw-cut running about 1 inch inwards towards the pith and 3 inches down the bark was neatly pared with a broad chisel, the scion was driven home with a mallet bark to bark, ligatures were dispensed with, and daubing with a mixture of cow manure and clay finished the operation. The old man guaranteed 90 per cent. to grow, and finding him under the mark, I have not departed from these lines at least to any great extent. Matters went well for several years, but finding my captain obstinate and superstitious, I was at last obliged to go myself to the helm. The rupture came about in this way: A bundle of splendid yearling shoots had been sent to me by a friend then living in Kent, but these he positively refused to use. Then the breach was widened by my introduction of some rough pieces, the best I could find, of Flanders Pippin, a variety which my captain pronounced worn out. Unwilling to sacrifice my yearlings and determined to try my Flanders Pippin, my foreman was set to work, and although some of the latter did not grow, in each case I secured good heads. From these I have worked several trees, and this grand old Apple is now as vigorous as it may have been 200 years ago, a date anterior to the raising of the Ribston Pippin, a variety which some writers think has seen its best days. Theorists of their school would have said, "Your grafter is right; Flanders Pippin must go," and so must any fruit tree if mismanagement and cruel neglect are to extend over scores of years. In this case grafting and regrafting on aged stocks have resuscitated an Apple much older than the Ribston, and yet this method is by no means the best which can be found—I may say has been found by propagators who do not obstinately set their faces

against the Paradise stock. In making this assertion I do not stand alone, for Mr. Bunyard in "Fruit Farming for Profit," pp. 76, 77, says: "It is scarcely correct to say the old kinds are dying out, as since the introduction of the Paradise stock we have raised the most fruitful and healthy trees of all the old kinds, and the trees are clean and robust. It will be readily understood that a bud, being such a tiny thing, and taking its nutriment from an alien, but healthy parent, is improved by the operation. This is more marked when we get grafts from an old stunted tree. The first generation (or grafting) are very poor growers, but in the next they are stronger, and in the third are as vigorous as in the general stock of Apples." Here, then, we have two distinct sets of facts. We have positive proof that old Apples may deteriorate under superstitious neglect, and we have counter proofs not only in theory, but in practice, that the oldest varieties may be snatched from death's door when taken in hand by intelligent unprejudiced men.

W. C.

FRUIT PROSPECTS.

To some it may seem too early, to others almost too late, to write of these, for some of our crops are already wrecked, and no one can tell what the remainder of March, fickle April, and even uncertain May may have in store for fruit growers. Apricots in some localities seem almost past hope, and some of the earlier Pears seem seriously injured, though hardly hopelessly. There is, however, this to be said in regard to Apricots and Pears: The former flower more in succession than most stone fruits. The first and best flush of bloom has mostly succumbed to the severe frosts of the first week in March, but there are still stragglers enough hastening to unfold to form a sprinkling, assuming that the germs have not been already destroyed. The same holds good with Pears. Some of the more exposed bloom in exposed places has been destroyed, but more sheltered clusters on the same trees and a good many of the later varieties seem safe as yet.

Peaches seem to have recovered from these biting frosts as if by magic; the blossom is most profuse and the germs seem safe. It is a curious fact, often pointed out by me before, that Peach trees and blossoms are so much hardier than Apricots. I have seldom seen Peaches on the open walls more promising than on this 17th of March. Plums and Apples as well as Pears here seem rather short of bloom, and the two former, which promised well for a crop, are exceptionally late. Bush fruits and Strawberries generally have wintered well with the exception of a break of President that lost their leaves in December before we had any severe frost.

The general outlook seems favourable for an average rather than a heavy crop of fruit. With the exception of Peaches, there seems little prospect of a very heavy crop, even should most or all the fruit-buds set—a most unlikely supposition. Nuts have bloomed freely and with abnormal precocity, but it is as yet premature to measure the chances of a full crop. Among bush fruits the abnormal precocity of Black Currants in comparison with Gooseberries and White and Red Currants is more strongly pronounced than usual, and the very forward state of Black Currants adds greatly to their chances of failure. It is to be hoped, however, that this crop will pull safely through the very fickle vicissitudes of our East Anglian spring, as its profitable cultivation is yearly extending among our cottage gardeners.

D. T. F.

Apricots and the frost.—I fear that the frost will have disastrous effects on Apricot trees, as on March 3 when the glass showed 22° of frost the trees were in bloom and the sap in full motion. I fear such freezing as they suffered from on that night must have injured the bark and will cause canker, which, in my opinion, results from rupture

of the sap vessels or severe checks from cold. I had pretty clear proof of this some years ago when there was a most untoward spring, as after not only were there much canker and branch dying among Apricot trees, but many of the spurs were then killed. Judging from what can be seen of them now, it looks as if the same thing would occur again, although the spurs of mine are very close and ought to escape if any do, as I never let them get far away from the wall, which has a good wide coping of glass at the top and a thick Hessian covering in front. Buds that have opened since have set, and I shall get some fruit, but those less favoured will, I fear, not be so fortunate, and will have crippled trees.—S. D.

OUTDOOR CULTIVATION OF HARDY STONE FRUITS.*

It is now an established fact that fruit-growing of every kind is receiving much more attention than formerly; and it is quite true also that it must not only have more attention, but more skill must be shown in its culture, and more success if we are to compete favourably with foreign growers.

SITUATION.

The selection of a situation for growing most kinds of stone fruits successfully ought to be carefully attended to. It ought, if possible, to be about 200 feet above the sea-level, protected from the direct sweep of the east wind, and, if possible, the north also. This can be easily managed by a little judicious planting of forest trees. I think ground sloping southwards or south-west preferable to level ground.

ASPECT.

I think in Scotland, and particularly the northern portion of it, a southern aspect is preferable for Peaches, Nectarines, Apricots, Plums, and Cherries; yet I do not despair of growing either of them to perfection from the east right down to the west. In that case the grower must give the preferable situation to the fruit he wishes most to be good and well flavoured, nearest the southern point, and the varieties he cares least for or holds of least importance farthest from it, but of course only north walls can be used for Morellos. Plums do remarkably well on an eastern exposure, as well as early kinds of Peaches; and Cherries do first-class on a western exposure. The best arrangement for general cultivation, I consider, is as follows: A wall due south or a point or two of east or west is the best for Peaches, Apricots, and Nectarines. No. 2, south-west or nearly so, is very suitable for Cherries. If the weather is cold and frosty when the trees are in flower they ought to be protected from any east wind that may prevail. Cherries especially require this, as their flowers are further from the wall than those of any of the other fruits under discussion, and consequently more liable to be destroyed. No. 3, the wall facing the south-east or nearly so, is suitable for Plums, and on it we grow most successfully such varieties as Kirke's, Lawson's Golden Gage, Pond's Seedling, Ickworth Impératrice, and Goliath, as well as other sorts, and I consider it very suitable for the fruit named. No. 4: This wall has an aspect with just a few more points towards the south; indeed, I think it equal to a due southern aspect for Peaches. Morellos are always grown by us on a more northern aspect; not, however, that they prefer it, but they do not refuse to do on it.

SOIL.

The draining and levelling of the soil and subsoil (where wall trees are to be planted) are of great importance. The subsoil should be levelled in a completely graduating manner from the wall to the walk; then drain as much as you think necessary; of course the distance of the drains from each other depends on the nature of the subsoil. This done, about 18 inches of good ordinary soil will suit most stone fruit very well, taking care to follow the same graduating slope as done in the subsoil. This quantity of soil will prevent the roots from going too far from the light and heat, and indeed I think

more soil very injurious in many cases. My reason for so thinking is because by heaping too much soil on, the roots go as far from light and heat as they can find room to go (just as the branches go as far up the wall as they can possibly get); they thus become long, bare, and useless; cease to contribute to the tree's fruitfulness, and in course of time all will be so far from light that they will not serve the purpose of fruit mediums as desired. In most cases we have to take the soil that is within the limits of the garden where we propose planting. If, however, we got the selection, we would prefer a sound yellow loam, and, notwithstanding that it loses its colour, it is very congenial for the purpose named. But indeed, fibry loam, sandy loam, or loam of the nature of clay, will all suit stone fruit growing in its intermediate stages; and by shifting the soil, levelling, trenching, and manuring, nothing more is desirable.

PLANTING.

The soil being prepared, let the roots of the trees to be planted be spread out in layers in their order as near the surface as can be; cover them completely with soil to the depth already named; tread the soil about them firmly, and give them a covering of short litter above, and secure the trees firmly. I think it best not to nail the tree for months after it is planted in order that it may be allowed to settle properly, but fix it securely to prevent the wind from destroying the roots by shaking.

MANURING.

Garden ground becomes impoverished by constant cropping, and exhausted by decomposition and evaporation. This must be supplied in some manner, and I will detail to you means I have adopted with success. I cut a trench 3 feet 6 inches, or thereby, round any of the sorts of fruit trees mentioned, lifting every root carefully, and clearing almost every particle of soil away. Then I replace the roots, and renew the soil with a mixture I prepare for this purpose. This does not require doing very often, but I have Apricot trees I have treated thus in June, and others in January. When I do this I bring the roots to the very top and shorten them. I think this is very important and desirable in high-class cultivation. Pointing in manure from the farmyard (if sweet and not too much decomposed) I also regard as a valuable means, but this must not be done too often. Another mixture which I consider even superior is horse and cow droppings mixed with a little lime rubbish, wood ashes, and charcoal. Clear the surface properly of all the loose exhausted soil, and apply 6 inches or 8 inches of this, and a most beneficial effect will be the result. Of course artificial manures may be applied, but I decline to recommend any one in particular.

MULCHING.

This is simply a branch of manuring, and by it a great deal can be accomplished. In the month of November the roots ought to be mulched or top-dressed, and when done at this time the strength of the mulching is forced into the ground by the heavy rains, which after all perhaps is the most natural and serviceable way of reaching the roots, and this no doubt contributes greatly to the health of the trees, and consequently the fruit. Mulching also helps to preserve the roots from extreme frost and drought, but should be taken away and the ground hoed and raked the moment the fruit begins to colour; and this is indispensable in order to reflect the heat back on the foliage, which assists much in colouring and finishing the fruit. Top-dressing or mulching has a tendency to draw the roots towards the surface, but it is of no use when the roots are far away and in bad condition.

TRAINING.

I do not purpose in the course of this paper to say much on training, as that would afford matter for a paper alone, yet I must not omit to give a few hints. The training of trees on garden walls is quite unnatural, and involves considerable ingenuity, &c., to meet the many points demanding attention, as the operation is quite artificial. First, it must be borne in mind that trees are constantly struggling against you from natural causes; this arises from the peculiar nature of the trees, and the mode in which they produce their fruit. Object first is to

* A paper read on March 5, 1890, by Mr. P. W. Fairgrieve, Dunkeld Gardens, before the literary branch of the Royal Horticultural Society of Perthshire.

select a form which is most readily and conveniently adapted for the purpose of producing most fruit in a short time, and at the same time preserving the health of the trees. To obtain this I think the fan shape as suitable as any method, for by careful management the tree can be equally distributed all over the wall and a uniform flow of sap obtained. This applies to all stone fruit alike. If left to its own will the tree would grow straight or perpendicular, and of course the sap would flow accordingly; all the life of the tree would be at the top. One exception to this form of training I might mention in reference to Peaches and Nectarines only, that very shy sorts might be trained right to the highest point of the wall, and thence sloped downwards. This has a wonderful effect on the fruitfulness of some sorts. Lastly, on this point I beg to say that I would recommend a limited number of shoots, thus preserving the power of the tree and dispensing with much summer work and nearly all winter pruning.

DISBUDDING.

At the conference held at Dunkeld, and in the report of the same, I made special reference to disbudding as being of great importance. Generally speaking, two shoots are quite enough to be left on the growth of the previous year, but of course there are exceptions to this. While young trees are being formed due care must be given to the balancing of the tree and distributing evenly and uniformly the principal branches over the wall. In this case the disbudding must be subservient to the formation of the tree. Another exception is, when there are only two or three young shoots, then they may all be left. Rampant sorts may perhaps be another exception, but I prefer not to grow such. The time for disbudding depends on the variety. For example, the proportion of earliness between a Hale's Early Peach being ripe is not exemplified by the young shoots, but the contrary. This Peach comes into bloom long before it is fit for disbudding; so it would be highly improper to disbud it when in flower. On the other hand, Chancellor Peach and Violette Hative Nectarine are fit for disbudding before the blooms are expanded. This shows the risk it would entail to disbud the former at the same time as the latter, and the great loss it would be of expended energy to the tree; in fact, it would rob the tree, and impoverish it for nothing. It is highly judicious that the tree should be disbudded at different periods to prevent a check, and in the case of weak or less robust varieties it is necessary they should be closely watched after being disbudded, in case of an attack of red spider, which would be exceedingly dangerous at this time, there being so little foliage for the pest to prey upon. I am not now quite so favourable to pinching as I used to be; still, if it is done at the proper time, it is of considerable importance. It ought to be done when the tree has ceased to assimilate food, or just when it shows signs of beginning to ripen its wood. When done at this time it assists the ripening of the buds for the coming year; if done before the period mentioned it creates a strong tendency to young growth, which of course almost ruins the tree.

KEEPING TREES CLEAN.

Cleanliness, which is of great importance, must be specially attended to. Some of the following pests will probably be the result if the trees are not attended to in the way of cleanliness: Aphides, brown and white scale (perhaps some one may think scale is not destructive out of doors; I assure you it is, and if not attended to will destroy the fruitfulness of the trees), thrip, red spider, yellows (sometimes known as jaundice), sunstroke, root gout, fungus, blister, mildew (a fatal foe, and quite worthy of the best skill), ants, snails, woodlice, and many other insects. I tried many insecticides, but to no purpose, until at last I was successful in compounding a preparation of my own which answered the purpose remarkably well, and which I continue to use regularly when required. Syringing the trees with soft water occasionally is very beneficial towards cleansing them, but not if it is a cold night.

PROTECTION.

Many of you have seen the mode of protection used by me, and I consider it very suitable for protecting trees, as it can be put up quickly and at little cost. The other makeshifts, such as herring-nets, Spruce branches, straw ropes, &c., I do not recommend.

GENERAL OBSERVATIONS.

Cropping should not be too heavy, as it greatly injures the tree for the following year. For example, twelve good Peaches are preferable to twenty-four inferior ones, and you cannot have a heavy crop and the tree in good condition next season. Then, again, fruit should only be left where it has sufficient space to swell; and with this end in view thinning should not take place till the fruit is thoroughly stoned. After stoning, and before colouring, is a good time to water plentifully, and also to rake the border smooth in order that the heat may be reflected back on the fruit; indeed, I quite think it would be worth while to cover the



Bamboo flower-holder. Engraved for THE GARDEN from specimen sent by Mr. W. L. Hodgson.

ground under the trees with slates or any material that would send back the heat among the leaves and foliage. To have a green crop at this season above the roots would be very bad, not only for the amount of strength it would deprive the ground of, but the more vital effect it would have of excluding the sun's rays from penetrating to the roots; also increasing moisture, and preventing the reflection of the heat of the sun from being conveyed to the foliage and fruit. I may here say that I know of no better method of finding whether a Peach or Nectarine tree is in good health than by carefully looking over the entire plant and ascertaining how it has stood the winter. If you notice a quantity of the young wood frosted back, you may conclude that your management is at fault; either the roots are going wrong or the foliage is crowded and does not get sufficient light to ripen it for the winter. When flowers come in an abortive form be sure there is something far wrong, and I notice that when the tree or trees have too much foliage, the flowers come half bloom and half leaf. In regard

to varieties, I refer you to the report of the Dunkeld Conference.

CONCLUSION.

In conclusion, I would say by way of encouragement, I know well how ceaseless are the constant care and attention required in fruit-growing, and the anxiety connected with it, also the hosts of countless enemies we have to contend with—a dull, leaden, sunless sky, low readings of the thermometer in summer, and certain frosty nights when the trees are in bloom, besides many others. Yet, with a keen and quick eye, ready to decide, the mind always on the alert, and the head clear to detect and remedy anything wrong, success is certain to crown the efforts made, and the reward is a good return of splendid luscious fruit.

PLANTING OUT V. POT CULTURE OF FRUIT TREES UNDER GLASS.

WHILST agreeing with "R. C. H." (p. 242), that splendid crops may be obtained from all fruit trees, including the Apricot, Apple, and Pear, I must say I think he is rather too hard upon the pot system. Pot trees, he says, "necessarily require more time, experience, and attention in management," but what about the removal of 50 cubic yards of soil from his border, filling in with a foot of stones for drainage, covering the stones with turf Grass-side downwards, and making up the space with fresh compost? Here I think we have labour of a most formidable character, as it means the removal of 50 yards of old soil, the collecting, mixing, and moving twice over 50 yards of new before a tree could be planted. A preparation of this kind no doubt was thorough, but the expenditure in labour alone, exclusive of cost of materials, would have paid for the pots, trees, and potting, so that the value of the trees must go to the credit of the pot system. Following up the planting-out system, the heavy labour is by no means ended, for if "R. C. H." will refer to Rivers' little book on orchard house culture he will find that each of these trees must be worked round, root-pruned, and rearranged annually to keep them in subjection. I quite approve of planting out in well-drained shallow borders; indeed, over and over again I have strongly advocated the principle, not altogether on the score of economy, but because I know for a fact that the produce is of the finest quality. If the back wall of a 9-foot lean-to is as many feet in height, cordon Pears planted out will stand for years, but their roots must be checked, if not annually, certainly every other year; then the next row also might be placed in the open border, but head room being greatly diminished, the next two rows, including Plums and Cherries, I think should be confined to pots plunged to the rims in ordinary garden soil, say a foot in depth, resting upon porous materials. Then, by way of saving labour in potting, the pots, 12 inches to 14 inches in diameter, should be the perforated ware first introduced by Matthews, of Weston-super-Mare, and still manufactured by his successor. Plums and Cherries, in fact all kinds of fruit trees, placed in these pots make moderate growth, and soon become masses of flower buds, setting ten times as much fruit as they can carry to maturity, but having numerous openings an inch or so in diameter all round the sides for the outlet of fibres the latter filch from the bed, and stand any amount of feeding. This compromise prevents dropping, especially if the balls be kept moist, and when the crop is gathered the trees are made ready for another season by cutting off all the external fibres quite close to the holes, replunging, mulching, and watering. Keeping the trees all the winter under glass is not, however, at all necessary, as must be the case where the whole of them are planted out in the border. Therefore, assuming that a place must be found for Chrysanthemums, these perforated pot trees may be plunged in the open garden, certainly from the end of October until the middle of January, and if protected from birds they will pay handsomely for the two or three months' exposure.

W. C.

Top-dressing fruit trees.—This is the proper time to apply top-dressings to fruit trees and bushes,

not only to enable them to carry a crop of fine fruit this year, but to lay the foundation for future crops. Our custom is to go over every tree and bush after pruning is completed and the surface soil is lightly forked up, and to put one or two barrow-loads of rotten manure over the roots. I can bear testimony to this being the best plan of keeping the roots close to the surface, thus doing away with any necessity for root-lifting or root-pruning.

A BOUQUET OF DRIED GRASSES.

THE illustration herewith given is full of suggestiveness from an ornamental point of view. No better subjects can be employed for decorating large vases, such as seen in the engraving, than



A bouquet of dried Grasses.

dried Grasses of noble outline. I would recommend also the use of a few Palm leaves after they have been dried; these would make excellent backgrounds to the lighter looking Grasses. These kinds of arrangements are best adapted for the winter season, with a consequent saving of plants during inclement weather. In smaller arrangements, the flower-holders designed as brackets and made from the hollow stems of the Bamboos (see illustration) would be most appropriate for the purpose. Where these have been filled with water for fresh flowers I have known them to leak; any with this failing would do well

for Grasses. These are well suited for niches or corners that are rather dark, and where any ornament of elaborate or costly design could not be seen to the best advantage. With the numerous varieties of ornamental Grasses that are now to be obtained a pleasing variation in the arrangements could easily be made to avoid any semblance of formality. Some of the best Grasses for these purposes are *Gynerium argenteum* (the Pampas Grass), *Arundo conspicua*, *Panicum virgatum*, the annual kinds recommended in THE GARDEN, p. 227 of this volume, and in a later issue also, p. 245; *Eulalia japonica*, useful alike in foliage and flower-spikes; *Erianthus Ravennae*, *Gymnothrix latifolia*, and Pen-

nisetum setosum. *Cyperus alternifolius* would also make a good variety when dried, so also would the Sedges (*Carex* spp.), more particularly for the sake of their foliage. *Typha latifolia* (the Reed Mace or Bulrush) would make a useful addition to the foregoing, so also would the Gladwin (*Iris foetidissima*). On one occasion I had to deal with some spikes of the Pampas Grass which had become discoloured with dust, &c., and not being the time of the year for fresh ones, I dipped them in soap and water with some soda added to it. This effectually cleaned them, and rendered quite fit for use again what would otherwise have been of no

future utility; they looked even brighter when so treated than when first cut from the plants.

J. H.

THE WEEK'S WORK.

PLANT HOUSES.

STOVE.—*ALOCASIAS*.—These plants, like most others, require much water in the growing season, and should be annually repotted in new soil. Most of the kinds do best in very light soil, something similar to that which is used for Orchids, consisting of peat in which the roots of the Bracken—Fern—form a principal part. This, used in pieces as big as eggs, with some chopped Sphagnum, broken charcoal, or potsherds and sand, will produce finer leaves than heavier soil. The present time, before there is much movement in the new growth, is the best for repotting such kinds as *A. metallica*, *A. Lowi*, *A. Veitchi*, and *A. Thibautiana*, as well as the smaller-growing sorts, like *A. Jenningsi* and others of a similar nature. All require to be grown in soil of the description named. Previous to potting, the plants should be allowed to get moderately moist; if the soil is either too wet or too dry, there will be more injury done to the roots in getting them out of it. Many of the kinds produce tuber-like roots, by which they can be increased, as well as by division of the crowns. These tubers should be taken away at the time the plants are potted, and be put three or four together into small pots. If treated in the way that answers for the general stock they will soon make useful plants. Most of the *Alocasias* keep their roots near the surface, not descending deep like those of other things; consequently the pots should be one-third filled with drainage. Large specimens when shaken out in the way advised need a few sticks to steady them for a time until their roots have got hold of the new material. When the potting is completed give a moderate watering. Small or medium-sized examples are generally more useful than large specimens. Where additional stock is required, the crowns may be divided and potted singly when the plants are repotted.

ALOCASIA MACRORHIZA VARIEGATA.—To grow this fine-leaved plant well, it should have a compost of two parts good turfy loam to one of dry rotten manure, with some sand. Large specimens require plenty of root-room, and No. 1 pots are not too large when the plants are wanted as large as they can be got. A stock of small examples, such as can be grown in 7-inch or 8-inch pots, ought to be kept for grouping with Ferns and other green-foliaged plants, where their bold, white-blotched leaves are seen to the best advantage. The present is a good time for taking off the suckers; choose those that have well-coloured leaves, avoiding those that are too green or that have their leaves all white. The latter will not grow much, and the former will in most cases remain green.

ARALIAS.—The best way of increasing the slender-growing kinds, like *A. Veitchi* and *A. gracilima*, is by grafting them on the stronger species, such as *A. leptophylla*. But it often happens that in private gardens there are none of the suitable kinds for stocks present. Where this is the case it is necessary to strike cuttings so that a stock of plants clothed with leaves down to the bottom can be kept up. Specimens that have lost their lower leaves may be headed down to within 6 inches or 8 inches of the base. The hard portion of the stems should be made into cuttings, consisting of a single eye with a piece of the wood above it. The half-matured part of the stems may be divided into pieces with two eyes to each; these, if put several together into a 5-inch or 6-inch pot, and kept close and shaded in a brisk heat, will nearly all strike. When rooted pot them off singly, and grow them on with ordinary stove treatment, give them a fair amount of light, and do not crowd them close together. All plants of this description that look best when confined to single stems should be treated in a way to ensure good strong foliage. This, with care in keeping the plants free from in-

sects, such as thrips, red spider, and scale, is necessary to preserve the foliage. The smaller kinds of *Aralias* do not require much root-room, and it is a mistake to give them larger pots than needful, but they should be potted once a year. Early in spring, before growth fully commences, is the best time for the work, and as much of the old soil should be got rid of as can be done without injury to the roots. Specimens that have been headed down in the manner advised usually make several shoots which should be allowed to attain a length of 5 inches or 6 inches, after which all but one should be removed. If they are taken off with a heel they will strike if treated in the ordinary way. The stools should have most of the old soil removed, and be put into pots a size larger. With treatment similar to ordinary warm stove stock they will make better plants than those which are grown from the usual kind of cuttings.

ARALIA SIEBOLDI and its variegated form are amongst the best of the fine-leaved subjects that will succeed in a greenhouse. They keep their leaves in better condition in an ordinary living room than most things, and on this account are especially useful for indoor decoration. The green form can be easily raised from seed or from cuttings. The tops of bare plants if taken off and treated in the ordinary way with a moderate amount of heat will strike readily. The plants, if put in a warm house, will push several shoots, which, when large enough, may be used as cuttings. By thus keeping the stools in a growing temperature they will produce several batches of cuttings before autumn. In this way a considerable amount of stock can soon be had. *A. Sieboldi* will also strike readily from root cuttings. Where this method is to be followed a stout healthy plant should be shaken out and have a portion of the medium-sized roots taken off and cut into bits about an inch long; if these are put into a seed-pan, filled with sand, and stood in moderate stove heat they will soon form shoots and root fibres. When two or three small leaves have been made the cuttings should be put singly into small pots, after which keep them in a genial growing temperature until they are well established. Afterwards the usual greenhouse treatment will be the best.

DRACÆNAS.—To keep up a stock of any of the warmer section of *Dracænas*, as *D. Baptisti* and *D. Shepherdii*, it is necessary to propagate frequently, as when the plants begin to lose their bottom leaves there is little beauty in them. The tops, with four or five leaves attached, strike quickly. They should be put singly into pots large enough to hold them, filled with sand, and kept close, moist, and shaded. The stems, however hard the wood has got, will also make cuttings. They should be cut in lengths of about 2 inches and inserted in pots or seed-pans filled with sand, leaving the tops visible above the surface. Stand in stove heat; do not confine them like ordinary cuttings, but keep the sand moist. They will soon make both root and top growth. When two or three leaves are made put them into small pots, which drain and fill with peat, to which some sand has been added. With the usual warm stove treatment cuttings of this description will make useful plants in eighteen months. The stools that are headed down, if kept warm, will soon push shoots, which should be reduced to one. When the growth has made a little headway turn them out of the pots, and shake away most of the soil and repot in new. In this way old plants soon make fine heads with full-sized leaves from the base upwards. T. B.

WALL FIGS.

WHERE every operation is properly performed, and that at the right time, the pruning and training of Figs on open walls bring up the rear. Peaches are kept away from the heat-absorbing brickwork until the rapidly swelling buds render nailing in absolutely necessary, but when this work is finished the Fig tree in the hottest corner, generally facing south or south-west, shows no sign of returning activity. March passes away, and so long as this dormant condition continues the trees are best left alone, but once the buds commence

swelling all injured or superfluous shoots should be cut back to sound eyes, otherwise the trees will bleed. No rule as to the best time for the performance of this operation can be laid down, as our seasons vary, but in good average years the work may be commenced after the 1st and ended before the end of April. Sometimes it extends into May, but unless the summer is hot and fine, the crop is fleeting and late. As no experienced cultivator of the Fig cares to prune more than is absolutely necessary, and some never prune at all, but in the south, especially near the sea, allow the shoots to extend a considerable distance from the wall; they ensure a short-jointed growth, weak rather than strong, by checking the roots and keeping them in poor soil.

These trees, the winter having been so favourable, will have lost very few if any points; therefore the situation being good they should be overhauled, the main branches made secure to the wall, where they may be left to push forth leaves and fruit. A mulch in due course may be necessary, and if sharply root-pruned an occasional barrel of water will do them much good; but Figs, as a rule, which produce the best crops of fruit receive the least care, not that the leave-alone principle suits them best, but graduating from the unkempt wall tree to the open standard the situations in which they are growing are warm and good.

Passing inland, especially towards the north, the cautious cultivator, rightly or wrongly, carefully protects with straw or mats, and when these materials are removed he puts up temporary copings to shelter the trees from wet. In such situations the Fig does not pay; therefore it might be replaced by the Pear or the Peach; but so conservative are many owners of old gardens, that no one ventures to suggest the introduction of the axe. In the management of these trees the most important operation is the autumn pruning of the roots. Then in order to secure ripe wood, the trees should be very thinly and evenly trained; so thin that the leaves in no part will be crowded, otherwise they will prevent solar heat from reaching the wall. Very old trees again have been allowed to stool, often several feet to the right and left of the original stem, and much as one may wish to hack back, each main branch forms a tree in itself, drawing a great deal more nutriment than is conducive to ripe wood, without which we cannot expect ripe fruit. In such cases, the multitude of rooted branches may be reduced to some extent, when those left will become fruitful in proportion to the space they are allowed to cover upon the wall. Training in this case, as a matter of course, must be thin, and every point must be closely tacked to the wall, but on no account must any of the young growths be pinched, as our summers are too short and cold for the ripening of second shoots. If, as is sure to happen, the shoots become crowded, every alternate growth may be cut back to a single bud, just as I have stated, when the sap begins to move, and these buds in the course of the summer will make the fruiting wood for the following year, when those which have borne fruit in their time may be cut away.

The last and best mode of training the Fig, be the situation moderate or decidedly good, is confinement to a clean, single stem, pinching as it proceeds to induce the formation of side shoots, which should be trained 18 inches apart precisely as we train horizontal Pears. From these main branches lateral shoots intended to bear fruit may be laid in at any angle, but not less than a foot apart. All of them should rise from the upper side of the main, and every alternate shoot intended for cutting back to a single bud may be pinched when it has made a few leaves. Those left must not be pinched, as they will bear best near the points, and if any figlets larger than peas are formed, they must at once be rubbed off, when embryo fruits, imperceptible when the leaves fall, in almost every instance will stand any frost that does not kill the shoot and swell to maturity the following year. Indeed, so recuperative are these moderately strong shoots, that not unfrequently two figlets are found where one has been rubbed off. Those about to plant

Fig trees should be very careful in the selection of sorts. The outdoor trees met with in the south do not include many sorts, although they have numerous local names. Any of these to growers whose object is fruit may be planted, as they are hardy and good bearers, but having to go to the nursery for stock they will do well to select Brown Turkey, one of the best, Black and Brown Ischia, White Marseilles and Brunswick. W. C.

FRUITS UNDER GLASS.

MELONS.—The fruit upon early plants will now be swelling away freely, and darkness being more than counterbalanced by daylight, feeding and forcing may be laid on at high pressure. If the plants are growing in pots or narrow pits, the hot-water pipes should be aided by the frequent renovation of the fermenting leaves, as Melons revel in a bottom heat of 80° and the constant ascent of warm vapour which minimises the necessity for syringing. Let the night temperature range about 70° and that by day quite 80° with a little air, and close in time to run up to 85° or 90° on bright afternoons, when the foliage may be syringed, but being quite free from insects, wetting the foliage may be dispensed with. Keep the fruits well supported and partially shaded by the premier leaves, which carefully preserve from injury, and pinch out every bit of lateral to prevent the shoots from becoming crowded. If space admits, thin layers of loam and bonedust may be added as roots appear on the surface, and warm diluted liquid *ad lib.*, but kept away from the collars of the plants, must be used for washing it in until the Melons have finished swelling, when pure water only will best secure fine flavour.

Successions on the cordon principle must be kept to single stems and treated precisely as the preceding have been, but the season being more genial, the temperature by night and day may range considerably higher. If grown on the old extension plan the points must be pinched out when 6 inches above the trellis, when from the several resulting breaks four of the best and most even must be trained off, one to each corner of the trellis. These, in due course, will be pinched simultaneously, when the laterals from each will start evenly, the great point, or secret, being a flush of female flowers, which can be set on the same day, otherwise the fruit will not swell in unison. Many people who do not care for very early crops still adopt this plan, but where gardeners race against time, the pot and cordon system, quickly in and quickly out of small compartments, is most likely to give a regular supply of fruit throughout the season.

FRAME MELONS.—Where Melons must be grown in frames, the middle or end of April is not a bad time for placing the first batch of strong plants in their fruiting quarters, but in order to prevent waste of heat and materials a small bed should be made up for a nursing frame. Into this frame introduce at least 6 inches of old tan or leaf mould and when this is warmed through sow the seeds singly or in pairs in 4-inch pots. Plunge to the rims and at once set about making the fruiting bed, using well-worked stable manure and Oak or Beech leaves. Put on the frame, but defer forming the hills until the violent heat shows signs of declining, as Melons never do well in soil that has been burned and poisoned by rank steam. Then cover the bed with sods, Grass side downwards, make very small cones, and by the time these are warm the plants will be strong enough for turning out. Frame Melons should be pinched at the fourth rough leaf either before or after they are planted out; they will then throw out two to four shoots each, which must be trained over the trellis, one to each corner of the light.

CUCUMBERS.—As spring Cucumbers will now be plentiful, any winter plants showing signs of exhaustion, spider or mildew may be cleared away, an empty house being better than a bad tenant, which may soon contaminate respectable neighbours. Plants in bearing will now take abundant supplies

of tepid liquid and frequent top-dressings, composed of light rich materials. Dress them over three times a week; crop lightly, cutting the fruit before it attains full size; ventilate moderately, but avoid shading unless the plants flag, and then let the materials used be of the lightest description, as heavy or systematic shading invariably brings the best of plants to grief. Avoid morning syringing, but bathe the foliage abundantly and shut up very early on fine afternoons. If the main planting of summer fraiters has not been made, the house should be cleansed and made quite ready without delay, as it is better to keep the bed waiting than to make a start with pot-bound plants. W. C.

KITCHEN GARDEN.

WHEN TO PLANT ASPARAGUS.—When ought I to plant Asparagus is a question very frequently put to professional gardeners, and it cannot rightly be answered in a brief off-hand manner. Much ought always to depend upon circumstances. In the case of warm, light soils the planting may be done late in March or at any time during April, but in all instances where the soil is of a cold, heavy nature, this naturally holding moisture badly, it is very unwise to plant Asparagus much before May. No matter how carefully the roots are lifted some of them are sure to be broken or injured in some way, and if these are buried in cold, wet soil a great percentage will fail to grow. As a rule, no planting should be done till the shoots are moving, and if the work is properly carried out only a slight check will be given. On no account ought the newly-lifted roots to be long exposed to cold, drying winds or bright sunshine, this proving fatal to the delicate root fibres that commence active growth at much the same time as the shoots. Nurserymen who supply Asparagus for planting should be asked to keep the roots closely covered with moist Cocoa-nut fibre, or else to mat them over quickly, and also to avoid lifting them long before they are started to their destination. The best for planting that can be bought are those two years old, these suffering less from removal than do those older, and it is quite useless to plant with the idea that strong shoots will be available for cutting in the following season.

RECOVERING ASPARAGUS PLANTS.—Failures more or less complete not unfrequently result from planting Asparagus roots that have been recklessly lifted and taken no care of afterwards, these and three-year-old roots not previously transplanted from the seed-bed also needing special treatment. Should the soil be fairly light and the weather warm and not very wet during April and the early part of May badly used plants might survive and thrive very well, but generally speaking, they are liable to grow very weakly, or not at all if planted just as received. The wiser plan is to place all of them rather closely together on fine soil in the bottom of a frame if it can be spared, or else on a sunny border, covering all with fine light soil. If not allowed to become either too wet or dry very few will fail to start both at the roots and crown, and when the shoots are about 2 inches or rather more in height the time has arrived for finally planting out. Not only these, but all Asparagus plants start better when the roots are well spread out and completely surrounded by light sifted soil, better food being within easy reach of the roots when they are capable of assimilating it.

CAULIFLOWERS.—A considerable number of those wintered in frames and handlights have hearted in prematurely, and in our case we shall have to depend largely upon a fresh stock of plants raised last month. Cauliflowers do not move well out of boxes, hence the practice of placing the spring-raised plants in 3-inch or larger pots. On the other hand, if kept in pots till they are badly root-bound, this also is liable to give a great check and cause early bolting. In most districts it is somewhat early to trust Cauliflowers in the open air, but if they have not been unduly coddled and are now in a cold pit or frame, they ought soon to be put out into handlights, and also in warm positions where they can be lightly protected for a time.

A well-worked newly-enriched soil best suits Cauliflowers generally, and all should be firmly planted with a trowel. Five plants are ample for a hand-light at this time of year, and if there are more in those that have been in position all the winter they ought now to be transplanted to an open piece of ground. The small forcing variously named variety can be grown more thickly than the rest, ours rarely being more than 15 inches apart each way, from 3 inches to 9 inches more being given the rest according to their known vigour.

CABBAGES.—Autumn-planted Cabbages, although somewhat forward, have withstood the late severe frosts surprisingly well, and much better than Broccoli, Kale and Brussels Sprouts. The earliest are always appreciated, and we shall find them especially serviceable this season. Being planted on undug ground in succession to Onions, weeds are apt to be troublesome, but a free use of the flat hoe in dry sunny weather will keep these down, and also hasten the growth of the Cabbage. Soot or any special manure, for nothing comes amiss to Cabbages, freely applied now or just prior to hoeing will be washed down to the roots by April showers and will greatly benefit the crop. Those plants left in the seed beds may well be put out now, the least that can be done being to substitute these for any that have bolted. They will form a good succession to the main crop, and, as far as we are concerned, are the last put out before Coleworts are ready to plant, very few people caring for Cabbage in hot weather.

PEAS.—The earliest sown are coming up well, and if not already done, more seed ought to be sown. Directly one sowing is showing through the ground another should be made, and if this simple rule is observed, some regard being paid to the varieties selected, there is little danger, barring accidents, of a break in the supply occurring. Any of the second early varieties may be sown now, and with these one or more good main crop sorts, this being another method of guarding against either a glut or gap in the supply. That extremely popular variety, Ne Plus Ultra, if sown now will yield good gatherings of pods much earlier than many seem to think possible. It can be had fit for the table in most southern localities by the middle of July and up to the time severe frosts intervene, while if it is required earlier in more northern and therefore less favoured districts, the simplest plan is to raise sufficient plants for a long row either in boxes, troughs, turves, or pots under glass, and transplant to the open when fit. The same plan may also be generally adopted if any extra fine-podded variety for exhibition purposes is wanted earlier than its usual season. Peas thus raised ought not long to be kept with their roots thus confined, this stunting the plants. They also transplant much more readily if taken in hand before the roots are badly matted together.

BROAD BEANS.—When the earliest rows are well through the ground another sowing of both a good long-podded and also a short or broad-podded variety should be made. In many establishments there is only a limited demand for these Beans, and two, or at the most three, fairly large sowings need be made. The simplest plan is to sow the seed thinly in single drills drawn 2 feet apart, the plants being eventually thinned out if necessary to about 6 inches apart. If exhibition pods are needed, sow the seed about fourteen weeks before the date of the show. Any fairly rich and rather cool position will suit the main and late crops.

PROPAGATING SEAKALE.—The surest method of raising a good batch of strong plants suitable for forcing next winter is from root cuttings, but if these are inserted direct where they are to grow slugs are apt to spoil a good many of them. In any case a quicker and better start will be made by first striking the root cuttings in gentle heat, taking care to transplant all to the open before they crowd and spoil each other. I would especially commend this plan to all who are anxious to rapidly increase the stock of that very superior variety known as Lily White. The best cuttings are the brittle white roots about the size of a man's

little finger, these being cut to a length of about 2 inches, taking care to snip a piece of the smallest end, and which has to go downwards. They may be dibbled in 2 inches apart or even more thickly into flat boxes of light soil and set in a fruit house, being gently forced, to grow, and, failing heat, in a frame or pit. Older root cuttings will also strike in heat, while with similar assistance there is nothing to prevent the splitting up of strong stems into pieces, every one of which will eventually develop into a serviceable plant. W. I.

AN ANALYSIS OF GRAFTING.

It is well nigh incredible that any doubt can exist as to the general efficiency or necessity of grafting; and yet the discussions which have run through various journals, mostly foreign, during the last twelvemonth indicate that the entire utility of the practice is questioned. A careful attention to the discussion reveals the fact that much of it is random, and that generalisations are too often made from local or insufficient facts. We often find that the truth is overlooked or obscured because of the lack of clear-cut definitions and analyses; such is particularly well illustrated in the perennial discussions of "acclimation," concerning which no one knows what his neighbour is talking about.

The practice of grafting—if we use the word to include both grafting and budding, after the manner of the French *greffage*—is so universally and unhesitatingly accepted by nurserymen and growers, that no fear of its abandonment need be entertained, no matter what authority may condemn it. [This very fact that dogma or book-lore is generally accepted is an illustration of the need of practical demonstrations. The fact of a practice being "universally accepted" by the practitioners of the day is no proof whatever of its merit, as is proved by the whole course of human progress.] But we do need to know more about it, for ever since the absurdities of Pliny and Columella were recorded, it has been a fertile field of misconception and quackery. [The gardener's art was recently called an empirical one, and so far as grafting is concerned, it may with reason be so called.]

I do not wish to offer a defence of the practice; none is necessary. But a simple outline of reasons and results, with no attempt to multiply examples beyond the point of mere illustration, may serve a purpose. [We would rather have had Mr. Bailey's own practical experience instead of the general "reasons and results" he has here raked out of books, &c.]

It may be said that there are three leading reasons for grafting:—

1. To perpetuate a variety. [Grafting is by no means reasonable or necessary in order to perpetuate varieties. Nature may graft now and then to gain strength, but never to perpetuate.]
2. To increase ease and speed of propagation. [Its fatal facility of increase is the very poorest recommendation.]
3. To produce some radical change or promote some adaptation in the stock or scion. [This "radical change" is often for the worse rather than for the better, as cultivators are now finding out for themselves.]

The first two statements need no elaboration here, but the third is moot ground, and demands sub-division. These secondary results of grafting, as they may be called, fall readily under the following heads:—

1. Grafting may modify the stature of the plant. It is the commonest means of dwarfing plants. [But not the only nor the best way.] We graft the Pear upon the Quince and the Apple upon the Paradise Apple. This dwarfing usually

augments proportionate fruitfulness. [No; it conduces to precocious fruitfulness, but does not augment the crop, which is a most important difference.]

2. Grafting may be made the means of adapting plants to adverse soils. Illustrations are numerous. Many varieties of Plums, when worked on the Peach, thrive in light soils where Plums on their own roots are worthless. [We have plenty of Plums suitable for all soils growing from stones and never grafted.] Conversely, some Peaches can be adapted to heavy soils by working on the Plum. [In England, where, as Mr. Coleman lately told us, the outside Peach borders are made, there is no necessity to graft, and I question whether own-rooted trees would not do better and live longer in America than grafted ones.] If dwarf Pears are desired on light soils where the Quince does not thrive, recourse is had to grafting on the Mountain Ash or some of its allies. In some chalky districts of England the Peach is worked on the Almond. Some Plums can be grown on uncongenial loose soils by working them on the Beach Plum. Professor Budd states (*Garden and Forest* for February 12) that the Gros Pomier Apple is particularly adapted to sandy land and the Tetofsky to low prairie land, and that these stocks are often selected to overcome diversities of soil. Such instances are frequent, and demand greater attention from cultivators. [All this is simply evading the question.]

3. Grafting may be made the means of adapting plants to adverse climate. [No.] This may be brought about by either or both of two causes: (a) The early maturation of the stock, causing the scion to ripen better. The Oldenburg Apple is a favourite stock in severe climates for this reason. The Siberian Crab often has the same influence, although its use is open to serious objection. [All stocks are open to objection.] (b) A slightly imperfect union, causing the scion to mature or ripen early. ["Ringing" or any other cultural method of starvation would do this better than grafting does it.] This fact has been observed in many cases, notably in some instances of Apples upon improved Crabs, and yet the union is often perfect enough, nevertheless, to maintain the plant in a profitable condition for years. [But not so profitable as own-rooted trees often are.] There are some adaptations to climate, however, which are not explained by either of the above hypotheses.

4. Grafting may correct a poor habit. All propagators are aware of this fact. The Canada Red Apple is usually top-worked to overcome its weak and straggling habit. The Winter Nelis Pear is a familiar illustration.

5. Grafting is often the means of accelerating fruitfulness—i.e., plants are made to bear at an earlier age. [Yes; and to leave off bearing at an earlier age also.] Those who test new orchard fruits are familiar with this fact. Scions from young trees bear sooner if set in old trees than when set in young ones. [Yes; and they cease bearing sooner, as above stated.] This result may be due to the same causes which abbreviate the vigour of plants, as already outlined (see sec. 3, above). Checking growth induces fruitfulness. [Certainly. But how can checking growth add to a plant's fertility or longevity?]

6. Grafting often modifies the season of ripening of fruit. [So do climate and soils.] This is brought about by different habits of maturity of wood in the stock and scion. An experiment with Winter Nelis Pear showed that fruit kept longer when grown upon Bloodgood stocks than when grown upon Flemish Beauty stocks.

The latter stocks in this case evidently completed their growth sooner than the others. Mr. Augur cites an instance in which the Roxbury Russet, grafted upon the Golden Sweet, which is early in ripening, was modified both in flavour and keeping qualities. "Keeping qualities" is but another expression for "season of ripening." [Not at all. Many fruits, such as Lady Downe's Grape, Coe's Golden Drop, or Late Red Plums will keep for weeks or months after they are ripe. Are not keeping properties sometimes at least a question of a tough skin or cuticle and the amount of starch or sugar stored up in the tissues?] These influences are frequent; in fact, they are much commoner, I am convinced, than we are aware.

7. Grafting often augments fruitfulness, largely for the same reasons as discussed in sec. 3. There are some anomalous instances of increase of fruitfulness, which are difficult of explanation—e.g., some Citrus fruits are more productive when grafted upon *Limonia trifoliata* than upon their own roots.

8. Grafting often delays the degeneration of varieties. [No.] In various ornamental plants this influence is marked, as compared with plants from cuttings. It is recorded particularly in certain Roses and Camellias. [Erroneously so recorded.]

9. Grafting sometimes increases the size of fruit. The best illustrations of this fact are found in certain Pears when grown upon the Quince—the fruit is often larger than from standard trees. [Never, if the culture is in other ways equal.]

10. Grafting may result in a modification of colour of foliage, flowers or fruit. Assumed influences of this character are frequently recorded, but it is not always possible to determine how much of the modification may be due to soil, climate and treatment. The best instance which I now recall occurred in my own practice. *Prunus Pissardi* gave much more highly coloured foliage when grafted upon *Prunus americana* than upon *P. domestica*. [On its own roots in poor soil its colour is most brilliant.] The scions came from the same tree, and the grafted trees stood in the same row. Any acceleration in ripening of fruit (as indicated in sec. 5) is apt to cause high colour, but the intensification of colour in *Prunus Pissardi* was not due to such cause, as the grafts were more vigorous upon *P. americana*.

11. Grafting may influence the flavour of fruit. [Yes, certainly; for better or for worse. That highest-flavoured of American Pears, the Seckel, or Seckle, was a chance seedling ungrafted (v. Downing).] There can be no question but that Apples often derive acidity from the stock when worked upon the wild Crab or upon the Siberian Crab. It is commonly supposed that the Angoulême and some other Pears are improved in flavour when grown upon the Quince. Downing asserts that some varieties "are considerably improved in flavour" by working upon the Quince.

A favourite illustration in support of the reciprocal influences of stock and scion is the fact of transfer of colour or variegation by grafting. Darwin called attention to this phenomenon, and used the term "graft-hybrid" to designate the mongrel offspring of certain unions. But this class of phenomena seems to follow inoculation rather than grafting *per se*. The transferable nature of variegation is well known in certain species, but it is entirely inexplicable in the present state of our knowledge; it seems certain, however, that it does not merit attention under a discussion of grafting. So long ago as 1727 variegation was designated a "dis-

temper," which "may be communicated to every plant of the same tribe by inoculating only a single bud." In our own day Morren has called it the "contagion of variegation." [Graft variegation is simply a communication of disease such as has been suspected of vaccination, and upon which a special committee of experts is now sitting in England.]

The above outline illustrates the fact that the results of grafting are profoundly modified by conditions. [Yes; too "profoundly" for Mr. Bailey to explain.] Adverse conditions must give unsatisfactory results, and may lead to a premature denunciation of the whole system of propagation upon the roots of other plants. But, on the other hand, proper conditions and good execution afford abundant and positive proof that grafting—using the word in its broad sense to include budding—is essential to best success in many departments of horticulture.—L. H. BAILEY, in *Garden and Forest*, 26. 11. 90.

*** Granted the best and most proper conditions, and even then grafting is not proven to be neither the only nor the best way. I do not know nor care what "analysis of grafting" (sic.) Mr. Bailey may produce from the books on this matter, because the real vital question can only be decided by growing own-rooted and grafted trees of the same varieties side by side in the same soil and under the same climatic conditions. This question is far too deep and too important to be squelched by mere dogmatic assertion, and it is still open to Mr. Bailey or anyone else to demonstrate that grafting is the only and the best way with our fruit trees. So far, the botanists and the vegetable physiologists so-called have not helped us much on this question of grafting. Perhaps the subject is beneath them or above their grasp; I do not know; but here at all events is a field of practical work and experiment, not to be settled in easy chairs or in laboratories, but in the garden. Here is a practice which has been going on for centuries, even long before the Christian era, and no one has proved it to depend on anything more worthy of respect than hearsay, quotation or dogmatic assertion. I fully and freely grant the fatal facility of increase which grafting affords. But even the records of successful grafting read like the records of fortunes made on the Stock Exchange, built up of innumerable losses and failures which are rarely if ever recorded. Still Mr. Bailey may rest assured that grafting is very often a failure, very often a fraud, and never the only nor the best way.—F. W. B.

GARDEN FLORA.

PLATE 746.

LOBSTER CLAWS.

(WITH A COLOURED PLATE OF CLIANTHUS

DAMPIERI MARGINATUS.*)

THE only two species of *Clianthus* known have already been figured in THE GARDEN. The plate for this week represents a well-marked variety of *C. Dampieri*, and deserves to rank as a third kind of *Clianthus* equal in beauty and distinctness to the other two.

The best known species (*C. puniceus*) is a native of New Zealand, where it was discovered by Sir Joseph Banks and Dr. Solander in 1769. It was introduced into cultivation here in 1835, when it was well

* Drawn for THE GARDEN, by H. G. Moon, from flowers sent by J. G. Kirsten, Southborough Lodge, Tunbridge Wells, September 6, 1889. Lithographed and printed by Guillaume Severeys.



figured and described by the Australian explorer, Allan Cunningham, in the "Transactions of the Horticultural Society." From the first it has been a popular greenhouse plant, being easily cultivated, very free both in growth and flower, and highly ornamental. It is also grown on walls out of doors in sheltered localities. I have seen a plant live several years against the south-west wall of a

C. Dampieri is a very different plant. It was discovered in the extreme north-west of Australia, nearly 200 years ago, by the renowned navigator and buccaneer, Dampier, whose name it commemorates. A. Cunningham found it in New South Wales in 1817, and more recently Captain Stuart met with it in the same region growing "on sterile bleak open flats, skirting the Prince Regent's

In their behaviour under cultivation, these two plants differ most remarkably, for whilst the one is very easily grown to a large size, flowers freely every year, and rarely falls into bad health; the other is often a failure, even under the care of skilled gardeners well acquainted with the supposed needs of the plant, but which nevertheless dies suddenly in the most unaccountable manner. Being a native of the hot sandy wastes of South and West Australia, and of the bleak open flats of New South Wales, where it must often be exposed to extremes of drought and sunshine, one might have accounted for its refractory conduct here by the difficulty of even approximating our treatment to the natural conditions, were it not that the treatment which produces complete failure in one case and brilliant success in another is apparently the same. Mr. Kirsten's treatment for his plants, for instance, differs as much from the natural conditions under which C. Dampieri grows as from the treatment, equally successful, given by Messrs. Carter and Co., as detailed in THE GARDEN, July 23, 1881, along with the plate of this species. Evidently there are various ways to success with this plant. For instance, Messrs. Carter and Co. grew their plants in a low-roofed warm greenhouse. They were planted in a raised border of loam, peat, and sand in equal parts and watered freely. Under this treatment large plants were grown in a single season, some of them producing as many as 150 bunches of flowers each.

Mr. Rawson, of Windermere, potted his plants in a mixture of rotten manure, charcoal, and sand. In summer they were placed outside behind a north wall during the day and carried into a greenhouse at night.

M. Michel, of Messrs. Vilmorin and Co., claimed to have discovered the secret of growing this plant; it was, he said, simply, as in the case of other plants, reputedly difficult to manage; they must be supplied with the conditions natural to them. That was M. Michel's theory. His practice, however, was to sow the seeds and grow the plants in a mixture of equal parts of loam, peat, and manure, to plunge them on a hotbed of manure, to keep them well watered, and to shade them from bright sunshine. Mr. Christison, of Woking, stated that he had seen this *Clianthus* used as a summer bedding plant in a garden in Somerset.

All this abundantly proves that whilst C. Dampieri is fickle under cultivation, yet it is not very particular in its choice of those conditions under which it sometimes succeeds. Grafting has been tried for this plant with considerable success. The credit of this plan has lately been awarded to a German, but, as a matter of fact, it is not a new idea, for it was recommended and practised in England in 1872, and I have seen it referred to several times within the last ten years by writers in THE GARDEN. The stocks should be young plants of C. puniceus raised from cuttings, and the scions seedlings of C. Dampieri two or three months old. They should be cut off



The Glory Pea of Australia (*Clianthus Dampieri*).

dwelling house at Kew, where it covered a large space and completely wreathed the windows of the lower room with its brilliantly coloured flowers. A severe frost, however, proved fatal to it. Under ordinary treatment it attains a large size and lives for many years. It has smooth, dark green leaves, and is easily propagated from cuttings.

Lake." It was introduced into England by Messrs. Veitch, of Exeter, in 1834. It differs from C. puniceus in being more herbaceous, decumbent and compact in habit, shaggy, with hairs on the leaves and branches, and in the flowers being brighter in colour, with a rich black-purple, boss-like blotch at the base of the standard.

at the base and wedge-grafted on to the stocks at about 2 inches from the ground. If kept in a close frame they will unite in a fortnight.

The variety *marginatus* here figured was distributed by Messrs. Henderson in 1865, and coloured plates of it were published in the year following. After this it appears to have vanished until about 1875, when a German claimed to have raised it, and named it *Deutsche Flagge*. It differs from the type in having the keel of the flower coloured white, margined with scarlet. It is said to come true from seeds.

Mr. Kirsten, who grew the specimens from which the drawing was made, sends the following notes on its cultivation:—

I send you a few specimens of *Clianthus Dampieri*, and also of the variety *marginatus*. I have both growing in an outside unprotected bed 5 feet in diameter, covered all over with hundreds of these beautiful flowers. The plants are as hardy as *Geraniums*, *Mignonette*, *Stocks*, *Heliotrope*, &c., only requiring protection during the winter. I imported, in the beginning of May, the young plants from M. Louis Vieweg, Quedlingburg, Germany, who sends this variety out. They are inarched upon some other stock, hardy enough to be planted out at once, and were uninjured by several sharp night frosts at that time. The plants grew away fast, began to flower about the middle of June, and continued until frost cut them down in autumn. At the end of October, under a canvas protection, after we had 6° of frost, I gathered and sent you the specimen you have reproduced. I had one plant of *C. Dampieri marginatus* and four of *C. Dampieri*. To describe the magnificent sight when each plant was carrying hundreds of flowers can only be realised by seeing it.

The plants grew very strongly, the pretty sea-green foliage setting the flowers off splendidly. Each plant covered from 3 feet to 5 feet diameter, rambling into one another and completely covering the whole ground.

After the sharp frosty nights in October, I lifted each plant with a good ball, and have wintered them in a cool greenhouse, keeping the frost out. When the young plants are put out, great care should be taken. The ball should be well watered and not disturbed. Plant in any garden soil, in a sunny position, not too wet, and do not cover the grafted part with the soil.

The number of blooms is enormous; from every leaf-stalk a truss of five to seven flowers is produced. Some time ago a bouquet of flowers of this was presented to the (then) Crown Princess of Germany, now the Empress Frederick, who pronounced them "überaus prachtvoll."

W. W.

Gardening periodicals in bothies.—I was pleased to see "G. H.'s" note in your columns on the above interesting subject, and trust it will be read by many who will be able to follow out the views of "G. H." I think they should also go further, and for some months in the year provide the young men with instruction in any subject they may be deficient in. The cost of so doing will not be much to those who employ young men. Books and teaching would not cost probably more than one man's yearly wages, and the good done would be very great, as it would prevent many from going to amusements not at all suited to their means, while the knowledge gained would be of great assistance when they are called upon to fill responsible positions. Not having had these privileges, I well

know the uphill work it is for young men, and should like to see them have better means of gaining knowledge than fell to my lot. Education can now be so easily obtained, and the gardening periodicals and other books within their reach are so reasonable in price, that much can be accomplished if they try to help themselves. I know of several large establishments where the employers employ a teacher two or three nights a week. This is, as it should be, much appreciated.—G. W. S.

FLOWER GARDEN.

STRANGE SUCCULENTS.

AMONG the variety of plants in any good collection an observant lover of Nature may always find some that appear as curiosities. In the rich collection brought together by Mr. Hanbury at La Mortola there are many which answer to this description, none more so perhaps than certain exceptional plants of succulent character, growing amongst the famous groups of more ordinary succulents which here appear to such advantage. We do not know in what esteem these plants are held in temperate countries as decorative plants; we cannot think that even in Germany, where there are noteworthy collections, their value can be very great, but here where they grow as if completely at home, clothing walls and bare rocky slopes where no other class of plants would grow, their value is undoubted. Perhaps the rich masses of colour from flower heads of *Cotyledon*, *Sempervivum*, and pre-eminently from the flaming torches of the Indian *Aloes* redeem them from the charges made by some who condemn the stiffness noticeable in their foliage. We have heard some, artists it is true, rather than lovers of plants, whether amateur or professional, who would exclaim against the stiff mechanical appearance of the *Agave*, and who would assert that they derived no pleasure from the sight of these plants, so much at variance were they with all correct ideas of artistic freedom and beauty. With such we should at once join issue, and assert that in the warlike appearance and the iron strength of the mighty and formidably armed *Agaves* we have a fair picture of Nature's work done in one of her best moods. She has produced a form adapted well to cope with the fearful odds of its position, in the scorching blaze of the barren hillside where fate has ordered that the *Agave* shall live.

But whilst admiring to the full the various forms of *Agave* which here luxuriate, we would not defend from the charge that they were grotesque rather than decorative, such succulent species of *Euphorbia*, even such plants as the useful *Kleinia neriifolia* as may here be seen growing side by side with the most pronounced of the succulents. We therefore only called the *Kleinia* useful and interesting when considered as a stop-gap or a peculiar feature on some barren ridge where nothing else would flourish, but a lady visitor to Mortola not long ago had almost shown the extravagant pleasure which this species gave to her by tears and salaams of a devotional sort. When sufficiently recovered to be able

to explain her emotion, it transpired that she had in her childhood seen each day in the Canary Isles this plant growing upon the barren shores; never having seen it since, her joy was naturally extreme from the many ideas and bygone pictures that it at once recalled. For us, too, the plant has a greater attraction, having heard this anecdote, inasmuch as it links the *Kleinia* with its definite characters to the barren, sun scorched shores of its native place. When, moreover, we see species of *Euphorbia* with stems similarly thickened, and with leaves almost identical in size and substance, which we know grow in similar habitats there comes a clear impression, almost to be called knowledge, as to cause and effect, and this also leaves a sensation of pleasure quite as subtle as is that derived from the contemplation merely of rich colour or of graceful form.

Once this keynote has been struck, once we have seen the straggling, weedy *Euphorbias* of the temperate region giving place to the stouter, more slowly growing, succulent plants of the tropical waste-places, we find a dozen notes responding with no uncertain sound in almost perfect agreement. Thus *Euphorbia clandestina*, also from the Canaries, of low spreading habit, bears young shoots identical in appearance with the *Stapelias* of the sun-scorched slopes of South Africa. We have actually taken these in the same hand and shown them to judges of some discernment, who failed to distinguish between them. So also *Euphorbia neriifolia*, *E. canariensis*, *E. Caput-Medusæ*, have their counterparts among succulents such as *Cereus* and *Cactus*. *Euphorbia abyssinica*, which here towers to a height of 20 feet, whilst it is 10 feet through where its stout branches are the most abundantly produced, appears perhaps unique by reason of its gigantic proportions, but like a *Euphorbia*, as we have commonly conceived of *Euphorbias*, it is not! It is a grotesque mass of stout, angular, green-coloured stems. Thus confronted on the one hand with this astonishing resemblance to many of the better-known succulents, and, on the other hand, surprised because of their extreme divergence from the commoner *Euphorbiaceæ* and *Compositæ* to which we have become accustomed, we cannot fail in these Darwinian or post-Darwinian days to ask ourselves as to the why and wherefore. We have perhaps asked ourselves such questions when we have seen the poor specimens grown in English stoves or greenhouses; but it is vastly more easy to answer them when we see the plants so thoroughly at home and attended to by Nature with a regularity which we can gauge.

Here we see that they thrive in the scorching blaze of the sun; they grow slowly, yet persistently, in places where the soil is apparently but dry dust worn down from the barren sandstones. We have at once the fact forced upon us that a persistent stem, rigid, able to rough it through many years, has a better chance in the struggle for life than a tender stem, bearing large, easily withered leaves. We understand that under

such conditions evaporation would mean the draining of all the sap in very little time, unless such were guarded against, as it is guarded against in all the succulents by the excessively thick outermost and membranous layer—the cuticle. But we may ask ourselves whether it is not an economising of the plant's energy, that it should grow a stem which shall answer all the purposes of the leaves, and so save itself the trouble of the production of these, the growth of which is a process likely to be fraught with danger in the youngest stages of the leaf's existence, if not later. Thus we do not know if it be out of consideration, as it were, for the tender scales of the flowering axis in the Agave, but we have noticed that the growing tip in plants of this genus is turned away from the sun, not towards it, as the growth is taking place. However this may be, the species of *Euphorbia* common to such places as the dry slopes of the Canary Isles and the Cape, e.g., *E. canariensis*, *E. Caput-Medusæ*, *E. clandestina*, also *E. neriifolia*, and *E. abyssinica* have dispensed, or almost dispensed, with leaves and continued their species by the production of sessile fruits placed at the apex of their slowly growing stems. The conditions of the habitat do not favour growth, whether of flower stalks or leaves; they are, in fact, the conditions just the opposite to those which obtain where, as under trees, the straggling flower stalks and the large, almost flabby, weak leaves of *Caladium*, *Arum*, *Cineraria*, and such plants may be found.

That such a situation is unfavourable to vigorous growth, or perhaps we might say more exactly, unfavourable to the production of a large amount of the softer cellular tissue of plants none would deny; but we do not, perhaps, sufficiently recognise the effect of this in the linear or segmented leaves of many plants whose habitats are the rocky sun-scorched slopes.

Thus the plants so characteristic of such slopes in the Mediterranean region are, amongst others, *Lavandula vera*, *Thymus vulgaris*, *Rosmarinus officinalis*, *Calycotome spinosa*, *Helianthemum*, *Euphorbia spinosa*, all of which have the leaves linear, or reduced to a minimum. We may also often see in one species, as in the Dandelion, all the difference possible between specimens grown in a damp meadow or in a crevice on an exposed hill side. The leaves of the latter are segmented; in the former they are not only larger, but more entire.

We have said that the stem performs the functions of the leaves. A very little examination shows us underneath the membranous cuticle the cells containing the green colouring matter, which in the leaf is the all-important starch-producing part of the plant. A stout stem, as in these *Euphorbias*, in addition to its stability, exposes a larger surface, covered with cells containing chlorophyll, to the action of the light, and hence it is enabled to produce more food for itself. These stems may be the more ordinary, yet enlarged ones of *E. characias*, which bears a greater or less number of thick leaves towards its summit,

or they may be those of *E. clandestina*, where the small linear leaves soon drop off and leave the swollen leaf bases as thickenings of the stem; or, finally, they may be the smooth really leafless stems of *E. abyssinica* and *E. canariensis*. *E. Caput-Medusæ* has utilised the leaves as a spiny protection against animals; at least, they are present only in such form.

Thus we may see in these exceptional succulent species of *Euphorbia*, in *Kleinia*, and in the charming little *Othonna carnosa*, which flowers here in the same situations, a special form and character related to special conditions. We do not turn away from these exceptional plants with the reflection merely that external characters are no guide as to actual relationship; this is a fact made patent to anyone who sees the vegetation from different parts of the earth. New Zealand *Veronicas* appearing like *Coniferae*; Andean *Calceolarias* like *Helianthemum* and *Anagallis*; *Senecio angulosus* from Nepal having all the appearance of our common Ivy, &c., but we learn that Nature has method in her production of plant forms; she adapts in the same manner the *Euphorbia* and the *Kleinia*, the *Euphorbia* and the *Stapelia* or *Cereus*, where they have the same hardships to overcome.

PHILIP SEWELL.

Introduction of Dahlia Juarezii.—In the *Revue Horticole* of March 16 is an interesting allusion to *D. Juarezii*, which is usually described as having been introduced into commerce in England in 1880. But, says the French paper, it should be noted that this plant had been already known in France—at least, the first type introduced—for several years. Thus, forty-three years ago, M. Mezard, the well-known cultivator of Dahlias, had already exhibited this variety at the Château des Fleurs, at Paris. It was the time when such amateurs as Soultif, Laloy, Souchet père, &c., were alive. The name, even one of the varieties of this type, *Dahlia Etoile du Diable*, or *Corne du Diable*, was known and regarded as a great curiosity. The section of Dahlias named *Cactus* is then not new. We are ignorant of its exact origin. One only knows that the first varieties came direct from Mexico, and had not been obtained in Europe.

Daffodil Golden Spur.—Among the Ajax or Trumpet Daffodils this is one of the very best in the self yellow-flowered section, besides being early. I have a small, but somewhat select collection I am growing in pots to flower in a cold house, and of these *spurius* led the way, a very good and distinct early variety with a well-formed pale yellow perianth, and bold, well-expanded trumpet. Next comes the subject of this paragraph, a flower of large size with a finely formed spreading perianth and bold golden trumpet, a noble flower and one that commands general admiration. I think there are many who might grow a collection of these fine single Daffodils in pots, and find great pleasure in doing so. I potted mine in October, three bulbs in a 6-inch pot. They were stood in a cold frame, and there they remained until showing flower, and the earlier varieties are now expanding their blossoms under glass.—R. D.

Yellow Carnation Sir David Baird.—Messrs. Stuart and Mein, writing to us about this Carnation, say:—

As to hardness, size, and vigour of growth, we believe it has no equal amongst yellow Carnations. We find it is the first to flower when planted out-of-doors, and lasts out the latest. In regard to this point we had a note from Mr. W. Thomson, Junr., of Clovenfords, who remarked, "I have found it by far the prettiest and most free-flowering, and have gathered flowers from it (when grown under glass) every month

of the year." Our own experience bears out this fact, and we will give you an instance. We have had a plant in a large pot that opened its first blooms in March and continued to produce flowers until the last week of the following January. Last year layers from plants planted out in September were rooted and ready for pots in the middle of July, and these had been exposed to 29° of frost early in March.

DIVIDING HARDY PLANTS.

THE advantages of a frequent division of the tufts of many of our best hardy plants are so great that the practice can be strongly recommended, and should be extensively adopted. Opinions vary as to the best time for the work, some preferring the autumn, others the spring. After an extensive practice of the system for several years I much prefer the months of March and April.

Plants that are divided during October and November do not make fresh root growth, and therefore, even if firmly planted, they are apt to be thrown out by the upheaving action of the frost, and in wet or heavy soils the newly-divided pieces will even perish during the winter months, as I found out once to my cost, as I lost a good stock of *Coreopsis lanceolata*, which was divided and boldly grouped in autumn. It rotted, however, during the winter. This was an exceptional case, as the tufts were divided into very small pieces and the soil was both wet and heavy. On the other hand, I once divided tufts of the same plant into small pieces early in June and planted them carefully and every one grew. They were in flower by July, and continued to flower most profusely till severe frost set in. This example of failure and success with the same plant shows that an operation of a most useful character may have disastrous results if carried out at the wrong time.

Generally in March or April the beds and borders of hardy plants are overhauled with a view to putting them in order for the season. The old and orthodox way is to dig around the respective tufts and ruthlessly chop in any that have overrun the prescribed space. Often these are the very things that need dividing and they can be most successfully done at the present time. Where a tuft of a good thing has grown large it would be best to lift it and shake out, or, if necessary, wash out from the roots the adhering soil, when dividing becomes a very simple operation, easily carried out. If a few roots are secured with each piece they will suffice to keep the plant firm in the ground and alive till new root action commences, which at this time of the year means almost immediately. Of course, this wholesale practice of dividing must not be universally applied, because, as is well known, there are some good hardy plants that resent disturbance at the root, and which, when once established in good, well prepared soil, will stand for some years. Among these are the rhizomatous section of Irises, Day Lilies, Peonies, Yuccas, Tritomas, Plantain Lilies, and many others.

As a general rule, however, most of the fibrous rooted and tufted hardy plants divide with ease, especially such as the Phloxes, Michaelmas Daisies, perennial Sunflowers, Rudbeckias, Heleniums, Campanulas, Enocheras, &c. Moreover, these are things that it is most desirable to have in quantity both from their effectiveness and usefulness for cutting, so that instead of leaving a few scattered tufts to form part of a confused and inartistic arrangement, the same tufts freely divided will give sufficient stock to plant in bold groups, and these will have a more telling effect. Considering the trouble we have taken in propagating and preserving a stock of tender things for the flower garden, it is rather surprising that we have not attempted to increase some of our best and least troublesome, because most hardy plants. We are now finding out that the annual or biennial dividing and transplanting into fresh soil tends to materially prolong the season of blooming, even from weeks into months, and in these cases the old objection of the short blooming season, even if it ever could be legitimately urged, must now be waived. The development of a most desirable quality, namely, continuity of flowering, will enable such

plants, though hardy, to play an important part, even in the flower garden arrangements specially designed for the summer's display. A. H.

NAMING NARCISSI.

I THINK it is high time that a protest were raised against the endless variety of names which are given in bulb catalogues to Daffodils which differ only infinitesimally from each other. What most amateur gardeners want is about a dozen distinct sorts, each really beautiful and not ruinously expensive. What they do not want is to purchase under some fancy name at an extravagant price what proves when flowered to be only the Daffodil of our fields with a difference inappreciable to the ordinary eye. I have no hesitation in saying that the catalogues of certain bulb dealers are a snare and delusion to the unwary. A visit to a good garden, where the best Daffodils only are grown, in the following season is worth all the bulb catalogues in the world to the ordinary amateur gardener.

I think you would confer a general boon on this large and important section of your readers if you would state say the best four Daffodils in each section, and you would enhance this boon greatly if you would give definite instructions as to culture. Some authorities say, "Lift your bulbs annually in July, dry them off, and replant in September." Others say, "Leave them alone." Others again, "Lift every fourth year." AMATEUR.

SHORT NOTES.—FLOWER.

Iris stylosa speciosa is a deep-coloured variety of the type, and the flowers are larger, also appearing quite as early. It is of a rich shade of violet-purple.

Iberis stylosa is an interesting little plant with a mass of small pinkish flowers that smell like Heliotrope. It is quite hardy and blooms freely at this season.

Scilla bifolia rubra is a distinct and pretty variety of the early Squill, the colour a decided shade of purple-rose. The white variety *alba* is weak compared to it.

Iris sibirica hæmatophylla is conspicuous at this season for the rich purple colour of the young leaves, which change with age to a greenish purple. A bed of it would look well.

Spring Satin Flowers.—*Sisyrinchium grandiflorum* and its variety *album* are very beautiful on the Broxbourne rockery. They are in open raised beds of light vegetable soil, and both kinds are flowering freely.

Trillium nivale, in full bloom with Mr. Ware, is one of the prettiest of the Wood Lilies. Its flowers are pure white and the leaves from 1 inch to 2 inches long. A clump of this in a moist spot on the rockery would be delightful.

Primula rosea when in bloom is sorely tried with the sparrows, which eat every flower, and thus destroy a quantity of valuable seed. I had nearly all my flowers picked off by the small marauders last year. Is this the experience of others?—T. W.

Narcissus Bulbocodium citrinus, the lemon-coloured Hoop-petticoat Daffodil, is in full bloom at Tottenham in the open air. It is as hardy as *pallidus præcox*, yet we often see it in a greenhouse. The common golden-yellow type is excellent as an edging.

Mayflower (*Epigæa repens*) is common in North America, but until a few years back lost to our gardens. A frameful of it in Mr. Ware's nursery at Tottenham was deliciously sweet. The flowers are in little clusters, pink in colour, and very fragrant. It is a charming thing for the rock garden to plant under the shade of large shrubs.

Glory of the Snow (*Chionodoxa Luciliæ*) seeds so freely that it has become almost a weed at Tottenham, where it has sown itself all over the place. Seedlings have sprung up and flowered even half a mile away, the seed doubtless carried by birds. Such a charming spring flower should be made good use of in London parks.

Good Daffodils.—Amongst the finest Daffodils in flower last week in the open air in Middlesex were *maximus*, *princeps*, the Tenby Daffodil, Henry Irving, Countess of Annesley, Golden Spur, Ard-Righ, and *pallidus præcox*. The pretty little *Johnstoni* and *cyclamineus* were also in bloom. All are first-rate Narcissus.

Anemone stellata alba.—Mr. T. Smith, Newry, points out the good qualities of *Anemone stellata alba*

(p. 265). I first began raising this plant from seed twenty years ago, and have now considerably increased the number of florets, the flowers having become half double. There are, however, a few other lately imported *Anemones* here far more beautiful than any other species hitherto seen in Europe.—MAX LEICHTLIN, *Baden-Baden*.

CARNATIONS AND PICOTÉES.

WE began to repot our Carnations and Picotées into the pots in which they are to flower in the last days of February and finished up the first week in March. They were all arranged in frames, and immediately frozen hard three nights in succession. I was not sure what the result would be of this very sudden change, as we had 10°, 15°, and 22° of frost three nights in succession. The soil in the pots was dry, none of the plants had been watered, and now since the fine weather has set in all of them have been watered, and they are starting into vigorous growth. We shall keep them in the frames until the weather is favourable, when they will be placed out of doors. It may not be amiss to comment here on the following point in the culture of Carnations in pots: The plants intended to be so cultivated should be potted up into small pots in autumn and wintered in frames. The rooted layers may at that time, say from the middle of September to the middle of October, be sent safely to any distance with the roots merely placed in damp Moss, but I find many cultivators are also of opinion that they may be removed in the same way in the early spring months. I find this is not so, as the plants so removed seldom make satisfactory growth during the ensuing season. The flowers are badly marked and but little growth is made to produce layers for next season. It is therefore necessary to have the young plants established in pots in the autumn, and in the spring they are ready either for planting out in the open garden or for potting up for pot culture. We are always careful not to disturb the roots of the plants more than may be necessary. Preparation is now being made to sow the seeds for the production of flowering plants for next year. We make up a hotbed, but it is made so that the heat is not very violent, and when there is no danger from too much heat the pots or pans in which the seeds are sown are plunged up to the rims. The seeds in a nice bottom-heat will germinate in a week, and the plants are sometimes ready to be pricked out in two weeks after the seeds are sown. The after treatment consists in gradually inuring them to a cold frame and afterwards to the open air. They may be planted out in June in any good garden soil.

J. DOUGLAS.

The Poppy Windflower (*Anemone coronaria*).

—This is very beautiful with me as I write, on the 20th of March. The plants were raised from seed in the open (where they are now in flower) early in May of last year, and although I have grown these hardy flowers for many years, I have never had them in so varied and rich colours. Quite 50 per cent. of the flowers are double or semi-double. In some of the flowers the petals are reflexed, in others they are incurved, while others have a number of thread-like florets, similar to some varieties of Japanese *Chrysanthemums*. The colours of the flowers are as distinct as the forms are varied. At the commencement of the month the plants were exposed to 15° of frost without any protection, but only the flowers then open were injured. The plants quickly recovered, and in less than a fortnight the beds were a glow of colour.—J. C. C.

Naming hardy Primroses.—Out of a dozen fairly distinct forms of double Primroses not more than three can I find which have been specifically named, viz., *Cloth of Gold*, very like to the giant yellow; *Crousi*, and *Arthur Dumoulin*, or *platypetala plena*. These latter two are of the most recent introduction, and may have received these names in consequence. To specifically name these double varieties seems to be needless, as they are all doubles, and only differ in colour of flower. The colours are white, blush, sulphur, lemon-yellow, lilac, deep lilac, violet, rose-crimson, crimson-purple

and purple. Turning to singles, some specific naming seems to be needful, because these seedlings freely reproduce their kind in enormous numbers. Of these only 10 per 1000, perhaps, may be found good enough to name, because quality must be of the best to merit such distinction. But some regard should be paid to the flowers in selecting names, and those which exhibit some party distinctions are wisely avoided. It is not in all cases possible to give a name which quite conveys the colour of the flower. Names, as *White Queen*, *Purple King*, &c., soon become monotonous, but single Primroses give a wondrous wealth of colour so varied and distinctive that no mere colour term, such as lilac, rose, mauve, &c., can adequately describe them; therefore, it is found best to give specific names, with colour descriptions following. Still, I am not greatly enamoured of efforts to propagate particular named varieties, because here those efforts do not generally meet with success. If, however, it be desired to have Primroses in colours for massing, such as white, cream, yellow, lilac, rose, red, purple, crimson, &c., then propagation by division must be resorted to. Large blocks of colour in Primroses look both effective and beautiful, and yet a mixed bed of seedlings is very attractive.—A. D.

THE AURICULA.

I WROTE about the Auricula at p. 20 of the present volume; that was in the second week of the year, at a time when the plants are, or ought to be, at perfect rest. The sleep of Auriculas is absolutely necessary to the development of perfect trusses. They rush into leaf and flower so rapidly in March and April that a comparative failure might result from the lack of previous preparation; and yet many good amateur growers do not realise this, as they are so afraid of their plants being damaged by frosts. The late Mr. Penson, an ardent Auricula amateur, told me that he did not allow his Auriculas to be exposed to frost in any form, and there is a growing tendency to coddle up the green, grey, and white-edged varieties of these plants, as if they were as susceptible to frosts as an Orchid. I like to keep the whole collection in frames until the soil in the pots is well frozen. They were well frozen during the present season, having been out in cold frames until well into January, and some are still in cold frames. All the alpine varieties are there, and will remain so until they flower. The alpine Auriculas in the rock garden, although the ground is wet, have passed through the winter well. We have masses of such pretty varieties as Gorton's *Diadem* quite 2 feet through; also Turner's *Queen Victoria* and selected seedlings of our own nearly as large. Of the first-named there were a hundred trusses of flowers open at one time last year on the compact mass of plants, forming a charming picture of brownish crimson and gold; the others are purplish and paler yellow. Many of the outer leaves of these masses of plants have decayed since the severe frosts recently; their removal and a dressing of an inch or so deep of rich compost will make them all right until the flowering period is over. If the season should be late they will last into May. Seedlings of this type of Auricula are easily produced, and flower as freely as out-of-doors garden plants. They should be placed in such a position that the water may drain away freely from the plants. We are now attending to the propagation of all specially fine varieties, whether they be show or alpine. All offsets are carefully removed. And here I may remark that these offsets will form roots if they have none attached to them; but they fail to do so sometimes, so that it is much better to allow them to remain until roots are formed at their base, if the variety is good and plants of it are urgently needed. They are all planted in very small pots, and are placed in hand-glasses kept rather close, but not so close as to engender mould and decay of the leaves. This can be prevented by removing the top glass daily and wiping it dry.

The large plants in the Auricula house are now throwing up good trusses freely, and if the plants are to be objects of beauty at flowering time they should now be freely exposed to light and air. The

lights are removed whenever the weather is favourable; even when the flowers are open we remove the lights if the air is calm. It is necessary to see that Auriculas are free from green-fly during the present month, for it is not desirable to fumigate the house when the plants are in flower. An unpleasant odour of tobacco pervades the house for days after, and the flowers themselves may be injured by it. J. DOUGLAS.

Lyre Flowers (Dielytras).—I trust I am right in referring to these beautiful hardy plants under this term, but some writers seem to prefer the term *Dicentra*. However, most gardeners will only know these Chinese plants as *Dielytras*, and a very good name it is. But a week since and we had intense frost of some 18°. Happily, it did not last long, and much less harm was done than otherwise might have been the case, because both the soil and vegetation were so dry. I observe, however, that, tender as the tops of these *Dielytras* presumably are, they suffered nothing, although fully exposed to the weather, and the shoots fully 3 inches above ground. Doubtless much of this immunity from harm is due to the dryness which prevailed. Still the *Dielytra* shows in this case that it is a truly hardy plant, and it is to be deplored that large clumps of it are not found in borders to produce charming effects early in the season. *Spiraea japonica* is not ordinarily grown as a hardy border plant, because its shoots are a little subject to injury from severe late frosts; but still, having it as a hardy plant here I have found very little harm resulting. The shoots just now are breaking up, but so far are quite unharmed. As we grow both *Dielytras* and *Spiræas* in pots under glass so largely, they have fallen into disfavour for ordinary border culture, and yet both are beautiful plants out of doors. *Dielytras* bloom profusely for a long season from side shoots, even after the main flower stems have been removed.—A. D.

*** Last year some of the finest specimens we have ever seen of this lovely hardy plant were growing in the herbaceous border of the Royal Horticultural Society's Gardens at Chiswick. They had not been protected in any way. Even if a slight protection were necessary in the early part of the season, this will be well repaid when the *Dielytra* comes into bloom.—ED.

Storing Gladioli.—It is quite clear that "W. J. M." has fallen into the mistake which I am continually trying to induce people to avoid, viz., that because we live in the south of England that we are therefore less exposed to cold than other parts of England. The south of England as represented by Kent and south of Devon is a very different thing, and when "W. J. M." imagines that we are in some degrees warmer than the south of Ireland, he forgets, I fancy, that we are out of the influence of the Gulf Stream. I know the south of Ireland well. I remember as a lad seeing in Mr. Head's garden at Kinsale Myrtle trees standing out on the lawn 14 feet and 15 feet high; while at Foaty, Mr. Smith Barry's residence on the Cork River, I saw all manner of tender things thriving out of doors. Unhappily, I can give a very forcible answer to this idea of our mild climate. On this day week I registered in my garden at 4 feet from the ground 19° of frost, at Ashford 28°, and at Bethersden 30½°, about seven miles off. At the same time we had about 8 inches of snow. I wonder what the record was at Clonmel, and I think "W. J. M." will see what a pretty plight I should have been in if my bulbs had been in a potting shed. I yesterday (March 17) visited Canterbury and went to Mr. Geo. Mount's nursery, and if "W. J. M." had been with me he would, I think, have learned more than I can tell him. They registered 35° of frost. My *Maréchal Niel*, and indeed all standard *Teas* and *Noisettes* in the open are completely killed, and every *Rose* in the place, either Hybrid or *Tea*, cut down to the snow line. I have rarely seen such desolation, and it was all the work of about two hours, from 6 to 8 a.m.; it froze all the night, but the intense frost was in those two hours. All around Canterbury it is the same; *Laurustinus* as

brown as a berry, Laurels, Bays, and Portugal Laurels scorched as if a fire had gone over them, so that had I any doubts before, this experience would have completely dispelled them.—DELTA, Kent.

STOVE AND GREENHOUSE.

PANCRATIUMS.

UNDER this heading should also be included the *Hymenocallis*, the *Ismenes*, the *Eurycles*, and the *Choretis* for their near family affinity. The *Pancratiums* and *Hymenocallis* are probably the best known, whilst the other three genera are by some authorities included under one or other of these two. The merits of the *Pancratiums* and *Hymenocallis* for decoration are of the first order, and they are now grown to a much larger extent than was the case a few years ago. For cutting, the flowers are most valuable, whether it be in bouquets, crosses, or wreaths, or arranged in vases for room decoration. The only possible complaint that can be urged against their use in the latter way is that of their perfume, which in the case of one or two kinds is or might be considered rather too powerful, but at the same time not objection-

months of the year I have found that the umbels of *Pancratium fragrans* are most valuable for conservatory decoration; from June onwards to the end of September they may be had in succession where there is a good stock of bulbs on hand. As soon as the first flowers expand I remove the plants to the cooler temperature of the conservatory, where they last longer in beauty and each successive flower unfolds in due course in a perfect manner. It is better to be cautious on the point of watering at such times, and not permit any excess. When out of flower, remove them back into heat again for the young growth to be developed. A new crop of leaves in nearly every instance follows closely upon the flower-spikes, and if these be weakened or given any check the possibility of flowering another season will be lessened. When growing these Lilies, my practice has been to only have one bulb in a pot up to a flowering stage. About every second or third year they should be repotted and all offsets taken away from the main bulb, and the smaller ones gradually worked up to a flowering size by growing them in a brisk temperature. The great advantage of the "one-bulb-in-a-pot" method is that of prolonging the blooming season, for where several are



A fine specimen of *Pancratium amoenum*.

able. The perfume I have noticed is stronger in the evening than during the day. To overcome this objection only a few flowers should be used, and thus more may be made of those in stock. The singular elegance and beauty of each of the individual flowers at once render them attractive when arranged singly in specimen glasses with Fern fronds or other suitable foliage. Their pure white colour (with pleasing venations of pale green at the base of the tubes in some kinds) and elegant formation and outline can scarcely be approached by any other of the larger growing members of the Lily family. Recently I have had some spikes of *Hymenocallis macrostephana* in full beauty. On two occasions I tested their durability in a cut state for room decoration, and found that they lasted fully a week in good condition. This was, no doubt, somewhat enhanced by merely keeping each flower in a vase by itself. Such beauties as these flowers undoubtedly are need no other embellishment than that of foliage to display them to advantage.

For using on the plant during the warmer

thus cultivated it will rarely happen that many come on at one and the same time. From one pot of about three well-developed bulbs I increased my stock up to more than sixty in a few years.

As before stated, every attention should be given to perfecting the young growth. After this has become fully matured, a lower temperature than that of the ordinary stove will suit the tenderest kinds. A pit that does not fall below 50° in the winter months will suit them very well; but if any are needed to flower early in the season, a selection should be kept in a warmer temperature; those I have recently flowered were in an ordinary stove temperature of 60° to 65° minimum. The best time for repotting is in the spring, when a moist atmosphere can be given them. I used to place ours in a vinery at work, the shade of the Vines being congenial to the freshly-potted plants, after having been shaken out of nearly all of the soil in which they had been grown so as to get at the suckers or offsets. Young plants, as a matter of course, should only be potted on until they

reach 6-inch pots, as after that in all probability the first of the young bulbs will require removal. As the bulbs increase in size larger pots should be given up to those of 8 inches diameter, beyond which size it is not advisable to go. The soil I use for them is chiefly loam, when that is of good quality; a little peat may be added when such is not the case. Next the drainage, or intermixed with the soil, a few half-inch bones would be a decided advantage, or, failing these, some lime rubble. Well-decomposed leaf-soil with loam is best suited to the younger plants; in all cases sand should be freely used, and firm potting is necessary. Of insects, much complaint cannot be made or urged against *Pancratiums*; the black thrips will, if allowed to gain a foothold, soon disfigure the undersides of the leaves, but may be easily cleared off by carefully sponging with soft soap and water, guarding against the breaking down of the leaves at their axils. The mite that is such a trouble to some growers of the *Eucharis* does not appear to affect the plants under notice. I once knew some plants to have it upon them, but it did not affect their health. I advised strong doses of soot water, and these I believe were highly beneficial. The deciduous species should be gradually dried off as their foliage decays, and when the latter is all removed, the pots may be laid upon their sides. The varieties under cultivation are not numerous. The best are:—

PANCRATIUM (HYMENOCALLIS) AMENUM, the subject of the accompanying illustration, is a good example of a well-bloomed specimen plant.

P. FRAGRANS, probably the best known and most cultivated of any kind, resembles the former in many respects, but is larger in all its parts.

P. GUIANENSIS is a newer variety, the clusters of flowers being rather more upright than those of most kinds; it has also longer segments, which are prettily curled and twisted, and of a more drooping character.

HYMENOCALLIS MACROSTEPHANA has narrower foliage, with the corona of larger size and substance. This kind is finely grown at Syon House, where Mr. G. Wythes has a house full of it, so much are the flowers appreciated for cutting. The plants under his charge are doing splendidly, and promise well for flower. This variety was first brought into prominent notice a few years ago from the same establishment whilst under the charge of the late Mr. Woodbridge.

PANCRATIUM ILLYRICUM (which may be called the Illyrian Lily) is hardy in all fairly good situations. In planting it, the best plan is to insert the bulbs deeply in the ground, so as to escape all possible injury from frost, say at least 1 foot under the surface. For a more protected spot out of doors *P. maritimum* may be added.

If I might be allowed to make the suggestion of a popular or English name for these handsome plants, it would be that of the "Fairy Lilies," to which I think they are quite entitled.

J. H.

Lachenalias at Canford Manor.—I was much interested when visiting these gardens recently to note the way in which the plants were grown and the beautiful effect produced. Mr. Crasp, the gardener here, grows his *Lachenalias* in 6-inch pots, and the blooms are much better than usually seen. The plants are suspended from the roof of the greenhouse not far from the glass. The *Lachenalias* are most useful for this purpose, as the blooms fall gracefully over the sides of the pots. They should be grown in small pots, and a small Palm or *Dracena* placed in the centre of the basket; the flowers last for some weeks and are much admired.—G. WYTHES, *Syon House*.

Rhododendron formosum.—As a plant for ordinary greenhouse cultivation this is, with the exception perhaps of *R. ciliatum*, the most useful of Himalayan *Rhododendrons*. Unlike the major-

ity of that section of the genus, it flowers when quite young, plants 9 inches to a foot high blooming quite freely. If space permits it will ultimately develop into a handsome shrub 6 feet to 8 feet high. A specimen of this size is planted out in the temperate house at Kew, and every year during the months of March and April it produces some hundreds of blooms. These are each 3½ inches across the mouth. For the most part the flowers are pure white, but a patch of yellow occurs on the upper division of the corolla. The unexpanded flower buds are very pretty, being of a soft rosy-pink. The leaves of this *Rhododendron* are small, lanceolate, and bright green with a few scattered hairs on the upper surface. The whole plant bears a considerable resemblance to *Azalea indica*, and requires the same treatment.—B.

VIOLETS DYING OFF.

I NOTICE with particular interest your notes under the above heading in THE GARDEN of the 8th inst., and as a similar case has occurred with me in a very extensive manner I am sending a few plants for your inspection to see if it is the same disease that has troubled others who have sent to you. For my part I have no doubt of its being of a fungoid nature, but would be obliged for your opinion. When I inform you that it has affected over 1200 plants, not one of which has escaped, you may guess how serious a matter it is. It is the first experience I have ever had of the kind, and I certainly do not think it at all attributable to culture, as the plants have been grown under similar conditions in former years, when they have done so well. The roots of the plants are perfectly healthy and growing fast, though they make but little or no foliage. "J. M. H." in his remarks anent the above says it would appear to be most prevalent in the neighbourhood of towns, but this cannot possibly be the case with my plants, as we are seven miles from the nearest town, and very seldom indeed troubled with fog at any time of the year. I may state that when the plants were put into the pit last autumn they were then in a very healthy condition; in fact it is only during the past few weeks that they have been attacked in such a manner. The varieties grown are Marie Louise, The Czar, and Comte de Brazza.—H. E. G.

* * We have looked very carefully over all your examples. It is often most difficult to assign a true cause for premature decay and death in plants, but as a fungus named *Peronospora violæ* (a close ally of the Potato fungus) was growing upon your specimens, this parasite was possibly the cause of their bad condition. The moist, flaccid, and almost putrid condition of the "damped" parts closely resembled the work of a *Peronospora*, although there are probably other and possibly cultural causes for Violets damping off in other places. Severe spring frosts often damage Violets.—W. G. S.

—The disease complained of by "W. B." in THE GARDEN, March 8 (p. 222), seems to be a very common one this year, but why it is so it is difficult to say, seeing how very healthy the plants were last September when put into the frames. I never had a finer lot of plants—quite free from red spider, with ample foliage, and well set with healthy flower-buds. They took to their new quarters kindly, and were soon flowering freely. This continued all through October and a part of November. When I noticed the disease complained of on one or two of the largest of the plants, I at once picked off every bit of leaf which was affected. I then mixed together a quantity of air-slaked lime, flowers of sulphur and charcoal (pounded up into a powder). This was placed round the affected plants, and indeed on every inch of soil in the frames. If this fungus is carefully watched it will be seen that it spreads all over the surface of the soil, and in a very short time the whole of the plants will be affected. In my case the above remedy was thoroughly effectual, with one exception. This was in a frame where the soil had sunk some 10 inches or 12 inches from the glass, and it was necessary to dress this two or three times

before I could stamp out the disease. I think there is nothing better than a good dressing of powdered charcoal for Violets in frames in damp weather, as it absorbs the moisture which is so destructive to the plants. I was careful to remove the lights entirely on every favourable opportunity. I believe if "W. B." will try the above mixture in the way advised, and take care not to coddle his plants, but give them the full benefit of fine weather, he will have less cause for complaint next year.—THOS. ARNOLD.

Bromeliaceous plants.—I am asked by a reader from Manchester "if these can be grown with Cattleyas and *Odontoglossums*." Most certainly, and without the slightest ill effects to either. I am not so sure about the temperature required for *Odontoglossums* suiting many Bromeliads, as they for the most part enjoy strong heat; but they will thrive admirably with Cattleyas, and if they are set up on the stands used for Cattleyas, it will add to their appearance. They should be made quite as much a speciality of as Orchids. I am sure anyone getting a collection of these together will reap as much pleasure from them as from Orchids, and more so, for the majority are exceedingly ornamental when not in flower.—W. H. G.

Boronia heterophylla.—This is one of the most beautiful indoor plants in bloom now, and a reference to the coloured plate of it in THE GARDEN of Nov. 12, 1887, will convince all who not know it of its charming beauty and gracefulness. We believe it was found near the Swan River, in Western Australia, about fifty years ago, but it was not until 1881 that it was cultivated in English gardens, the intrepid traveller, Miss North, having sent over seeds. The seedlings first flowered in the spring of 1885. There is usually a good display about this season in the Chelsea Nurseries. The shrub is of erect growth, and from the leafy branches hang a profusion of sweet-scented, carmine-coloured, bell-shaped flowers, of a similar shape and of about the same size as those of the Lily of the Valley tree. The plant is not difficult to grow, but does better in the pure air of the country than in the smoky atmosphere of London. A few plants in full bloom are very telling in the greenhouse at this season.

Jambosa australis.—This plant, well known under the name of *Eugenia australis*, is, like the *Pernettyas*, very useful for decoration during the winter. We have several plants that have been covered with their showy, deep red, oval berries for months past. The plants are subject to run up, and do not require large pots. I find the plants flower and fruit profusely if given a light place and not allowed to suffer for want of water. We give our plants an open position on a south border, plunging the pots in ashes, and do not place them out till late in June when the plants have made a free growth. If grown under other plants they will not bloom well. This *Jambosa* produces a quantity of Myrtle-like flowers early in the autumn, and should be slightly shaken or gone over with the hand to assist fertilisation. We house our plants at the end of September, and they are often showing bloom at that date. This *Jambosa* is easily propagated from cuttings and requires frequent stopping when in a young state, also plenty of nourishment. We frequently give the plants liquid manure.—GEO. WYTHES, *Syon House*.

Palms in the open air.—A writer (p. 234) says that it seems absurd, when we have such a wealth of shrubs and trees that will stand the severest winter with impunity, to attempt to acclimatise Palms to the vicissitudes of an English climate; but that all depends upon what kind is made use of, as nothing can be more imposing and telling than a fine plant of *Chamerops Fortunei*, which will stand uninjured or without disfigurement in any fairly sheltered part of a garden. What is perhaps more injurious to it than frost is wind, which bends and breaks the leaves about, but plant it in a protected place, and then you have a striking object that is sure to command admiration. We have several in our hardy fernery, where they have been many years associated with big Bamboos, *Berberis nepalensis*, and other fine-

foliated plants. The oldest, which has a stem some 6 feet high, flowers annually, the long scapes being something after the manner of those of Rhubarb, but more arching and drooping. Instead of condemning and ignoring such beautiful objects as Palms in the open, I say plant them in the right place, where they do not get knocked about or require artificial protection, and then, instead of complaining of their appearance, those who decry them will have reason to praise them.—J. SHEPARD, Woolverstone, Ipswich.

Big Cinerarias.—We may well ask what is to be the limit of size for the Cineraria. It appears to be the aim of the florist to make the blooms as large and severely formal as it is possible to produce them, working on some such rules as laid down by George Glenny, who would have everything as round as a cartwheel. Many a flower has been utterly spoiled by this craving for mere bulk, and the Cineraria is a good example of a flower fast losing its good qualities in size of bloom. Even those who used to praise rigid outlines and size are beginning to see the folly of it. Like the Cineraria, the Cyclamen is increasing in size, but decreasing in intrinsic beauty each season. Some of the "giant" strains are monstrous, and these are held up to our admiration as "grand" productions. The controversy on big Chrysanthemums showed that graceful flowers converted into big, ugly blooms to fill the exhibition board had neither a vestige of elegance nor true beauty. Since our protests there has been a revolt against "size," and we shall doubtless be able to welcome back those fine old varieties, that, because not large enough to suit the exacting exhibitor, have almost disappeared from cultivation. Big vegetables may do for exhibitions, but not for the table, where the taste has to be considered.

Arum Lilies.—There have been many objectors to the planting out of Arum Lilies after they have done flowering, but one would think that they would become converts after what "A. D." (page 222) has said respecting those he saw just lately at Hounslow, where he states the plants in 10-inch pots had six expanded flowers on them at one time, and were showing more, which quite proves that the planting-out system of culture, if not better, is equal to any. We always grow ours in trenches, much after the fashion of those for Celery, except that the trenches are not so deep, and after planting we mulch, as then it is much easier to keep the soil wet. Before turning the plants out, the soil is nearly all shaken from them, and the big ones are pulled apart and divided for the purpose of having different sizes to take up in the autumn, the medium ones being planted just as they are. These make large masses for special purposes, but for general use those in 8-inch and 10-inch pots are the most handy, and yield from six to a dozen blooms each. We have numbers now coming on for Easter for cutting and furnishing that are now showing quite as many blooms as I state, and I have no doubt from their great strength that they will produce many more. I question if those we hear of that are confined to pots the year round will do anything like this, as to have flowers they must have a liberal course of treatment and free growth, and if they do not have this through the season referred to and make fine crowns, blooms from them will be looked for in vain. Some years ago I saved a lot of seed and raised plants in that way, hoping to get double spathes or something fresh, but the seedlings turned out just like the parents, and were no better than others grown from side shoots. I wonder if anyone has ever tried crossing this with any other Arum, such as *A. italicum*. Perhaps the seedlings would be worthless, and in any case we could not expect to see a flower from them so lovely as our old favourite which is admired by all.—S. D.

SHORT NOTES.—STOVE AND GREENHOUSE.

Rhododendron Gibsoni is a beautiful flower, and a specimen was in full bloom recently in the greenhouse at Kew. The plant is remarkably free, each branch carrying flowers, which individually are

over 2 inches across, pure white, with just a tinge of pink, and flushed with rose on the outside, the buds a deep reddish colour. It is a *Rhododendron* all should have for the greenhouse.

Echeveria retusa.—This is a very useful plant at this time of year, and is of much value for room decoration in vases, for which purpose it seems specially adapted, as it is not only very distinct and showy, but it stands the dry atmosphere without taking any harm. The way to propagate the *Echeveria retusa* is by cuttings, which may either be made of the side growths or flower stems, both of which root freely. As the plant is of a succulent nature, and the cuttings therefore sappy, they should be kept somewhat dry till they strike. The most suitable place to get them to do this is on a shelf in a house or pit, and either of these positions is the best to grow the plants on after, as they must have full exposure to light and sun to harden and ripen the crowns. To ensure this it is a good plan to stand the plants during the summer out in the open.—S. D.

AZALEAS.

FROM several questions that have of late appeared in gardening papers touching imperfect development of flower buds, scarcity of bloom, &c., in the Azalea it would appear there is still something to be desired in many instances in the management of this greenhouse plant. There is hardly any plant that will yield such a wealth of blossom with so little trouble and expense. It is this characteristic, coupled with the well-known hardness of the Azalea that is, perhaps, in some measure answerable for occasional failures. We are apt to think an annual display of bloom will come as a matter of course, forgetting or ignoring the fact that there are certain errors of omission and commission connected with the treatment of the Azalea that will partially or wholly destroy a season's flower. One cause of failure is to be found in allowing the plants to remain too long out of doors. There may be favoured spots where Azaleas can be fairly well acclimatised, but, as a rule, they should be housed by the beginning of September, unless there are exceptional opportunities for protection out of doors, but even then they are better under glass, unless the covering up is duly performed, irrespective of weather. We have had an occasional frost of late years early in September when least expected, and of sufficient severity to blacken alike the buds of Azaleas and Chrysanthemums. Another source of failure is neglecting to secure an early matured growth. The plants should be thoroughly cleansed immediately they are out of flower, and receive for a few weeks the benefit of the warm genial temperature of the vinery or early Peach house. The latter is the best place for them, as by the time the plants have made a nice young growth the Peaches will be beginning to colour and the cooler temperature and plenty of air will be just what the Azaleas require to harden the young growth preparatory to their being turned out of doors. This is rather a critical time, and unless a little care is taken the young growth is apt to be blistered under the influence of a powerful sun. With a view to prevent this and to shelter alike foliage from injury and soil from drought, I have found a skeleton frame of Fir or other poles of sufficient height to allow a free passage underneath, and of width to allow a path down the centre very suitable for their reception, as on the top and south sides of this frame, a piece of open tiffany or even a double thickness of half-inch mesh fish netting can be hung just sufficient to break the force of a very powerful sun. The plants will do well under this slight protection until the beginning of September, when, as I have previously stated, they should be housed whatever the condition of the weather may be at that time. One more source of failure is allowing the foliage to get crippled by thrips, for, in common with all hard-wooded plants, partial destruction of foliage means serious if not permanent injury to the Azalea. Special attention must be given in spring after flowering before they are placed in warmth, and in autumn before housing, and at least once during summer and winter. If there is the least sign of thrips, the plants must be laid on their sides (tilting the pots slightly so that none of the mixture pene-

trates the soil) and receive a thorough syringing with one of the many insecticides now before the public, varying the strength of the remedy as the foliage is hard or tender. If it fall to the lot of anyone to take charge of plants that are already badly affected, this remedy must be applied three or four times at intervals of a few days until every insect is destroyed.

E. BURRELL.

Claremont.

Cyperus distans.—Among the ornamental Grasses mentioned on page 245 of THE GARDEN occurs the name of *Cyperus alternifolius*, and to this might also be added *C. distans*, for it is very distinct from the others and forms a most effective specimen. In this the leaflets are broader than in *C. alternifolius* and of a deep green, while the Grass-like foliage is retained at the base of the taller stems. The inflorescence, too, in *C. distans* forms a prominent feature, as it is borne freely on the mop-like shoots and remains long in good condition. Like the other members of the genus, copious supplies of water must be given during the growing season, and if liberally treated in this way it will remain in health a long time under conditions such as many indoor plants would quickly suffer from. This *Cyperus* is also known as *C. Meyenianus*, and was first brought under the notice of the public about half-a-dozen years ago by Messrs. Low, since which time it has rapidly advanced in favour. Another species, *C. laxus*, is somewhat like the last, but the inflorescence is looser, while the entire foliage is much thinner than in *C. distans*, and consequently it is less able to resist draughts and changes of temperature. Of *C. laxus* there is a variegated variety, which forms a very handsome plant in the stove or warm greenhouse, but it is too delicate for exposed places. Like the variegated form of *C. alternifolius*, this must be potted in comparatively poor soil, and though plenty of water is necessary, nothing of a stimulating nature as manure in any form must be given, as if the plant is encouraged to grow very strongly it is apt to lose much of its variegation.—T.

TREES AND SHRUBS.

KNIGHT'S CYPRESS.

(*CUPRESSUS KNIGHTIANA*.)

AMONGST Cypresses this ranks high as an ornamental and graceful tree, the bright bluish hue of the foliage contrasting with the reddish brown bark of the stem and branches, patches of which are every here and there visible, from the fact of the leaves being somewhat sparsely produced. In general appearance Knight's Cypress approaches very nearly to certain forms (not the typical spreading-branched tree) of *Cupressus macrocarpa* or *Lambertiana*. It has, however, a far more refined appearance, more pleasing foliage, and is usually of more pyramidal outline, but with the same branch formation and arrangement. This pretty Mexican Cypress is far from suitable for this country generally, only a very few specimens in the warmer parts of England and Ireland now being to the fore, although some years ago not a few were tried, for the sake of experiment, in various parts of the country, and for which, from almost perfect immunity from cutting winds and severe frosts, they were thought to be peculiarly suitable for. Most of these trees have been killed out long since, a few are still wearing out a miserable existence, and only two are what I would term in a healthy and flourishing condition. Generally speaking, a sheltered sea-coast situation, a light, warm soil, and abundance of rainfall would seem to meet the peculiar wants of this Cypress.

Perhaps the largest specimen of Knight's Cypress growing in this country is that on the sea-coast, or rather a quarter of a mile from

the shore, of Cornwall, and eleven miles from Tregrehan. It is now a perfect specimen of 37 feet in height, with a branch-spread of 41 feet, and a well-rounded stem that girths 5 feet 11 inches at 2½ feet from the ground. The soil is a strong yellow loam, and the tree, which grows in a sheltered spot, appears from specimens I had kindly sent me to be in perfect health, the foliage being of a distinct glaucous hue and the cones large and well formed. In one other instance I could quote, the same Cypress is thriving fairly well in a more inland situation than is the Cornish specimen just referred to, although the foliage is not so bright and healthy looking, but this may be owing to a more unfavourable situation and consequently a shorter annual growth.

Cupressus Knightiana is a tree that is now rarely kept in stock by nurserymen, too few inquiries after it having, no doubt, brought this about, although at one time it was far more abundant than at present, a fact of which we have ample evidence. That Knight's Cypress is a tree well worthy of being established in suitable parts of the British Isles, few who have seen even a half developed specimen will feel inclined to deny, for it is not only of handsome contour, but the foliage, of a glistening bluish-green, is so markedly different from the colour of the stem and branches.

Both to Cupressus Goveniana and C. Lambertiana or macrocarpa Knight's Cypress is nearly allied, but it is when in good form handsomer than either, though the foliage both in arrangement and colouring is nearly alike in all three. Along the sea-coast and in a sheltered warm position, this distinct and rare Cypress should certainly be planted out, for I have little doubt, judging from its behaviour in various places, that it may be successfully grown in any of the southern and western counties of England and Ireland.

A. D. WEBSTER.

Seasonable notes on climbing plants.—I am induced to pen the following remarks in order to save, if possible, some at least of our many fine climbing plants from the severe treatment to which they are far too often subjected. I allude to the excessive pruning done in some cases for the sake of so-called neatness and good keeping, in others no doubt in order to save time in the operation of overhauling. This work had far better be left almost untouched than be done in a haphazard sort of way. So-called order and regularity are often obtained at the sacrifice of a great amount of enjoyment whilst the plants are in flower through their having been deprived of their chief beauty. Anything approaching formality should be carefully guarded against, as much or even more so in the case of climbing plants than in that of shrubby ones. Climbing plants must not be confounded with fruit trees and their training, as usually carried out for utility, productiveness, and protection from injury, when carrying a crop of fruit. Climbers are grown for effect only, and that is better by far when brought about by allowing a free and natural style of growth, as compared with rigid formality in training. The better plan by a long way and the most sensible one, too, is to merely thin out the weakly or spent growths that are not likely to flower in their proper season, and secure the others in an informal manner, avoiding all appearance of formality.—J. H.

Nomenclature of Hamamelis.—I think your correspondent "H. P." in his paragraph on p. 280 of your last issue is somewhat mistaken in his assertion that the nomenclature of these highly ornamental and most free-blooming winter-flowering shrubs is confusing, and as he alludes to a note of mine which appeared in your paper on the 8th of February last, I hope the following explanation may make matters clearer to his mind. When I stated that *H. arborea* and *japonica* were sy-

onymous, I merely repeated the opinion of the learned editor of the *Botanical Magazine*, who figures what is generally known as *H. arborea* as *H. japonica*, doubtless because it is a native of Japan, and to clearly distinguish it from the only other species of the family which he recognises, and which, being a native of South America, is known as *H. virginica*. The beautiful and later blooming lemon-coloured form mentioned by "H. P." at commencement of his paragraph being also a native of Japan, might, I think, be most correctly and accurately described as *H. japonica* var. *Zaccariniana*. Horticulturally, at all events, it is quite distinct from *H. japonica* var. *arborea*.—W. E. GUMBLETON.

TREES AND SHRUBS IN FLOWER.

CHINESE LILY TREE (*Magnolia conspicua*).—This beautiful hardy tree, known better perhaps as *M. Yulan*, is now bristling with flower-buds, which will expand in full beauty under the quickening influence of the bright sun. The flowers, each like a large ivory-white waxy Water Lily, stud thickly the branches, and in the distance a tree looks as if under a covering of snow. There are many specimens of it in the country, and one of the finest is at Gunnersbury House, Acton, where there is a tree about 35 feet in height, almost as tall as this *Magnolia* attains in its native home, the southern provinces of China. There is also an excellent specimen at Kew, where it has a rich background of trees and surrounded by hardy Azaleas, which bring out the purity of the mound of white bloom. In some books *M. conspicua* is described as half-hardy, but this is misleading, as the tree at Gunnersbury House has weathered many severe winters, while the specimen at Kew, although not so tall as the Gunnersbury House *M. conspicua*, has baffled not a few severe frosts, always expanding perfectly its flowers in the late days of March or early April. Late spring frosts inflict the most harm, but in one season in five or six only are the flowers spoilt. The display lasts quite a fortnight, as the blooms do not all open at once, and they last several days fresh and beautiful, so a succession is maintained for over a fortnight. When the young bright green leaves push forth there is a tender contrast of colour. The tree at Gunnersbury House is top-dressed every year, which gives renewed energy, and to obtain such a wealth of glorious bloom in early spring is worth the trifling work and money required. We can understand the infatuation the Chinese have for one of their finest native trees, and if we had only a little of that enthusiastic admiration of it the Chinese Lily Tree would be planted in every good garden, rather than restricted to a few places here and there. It is one of the great adornments of that land of flowers; and the Imperial Palace gardens are richly beautified with its lovely blossoms, that send forth a sweet perfume to scent the air. The tree was introduced into England in 1789 by Sir Joseph Banks, and, in common with the *Aucuba* and other things, was first grown in the greenhouse or conservatory, but it was then tried against a wall, a position that suits it well, and afterwards standards were planted. The soil it likes best is rich sandy loam, which should be renewed occasionally, as Mr. Hudson practises, but almost as important is to so plant the tree that it is screened from cold winds, and, as far as possible, the full influence of frosts. Its glorious beauty is best seen when it has a background of dark-leaved trees or shrubs, to bring out the full richness of the Lily-like flowers. There are several varieties, and one of the best known is *M. c. Soulangiana*, which was raised at Fremont, near Paris, from the seeds of a specimen of *M. conspicua*, which stood near one of *M. purpurea* in the château of M. Soulange-Bodin. The variety *Soulangiana* is the outcome of an accidental cross, as its flowers are not unlike those of *purpurea*, from which they have derived a purplish tint. There is a specimen of it on an east wall in the Deepdene Gardens at Dorking.

THE LILY OF THE VALLEY TREE (*Andromeda* or *Pieris japonica*) is one of the most beautiful shrubs in flower now, and a note appeared respecting it in last week's GARDEN (p. 284), where it is men-

tioned as of remarkable beauty in the High Beech Nurseries of Messrs. Paul and Son. It is not necessary again to describe it, but although called half-hardy, this is not the case, so in the future we hope to see more of its graceful racemes of bell-shaped flowers that cluster thickly on the plants. Until recently the craving for Conifers has driven many lovely things from the garden, the Thorns, Plums amongst the number; but now planters are awakening to the monotony and dullness of perpetual sombre green, it is to be hoped the many beautiful flowering trees and shrubs will be freely planted.

WINTER-FLOWERING HONEYSUCKLES.—This is scarcely the season to write of winter, but a plant of *L. fragrantissima* on the wall of the museum facing the pond in the Royal Gardens, Kew, brought to mind the bush Honeysuckles, which scent the air with a rich Honeysuckle fragrance in the winter months. Both *L. fragrantissima* and *Standishi* belong to the group of bush Honeysuckles, and though non-climbers, still are often grown against a wall as at Kew, or used to cover a trellis. But both may be used as bushes for the shrubbery, where during the winter the sweet-smelling flowers will give much delight. Both kinds were introduced by Fortune, and sent out by Mr. Standish, two men whom we have to thank for the knowledge of many good things.

PLUMS.—Several of the *Prunuses* are in flower now, and nothing is prettier than the Caucasian *P. divaricata*, which makes a spreading and beautiful early-flowering tree, of which there is a specimen near the Cape house at Kew now in full flower. It is a tree uncommon in English gardens, but in late March it is smothered with small white flowers that appear before the leaves. Its graceful spreading habit fits it for a lawn. We might search many gardens for this lovely tree without finding a specimen, yet it is as beautiful as the Peach and Almond that now give bright colour to the garden scenery. *P. triloba*, a Chinese tree, is another *Prunus* of rich attractions in the spring, when its double pink flowers open fully to the increasing warmth of the sun. It is more often seen than formerly, but its hardiness, gracefulness and distinctness justify a still wider cultivation. It is a gem for the shrubbery, and the flowers, which are like miniature rosettes of tender pink, sometimes almost white, completely wreath the branches before the leaves appear. It is not only a good lawn tree, but is exquisitely beautiful on a wall, and in a few days' time a fine specimen at Kew will form one of the prettiest features of tree-flower in the Royal Gardens. It grows fairly quickly, should be annually pruned to remove old wood, and encourage the new that gives the flowers. The common Cherry Plum, or *P. Myrobalana*, is delightful when in full bloom, the pure white flowers relieved by the brownish crimson of the young leaves giving life to the scenery of no usual kind; but more useful is the variety *P. Pissardi*, which is usually seen forced in a greenhouse. But for the garden there are few trees that create a happier effect, the white flowers against purple-tinted leaves making a bold contrast of colour. A tree in the arboretum at Kew is already in bloom, though this is early. This Plum was introduced by M. Pissard, the gardener to the Shah of Persia, who sent two plants to M. Carrière in France in 1882; thus it is of recent acquisition. It is said to flourish at Tauris, a town 230 miles from Teheran, in Persia. The leaf colouring is quite constant, deepening in its shades of purple under the influence of the summer sun until in autumn it assumes a rich depth of colour as beautiful in its intensity as the rich brown and crimson tones of other fine autumn-foliaged trees. It loves a dry soil and full exposure. Other fine *Prunuses* are the double *P. sinensis* and the double variety of the common Sloe, whose flowers, white and delightful in the mass, may be had in the choicest shrubberies. Near the *P. triloba* at Kew is the pretty Japanese *P. Mume*, which has semi-double rosette-like flowers each about the same size as those of its Chinese relative, and delicate pink. It is just as free, and in full beauty at the present season.

FORSYTHIAS are bright flowering shrubs at this season, and of the two species the Chinese *F. suspensa* is the most beautiful. It is a charming deciduous shrub; its elegant shoots, swaying to and fro in the breeze, are hung with golden flowers like those of the common *Jasminum nudiflorum*. It is not only a quite hardy shrub, but makes a quick growth and succeeds in any soil. If planted in the open, its graceful shoots spread about in a charming way, and it is also adapted for covering a wall, although not a strict climber, but when the shoots have mounted up some feet, they fall over gracefully, making a glorious mass of colour—a cascade of gold, when each twig is hung with the profuse mass of bell-shaped flowers. *F. Fortunei* is a mere variety, also Sieboldi, but *F. viridissima* is quite distinct. It has not the grace of *F. suspensa*, as may be seen from the bushes of both kinds planted side by side in the arboretum at Kew, but it has a certain value for the garden. The shoots are erect and stiff, and covered with flowers of the same golden colour as those of *suspensa*. It is quite hardy and a native of Japan. Both kinds by reason of their distinct growth may be admitted into the shrubbery, where in early spring the slender twigs, covered with the many golden flowers, will be highly valued.

KITCHEN GARDEN.

KIDNEY BEANS.

ANYONE having a spare pit or frame cannot possibly do better now than utilise it for growing French Beans, which when planted out yield at least double what they do in pots, and are far less trouble in watering. If they can have a little bottom-heat it will be a great help, although at this late season it is not absolutely necessary, as by keeping the lights on and shut close sufficient warmth may be obtained from the sun to get the Beans to germinate freely, and the same aid may be made use of to get the plants on. If fermenting material is used, a little will do, and on it should be thrown a layer of half-rotten leaves for the Beans to root through the soil into. Almost any light, rich soil will do to grow them in, and this should be placed on the half rotten leaves to a depth of 6 inches or so and be made tolerably firm, after which the Beans may be planted. The distance apart at which these should be grown depends on the sort, but the rows should not be closer than 18 inches, and if Canadian Wonder be grown, which is a very fine kind, 2 feet should be given, as nothing is gained by crowding. When the rows are close together, the light and air are too much shut out, and instead of the flowers setting and Beans swelling in the free way they ought the blooms fall and only a thin crop results. As soon as the plants are well through the ground it is a good plan to give a little fresh soil, or an inch or so of leaf mould, just to earth up the stems a little and steady them, and as soon as this is done the Beans should have some bushy twigs from Birch or Hazel placed alongside them. These will support and keep the Beans erect, and prevent them being beaten down when being watered. When the plants get into bearing I find it is beneficial to thin out or pick off some of the old leaves, but not to any great extent at any one time. The Beans should also be regularly gathered when fit, not only in order that they do not get old, but to help the plants to continue bearing. In cases where frames are not at liberty just at this time, but are expected soon to be so, it is advisable to sow in pots or boxes for transplanting. If in boxes the soil should be leaf mould, or something very light, as then the roots lay hold of it and the plants may be moved without feeling much check. When raised in pots those 3 inches in diameter are quite large enough, and in these three or four Beans should be placed, which when the frames are vacant can be turned out and planted with whole balls as they are, but placed a little lower down in the soil. The same thing may be done with French Beans under the foot of a south wall or on a warm sunny border, where they will come in very handy to succeed those in frames. S. D.

Gilbert's specialities.—“Potatoes without dis-

ease, Peas without mildew, and Cabbage that requires no bacon,” are what our amusing friend, Mr. Gilbert, of Burghley Gardens, offers to his patrons this season.

Pea Challenge the World.—In THE GARDEN of Feb. 8, in an article by “C. L.,” I was pleased to find the variety Challenge the World amongst those recommended for main crop. I quite agree with what “C. L.” said in favour of this variety. I have failed to find it in any catalogue which I have received and was most agreeably surprised to see it mentioned. This season my employer wished me to grow all I could of it. I shall be very glad to hear where seed can be obtained true, so that I may get a supply before the season is far advanced.—ARTHUR FITT.

Mushrooms.—I send you a sample of our Mushrooms grown in a loose box open to the tiles. The beds were spawned at the end of December, and have been in bearing for the last month. I have beds over 150 feet long by 3 feet wide outdoors which have been in bearing all the winter, more or less. Our last bed outside was spawned March 6, and has every appearance of bearing quite as well as the others. So far as looks go, we have a first-class Mushroom house which does well early in the season; but unfortunately at this season it becomes too hot when forcing goes on beyond it, on account of the flow and return pipes going through it from the boiler. The cool or open shed system undoubtedly produces the best Mushrooms.—J. MILLER, Ruxley Lodge, Esher.

** Excellent sample, but in some instances rather too large.—ED.

MARKET GARDEN NOTES.

THE month of March is always a busy time in market gardens, and the present is no exception to the rule. The month opened with very severe frost that was accompanied with a withering wind, and green vegetables were very much cut up, as they were unusually forward, but a change to milder weather has favoured growth so much since the first week, that nearly every trace of damage is already outgrown. The work of clearing the land goes briskly on. Savoy, Scotch Kale, sprouting Broccoli, and Cabbages that are rapidly pushing up flower stems are either being pulled up and sent to market, or are being eaten off by sheep.

CABBAGE.—The autumn planted ones are growing freely and are being hoed in fine weather, both to destroy weeds and accelerate growth, for by the time they are of marketable size the supply of green vegetables is sure to be much reduced, and prices will then go up. The planting of Cabbages that have stood in seed beds all the winter is now being pushed on rapidly, for the early crops are almost always remunerative.

PURPLE SPROUTING BROCCOLI is now in fine condition, and is about the most sought after of any of the green crops. This old favourite ought to find a place in every garden, as it is one of the hardiest of all Broccoli, and with a deliciously mild flavour, and after the larger heads are cut it produces a fine crop of sprouts that come in at a time when there is frequently a scarcity of vegetables.

EARLY WHITE BROCCOLI is now coming in well and promises to be good, for the winter was favourable to crops that were put out rather late, as owing to the absence of protracted frosts the plants have continued to grow through the whole of the winter, and although the severe frosts early in this month browned the tips of the leaves, they did not affect the hearts of the plants.

AUTUMN-SOWN ONIONS have been cleared of weeds and a good many transplanted on to rich soil for supplying large bulbs. Spring sowing has been done under very favourable conditions, the soil being in splendid order.

PEAS of the second early sorts are being sown; those with large pods and of the Wrinkled Marrow type are the most general favourites; such kinds as Stratagem, Veitch's Perfection, and Prince of Wales have pretty well superseded all the small-podded and round-seeded sorts that so soon get hard and unsaleable in hot weather.

In the fruit department the prospects are excellent, the bloom-buds being plentiful and strong,

and by no means unduly advanced, and should we escape very late frosts, we may reasonably expect a heavy crop of fruit, as the trees are mostly in fine condition. Bush fruits are unusually promising, the birds having been more merciful to the buds than in any previous season.

FRUITS UNDER GLASS, both for local and London markets, are being more cultivated every year; large roomy houses for Peaches, Vines, Tomatoes, Strawberries, &c., are being added to gardens that have hitherto depended solely on out-door produce. The great reduction in the expense of construction and the certainty of crop render the protection of a glass roof one of the necessities of large growers being able to keep up market supplies.

STRAWBERRY BEDS, that have had manure spread roughly over them during the winter, are now being cleared of all weeds and the manure levelled down, the stones and rubbish being raked off and the alleys cleaned out between the rows.

HOTBEDS are now in great request, and all frames are crowded with young plants. Tomatoes, Cucumbers, Vegetable Marrows, and a host of other things need protection for the next few weeks. Strawberries in pots are grown on in frames until they get near flowering, when they are transferred to shelves near the glass in houses. Good crops of French Beans are now being gathered from heated pits. The Beans are planted out in rows, and the yield is much larger than from pots.

HAND-GLASSES AND CLOCHES are all utilised now for early Cauliflowers or Lettuce, which are usually set in a sheltered spot in front of the glass houses, where they get full sunlight, so that on fine days they may get plenty of fresh air.

GREEN MINT is now being forced in quantity, as it is usually in great demand at Easter. Gosport. J. GROOM.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

MARCH 25.

THE meeting of this society on Tuesday last was the best attended yet held in the Drill Hall, Westminster, no doubt in part owing to the excellent paper read in the afternoon by M. Henri Vilmorin on “Salads.” There was a good display of flowers for the season, the hardy flowers, as usual, represented chiefly by Daffodils, and of Orchids there were several interesting and rare exhibits.

A first-class certificate was awarded to each of the following:—

LÆLIO-CATTELEYA HIPPOLYTA—We have again to thank Mr. Seden for a hybrid Orchid that, if not specifically beautiful, is a new departure, and likely to prove the progenitor of a remarkable race of hybrids. It is a cross between *C. Mossiae* and *L. cinnabarina*, both flowers of striking individuality, and likely to produce something quite out of the common; but in the hybrid there is, unfortunately, very little trace of *C. Mossiae*, the lip only in its wavy edge showing the character of this species. The flower more nearly resembles *L. flammea*, itself a hybrid between *L. cinnabarina* and *L. Pilcheriana*, and measures about 3 inches across; the sepals pointed and narrower than the petals, both being of a distinct apricot colour, touched lightly with a reddish tint, which is more pronounced in the narrow, somewhat weak lip, veined with a brighter shade of the same colour. The plant was small and only carried one bloom, so that when stronger the flowers will doubtless come much larger. It is certainly one of the most distinct hybrids raised by Mr. Seden. From Messrs. James Veitch and Sons, Chelsea.

DENDROBIUM WARDIANUM (Schroeder's var.)—This was the finest Orchid exhibited, and a king amongst Dendrobies. We should like to see a large specimen to obtain its rich colouring in perfect fulness. The plant exhibited by Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham, carried only one spike of seven blooms, but as the

plant increases in size and strength so also will it in showiness. Each flower is almost as large as that of the best forms of *Wardianum*, but the sepals are wholly of a rich rose-magenta, the upper half, or about an inch from the apex, of the deepest possible crimson-purple, made still more intense by a white margin; the petals are broader and ivory-white except the upper half, which is of the same polished colour as the sepals; the lip has the two characteristic eye-like blotches on either side of the column and a yellow centre, which is surrounded by white, and the extreme apex is coloured with rose-magenta.

An award of merit went to each of the following:—

CATLEYA TRIANÆ TAUTZIANA.—There are numberless varieties of *C. Trianæ*, but few, if any, finer than this form. The sepals are of a delicate lilac shade, the petals broader and of a similar colour, but each marked with a longitudinal stripe of rich rose-magenta down the centre; the lip is neat in shape and deep self-crimson, with rich yellow colouring at the entrance to the throat. There are now so many beautiful varieties of *C. Trianæ*, that it is hazardous to give a distinctive name, but this variety well deserved it. From Mr. F. G. Tautz, Studley House, Shepherd's Bush.

IRIS SINDJARENSIS.—A note will be found in *THE GARDEN* (p. 283), and also in this week's issue (p. 290). It resembles *caucasica* in habit and appearance, the flowers pale blue in colour, and most welcome just now, when *I. reticulata*, the common netted Iris, is one of the only kinds in bloom. From Messrs. Barr and Son, Long Ditton.

LILY OF THE VALLEY (Fontin's variety).—A noble variety, and well worth a reward. A note will be found on p. 290, so a detailed account is unnecessary here. From Mr. Morse, The Nurseries, Epsom.

DEUTZIA CANDIDISSIMA FL.-PL.—A pretty exhibit was this from Mr. Leach, Albury Park Gardens, Guildford, the shoots hung with double snow white flowers like small rosettes. It is a variety of *D. crenata*, commonly known as *scabra*, and one of our finest flowering shrubs, often catalogued under the name of *Pride of Rochester*. A large bush of it from 5 feet to 8 feet high would be a beautiful object. It is also an excellent *Deutzia* for forcing, as the sprays sent amply proved. There is another variety of *crenata*, named simply fl.-pl., which has the flowers tinged with pink. *D. candidissima* fl.-pl. was raised by Messrs. Ellwanger & Barry, Rochester, N.Y., from *D. crenata* fl.-pl.

PHILADELPHUS INODORUS.—This came from the same exhibitor as the *Deutzia*, and, as the name suggests, has flowers without fragrance, no misfortune when used as a plant for decorations. It is one of the North American species, of which *grandiflorus*, *Gordonianus* and *speciosus* are representatives, and in the shrubby forms a rounded bush about 8 feet in height, smothered with pure white flowers in the season of blooming. It forces well, but planters may be reminded of its value for the outdoor garden, from which our best flowering shrubs are too often absent.

TRILLIUM DISCOLOR ATRATUM.—A fine basketful of this came from Messrs. J. Veitch & Sons. It seems very near to *T. sessile*, though larger; the leaves are spotted and the flowers deep claret coloured.

Orchids were represented by several exhibits. Messrs. Sander & Co., St. Albans, showed *Cattleya Trianæ marginata*, a splendid variety, the flower bold, handsome, and with an unusually fine lip, bright purple in the centre, and a broad margin of pale rose, almost white. The sepals and petals are both delicately touched with rose. *Odontoglossum vexillarium*, the St. Albans type, is of surpassing beauty; the flowers are not unduly large, but wholly of a rich and striking rose colour, as bright as one could wish. *C. Trianæ vivicans* is a beautiful flower, the sepals and petals pale rose, and the lip rich purple-crimson, except in the upper half, where it is white, margined with delicate rose, and

yellow at the base. *Oncidium bifolium majus*, with its free display of flowers, each having a rich golden yellow lip; *Dendrobium nobile nobiliss*, *Angræcum Germianum*, white, and not unlike *A. Leonis*; and the pretty white-lipped *Oncidium tetrapetalum* were also exhibited by this firm. One of the best Orchids shown was the specimen of *Cyrtopodium Saintlegerianum* from Mr. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington. This *Cyrtopodium* was introduced about seven years ago from South America, possibly Uruguay, and first flowered with Mr. Smee. The plant exhibited carried a branching spike of nearly 200 flowers, which resemble those of *punctatum*, both sepals and petals being yellow, richly barred with chestnut-brown, the side lobes on the inside face wholly of a similar shade. The stems are stout and fusiform, and about 3 feet in height, while the foliage spreads out like that of a Palm, adding much beauty to the plant. Mr. Smee also had a variety called *superbum*, in which the flowers are larger and more richly coloured. The plant bore two spikes, each carrying many blooms, as in the type. Both specimens showed excellent culture. Mr. Ballantine, gardener to Baron Schroeder, had *C. Trianæ Schroederæ alba*, a white-flowered variety, rich yellow in the throat, and one of the purest forms of *C. Trianæ* we have seen, and *Odontoglossum Leeatum*, which bore a fine spike of yellow flowers, richly blotched with chestnut-brown. Mr. Tautz exhibited the strongly scented and brightly coloured *Lycaste cruenta*, in which the sepals are greenish yellow and the petals orange-yellow; *Dendrobium chrysodiscum*, a pretty flower, white, tipped with rose-magenta, and yellow in the centre; and *D. Freemani*, which has rich rose-magenta sepals and petals, and a deep central blotch of velvety crimson to the lip, the front creamy white and tipped with magenta. The same exhibitor had the two charming *Odontoglossums* *O. blandum* and *naevium majus*. A splendid variety of *Dendrobium nobile*, the flowers large, massive, and finely coloured, came from Mr. H. Nalder, Mornington Lodge, West Kensington. Messrs. Pitcher and Manda, Swanley, showed several forms of *Cypripediums*, including *C. Dauthieri* and *Boxalli*, besides a richly coloured variety of *Cattleya Trianæ*. A good variety of *Odontoglossum Andersonianum* was that named *Ellisi* from Mr. E. Ellis, Wallington, the flowers larger than usual, and pale yellow blotched with bright chestnut; the same exhibitor also sent a good variety of *Dendrobium nobile*. One of the best Orchids in the meeting was *Angræcum citratum* from Mr. G. Elliott, gardener to Mr. W. F. Darnell, Devonshire House, Stamford Hill; the plant was remarkably well grown, the leaves of an intense green, and the spikes longer than in the type; the flowers also larger, and of the palest primrose tint. A small plant of *Phaius Cooksoni*, which was certificated last meeting, was exhibited by Mr. Cookson, Wylam-on-Tyne, and bore a strong spike of several flowers, evidence that this hybrid *Phaius* is not only exceedingly beautiful, but very free flowering. An interesting *Phalaenopsis* was the hybrid sent by Messrs. Low and Co., Upper Clapton. It was the result of a cross between *P. gloriosa* (illustrated by a coloured plate in *THE GARDEN*, April 20, 1889, p. 362) and *Schilleriana*; the flower resembles *gloriosa* in form and size, but has the characteristic spottings of *Schilleriana* on the lower sepals, also on the lip. A plant of *Oncidium sarcodes* from Mr. C. Walter, Percy Lodge, Winchmore Hill, had two spikes each over 6 feet in length, but having the appearance of being drawn up in heat. We much prefer more normal specimens of this Brazilian Orchid. *Angræcum sesquipedale majus* from Mr. J. Charlton Parr, Grappenhall Hayes, Warrington, has a flower fully twice as large as that of the typical form, massive, thick, and fleshy, but scarcely beautiful.

The largest group, occupying one side of the central stage, was that from Messrs. B. S. Williams and Son, Upper Holloway, and comprised *Olivias*, still called by this firm *Himantophyllums*; *Hyacinths*, forced Persian *Lilacs* in pots, *Guelder Roses*, and other things. The *Clivias* made a great show of colour, and the best varieties were *cruenta*, the flowers borne in a very large head and richly coloured

with orange-scarlet; *Ambroise Verschaffelt*, immense truss of finely coloured flowers; and *Meteor*. The *Hyacinths* were well grown, the spikes strong, compact, and the flowers individually good. The same firm had several large clumps of *Lily of the Valley*. *Boronia megastigma* and the lovely *B. heterophylla* were well represented, also the *Epiphyllum*, named *Russellianum* Gartneri, a good type distinct from *E. Russellianum*, and very much like the *E. Makoyanum* certificated last year. *E. Russellianum* Gartneri was sent to the Royal Horticultural Society, Chiswick, by M. Heinrich, Altona, Hamburg, and certificated on April 18, 1885. The plant is very fine, and the colour of the flowers brilliant orange-scarlet, the segments pointed and narrow. It is a useful stove plant (silver-gilt medal). Messrs. Paul and Son, Cheshunt, had a large group of *Roses* in pots, comprising such varieties as *Mignonette* and *Paquerette*, the new *Mme. Hoste*, *Souvenir de S. A. Prince*, which seems an excellent *Rose* for forcing, *Lady Alice*, *Jean Ducher*, and *Mme. Lacharme* (silver-gilt medal).

The display of *Cinerarias* made by Mr. J. James, Woodside, showed the perfection of this strain of flowers in the habit of the plants and the colour and form of the flowers (silver-gilt medal). A group of *Epacris*, from Messrs. Cutbush and Son, Highgate, showed the beauty of these neglected plants which years ago were grown in almost every garden. *Model*, rich pink; *Wilmoreana*, pink and white, very free and graceful; *Queen Victoria* (syn. *rivalis*), dwarf, white; *Lady Panmure* (syn. *Mrs. Pym*), white and pink; and *Rubra superba*, bright carmine, were the finest. The same firm had *Boronia heterophylla*, a plant now much grown, and represented by a coloured plate in *THE GARDEN*, Nov. 12, 1887 (p. 442) (bronze medal). Messrs. Cannell and Sons, Swanley, exhibited cut blooms of zonal *Pelargoniums*, the colours rich and varied, and the individual flowers remarkably fine in size and form. *D. Saunders*, rich rose-pink; *Lady Brassey*, salmon shot with scarlet; *Lily*, white; *Dr. Tucker*, deep purple-crimson; *Lady F. Russell*, pink; and *Souvenir de Mirande* were the best. The last-mentioned is a superb variety, the flowers of a lovely salmon passing to almost white in the centre. The same firm had their finest varieties of double *Cinerarias*, but the colours were killed by the brilliancy of the *Pelargoniums* (bronze medal).

Daffodils and other spring flowers were exhibited in quantity by Messrs. Barr and Son, Covent Garden, who had such standard varieties as *Cynosure*, *Sir Watkin*, *Princeps*, *Golden Spur*, *pallidus præcox*, *cyclamineus*, *bicolor* *Horsfieldi*, *spurius*, and the *Tenby* Daffodil, besides *Chionodoxa gigantea*, and *Iris sindjarensis* (bronze medal).

A beautiful display of *Primroses* and *Polyanthuses* in various colours was made by Mr. R. Dean, Bedford, the plants a mass of bloom, the colours decided and of great range. A self *Auricula*, named *Violette*, is a gem, the colour rich maroon, the paste clear white. We cannot have too many of such decided self colours. The same exhibitor showed *Bedfont Yellow Wallflower*, a variety that for rich yellow colouring, compact habit, and freedom of flowering has no equal.

The plants from the Royal Gardens, Kew, were of unusual interest, and comprised several rare things, as *Hæmanthus multiflorus*, described in a note in last week's *GARDEN*, p. 283; and *Cœlogyne pandurata*, an interesting Bornean species, grown on a raft, and bearing a spike of five flowers, which in the sepals and petals are very pale green; the lip of the same tint, but warded and crested, and veined with perfect black in the upper portion, but wholly of this colour in the front. Its crested, warded, and curiously marked character is unique. A charming basket of spring flowers was also exhibited, comprising the pretty *Star Flower* (*Triteleia uniflora*), the white *Apennine Windflower*, *Cyclamen repandum*, *Hyacinthus ciliaris*, *Draba Mawi*, *Saxifraga oppositifolia splendens*, *S. aretioides præcox*, the yellow-flowered *S. Boydi* (a counterpart of *Bursleriana*, except in the colour of the flowers), *Primula marginata*, *Fortunei*, *denticulata alba*, *pubescens alba* (also known as *rivalis*), *Sisyrin-*

chiums, and *Iris persica purpurea*, a reddish-purple variety.

Other exhibits comprised several plants of *Veltheimia viridiflora* from Mr. A. H. Smee, Carshalton, and a box of Carnation flowers from Mr. C. Turner, of Slough, Vesta, white, and Lord Rothschild being two of the best. Such kinds as Novelty, an ashy-grey-coloured flower, should be destroyed. A large gathering of *Camellia* flowers came from Mr. F. H. Froud, gardener to Mr. J. W. Ford, Enfield, comprising the double-flowered White Empress, a handsome flower; Mrs. Ford, fine rose, and other types well known. The same exhibitor had the pale primrose-coloured *Acacia retinoides*, and *Pteris Harrisoni* came from Messrs. Charlesworth and Shuttleworth, Bradford; it has narrow divisions, variegated similar to those of *Pteris cretica*. Three new *Hyacinths* came from Messrs. J. Veitch and Sons—Admiration, pink, perhaps the best, the colour clear and the spike strong.

Fruit committee.—There was very little before this committee. Mr. Roupell, of Roupell Park, exhibited excellent fruits of Annie Elizabeth Apple, a handsome variety, good cropper, and fine colour; also of Melon Apple, an excellent keeper, smooth, large, handsome, and suitable for suburban gardens. Mr. Lockie, Oakley Court Gardens, Windsor, showed Lockie's Cucumber, one of the best varieties in cultivation; and from Mr. Leach, Albury Park Gardens, came specimens of Veitch's Standard-bearer Celery, described as one of the best of the Celeries, and which may be had fit for table in the first week in May. Mr. Smith, Mentmore, sent a Cucumber, presumably a seedling; and Messrs. Webber and Co. several varieties of plants used for salads. A box of fruits of Strawberry La Grosse Sucrée was shown by Mr. J. Simm, gardener to Mr. W. Eastwood, Kingswood, Englefield Green, the fruits large and splendidly coloured.

M. VILMORIN ON "SALADS."

In the afternoon a paper on "Salads" was read by M. Henri Vilmorin, to hear which there was a large gathering of those interested in horticulture. In the course of his remarks he mentioned that in England we neither eat nor grow so many plants for salad as in France. He dwelt upon the nutritive value of salads due to the potash salts, which, though present in vegetables generally, are eliminated in the process of cooking. The various plants which are used in salads in France were enumerated—namely, the leaves of Lettuce, Corn Salad, common Chicory, Barbe de Capucin, curled and Batavian Endive, Dandelion in its several forms of green, blanched and half-blanched, Watercresses, Parslane in small quantities, blanched Salsify-tops of a pleasant nutty flavour, Witloof or Brussels Chicory, the roots of Celeriac, Rampion, and Radish, the bulbs of Stachys, the stalks of Celery, the flowers of Nasturtium and Yucca, the fruit of Capsicum and Tomato, and in the south of France Rocket, Picridium, and Spanish Onions. Various herbs are added to a French salad to flavour or garnish it, such as Chervil, Chives, Shallot, and Borage flowers. In addition, many boiled vegetables are dressed with vinegar and oil. M. de Vilmorin then showed specimens of Dandelion, Barbe de Capucin, and Witloof, both varieties of Chicory, which he recommended to the notice of English gardeners as most useful and palatable. He mentioned that from a ton to a ton and a half of Witloof is daily brought to the Paris market from Brussels, where it is grown in the greatest perfection.

ROYAL BOTANIC.

MARCH 26.

A BRILLIANT spring sun seldom shines on the early shows of the Royal Botanic Society, but in the matter of weather, the exhibition of Wednesday last was well favoured. The display of spring flowers was the best for several years past; there were more early flowering hardy and alpine plants, and fewer of the stereotyped things that we may always make sure of seeing at such exhibitions. The most interesting class of all was for a collection of hardy herbaceous plants, and here Messrs. Paul

and Son, Broxbourne, were first for an excellent variety of hardy things, comprising several *Primulas*, as *P. pubescens alba* or *nivalis*; the delicate little *Soldatella minima*, the small yellow-flowered *Draba boetica*, and several *Saxifrages*, including *S. Burseriana*, its yellow-flowered counterpart, *S. Boydi*, *S. Molyi*, and a rich series of *Hepaticas* in the several colours from the double blue to the double pink. A pretty little thing is *Polygala Chamæbuxus purpurea*, and the same firm had the variable, but beautiful *Tulipa Kaufmanniana*, T. Greigi, and T. Kolpakowskyana, besides the yellow *Scapolia* (*Hyoscyamus*) *Fladnichiiana*, a distinct hardy plant of the Henbane family, *Sisyrinchium*, *Anemone stellata alba*, a greyish white flower, deep purple-blue stamens; *A. s. violacea*, rich rose-purple; *Megasea Stracheyi*, *Pulmonaria saccharata*, *Doronicum plantagineum excelsum*, and *Erythroniums*. Messrs. Paul and Son were also first for twelve pots of bulbous flowers, comprising the beautiful *Iris reticulata*, *Chionodoxas*, *Anemone fulgens purpurea*, rich rose-purple; and *Lachenalias*, a far prettier and more interesting exhibit than the masses of *Crocuses*, jammed in just to produce a block of colour.

There were, of course, classes for greenhouse Azaleas, and the plants were on the whole remarkably well flowered, especially the first prize plants in the nurserymen's class, which were shown by Mr. R. Wells, Longton Nursery, Sydenham. In the amateurs' division for the same number they were finer than in the trade class, and exhibited by Mr. H. Eason, gardener to Mr. B. Noakes; the specimens of *Apollo*, *Model*, and *Roi d'Hollande* were covered with bloom. Messrs. H. Williams and Sons, Fortis Green, Finchley, had the finest Chinese *Primulas*, also the best *Lilies* of the Valley; and Mr. J. Douglas, Great Gearies, Ilford, as in years past, was first for *Crocuses* in pots. We should not grieve if this class were done away with. *Crocuses* shown in this fashion show the flower at its worst. It would not be a botanic show if there was not a class for six *Deutzias*, and Mr. Douglas was first. The plants were very beautiful, but it would be well if a little change were introduced. A class for six *Deutzias* has become an established one at the March show of this society. Mr. D. Phillips, Slough, exhibited the finest Persian *Cyclamen* in the amateurs' class, and he was also first in the open division. The *Amaryllises* or *Hippeastrums* from Messrs. Paul and Son, Cheshunt, were remarkably fine specimens, especially the variety *Her Majesty*, white, feathered with red. The same firm had the finest forced *Roses*, exhibiting *Ulrich Brunner*, *Innocente Pirola*, *grandiflora*, single white, and *alba rosea*.

This is apparently a good year for *Hyacinths* and *Tulips*, if we may judge from the specimens exhibited on Wednesday. Mr. J. Douglas had the finest *Hyacinths*, exhibiting such varieties as *La Grandesse*, *Souvenir de J. H. Veen*, rich blue; *King of the Blues*, *Koh-i-noor*, pale red, deeper stripe down the centre of each segment; and *Electra*, fine shade of blue. In the nurserymen's class Messrs. H. Williams and Sons were first, and there was the same order of merit with regard to the *Tulips*.

The miscellaneous class is always a good one at the Royal Botanic. Messrs. B. S. Williams and Son, Upper Holloway, had a large group of *Hyacinths*, *Tulips*, *Clivias*, *Lilies* of the Valley, forced *Lilacs*, and *Guelder Rose*, *Polyanthus Narciss*, and *Amaryllis*, which included several plants of the beautiful variety *Dr. Masters*, also *Ophelia*, which is white, coloured with maroon down the centre of each of the segments, and margined with the same colour. *Epiphyllum Russellianum Gærtneri* was also exhibited. Messrs. Wm. Paul and Son, Waltham Cross, exhibited a delightful series of *Camellia* blooms, filling eight boxes and eight baskets, while there were also small specimens laden with bloom. *Adelina Benvenuti*, delicate rose, shot with crimson, and *Beauty of Waltham*, a lovely flower, of beautiful imbricated form and soft pinky colour, almost white, the centre brightened by a rich rosy red shade. Large groups of *Cyclamens* from the St. George's Nursery Company, Hanwell, and also

from Mr. John Odell, Goulds Green, Hillingdon, gave rich colour to the exhibition. An excellent display of *Hyacinths*, *Tulips*, *Spiræa japonica*, and *Daffodils* was made by Messrs. H. Williams and Son; and Messrs. Cutbush and Son, Highgate, had *Epacris*, *Staphylea colchica*, *Primula obconica*, *Azalea Deutsche Perle*, and *Tree Pæonies*. The *Pelargoniums* and double *Cinerarias* from Messrs. H. Cannell and Sons, Swanley, were of bright colours, and as regards the *Pelargoniums*, showed what a brilliant display the plants make in winter and early spring.

A large and interesting group was that from Messrs. J. Laing & Sons, Forest Hill. It comprised a variety of *Orchids* and several *Clivias* of note, one named *igneæ* having flowers of unusual richness of colour, and in another named *Stanstead Beauty* they were large, but somewhat pale in colour. The *Carnation M. A. Warocque*, a variety of the *Souvenir de la Malmaison* type, should become popular. Its flowers are not unduly large, but scarlet. It was well shown by Messrs. Laing. The *Cinerarias* from Mr. J. James, Farnham Royal, need no description. It is one of the best strains of this flower in England.

Daffodils were of course shown in quantity. Both Messrs. Barr and Son, Covent Garden, and Mr. T. S. Ware, Tottenham, had representative displays that require no further description here.

A group of *Roses* was exhibited by Messrs. Paul and Son, comprising principally the varieties exhibited the day previous at the Royal Horticultural Society's show, and described in the report. Mr. C. Turner had a collection of *Carnation* flowers, described in the same report.

Amongst the new or recent plants were several worth careful note. Mr. Henry Bennett, Shepperton, had a charming boxful of *Princess Beatrice Rose*, one of the most delicately beautiful varieties sent out by this successful raiser. The form of the flower is exquisite, the scent strong and sweet, and the colour soft and subtle, the outer petals almost white, but those in the centre of the bloom rich citron colour, the whole touched with a lovely salmon-rose shade. *Oncidium Larkianum* from Mr. C. Rann, gardener to Mr. J. Larkin, Highbury New Park, was recently described in THE GARDEN; it is something like *tigrinum*. Mr. Darnell had *Angræcum citratum giganteum* and a pale coloured form of *Cattleya Trianae*, named *Darnell's* variety. *Anthurium Scherzerianum* Brilliant, from Mr. Henry James, had a fine spathe of intense crimson colour. To name *Primroses* is a mistake. The variety named *Mrs. Bland*, from Mr. Bland, had a good bloom, pale primrose, but no better than could be picked out of a good strain. A *Cyclamen* named *Duke of Fife*, shown by the St. George's Nursery Company, Hanwell, has a rich rose-purple flower, and is a good type. Mr. Odell also had several good kinds. Several new *Amaryllises* came from Messrs. Veitch and Sons.

A full prize list is given in our advertising columns.

OBITUARY.

Mr. Caudwell.—We regret to learn of the death, at the age of 68, of Mr. Caudwell, of The Ives, Wantage, well known for his beautiful strain of coloured *Primroses* and *Polyanthuses*. He was at one time a farmer, but his love for flowers overcame other pursuits, and of late years, besides the early spring flowers, he had given special attention to annuals and *Roses*, of which he grew large quantities for cutting.

Mr. John Marshall, of Belmont, Taunton, died recently at the age of 64. Taunton has lost an enthusiastic horticulturist, and a man who had a keen appreciation of *Roses* and *Chrysanthemums* in particular, but all flowers were dear to him. His beautiful grounds at Belmont were often thrown open to the public.

Names of plants.—*Anon.*—1, *Odontoglossum roseum*; 2, *Strobilanthes isophylla*; 3, *Adiantum trapeziforme*.—*C. H. E.*—The pale-flowered *Dendrobium* is *D. primulinum*. It is one of our prettiest *Dendrobes* when well grown. —*Mrs. Laquard.*—*Amaryllis reticulata*.—*W. H. M.*—*Oscoberry* (*Nuttallia cerasiformis*).—*J. M. Wilson.*—*Cymbidium pendulum*.

WOODS AND FORESTS.

SOME AMERICAN OPINIONS OF THE BLUE SPRUCE.

SEVERAL specimens of *Picea pungens* were planted in the Rural Grounds about twelve years ago. The tallest is now 12 feet high. The trees were about 3 feet high when planted. They have never suffered from cold, heat, insects, or from any other cause. What kind of situation or soil they prefer cannot be even guessed at, as with us one specimen in a high, dry position thrives as well as another in somewhat low, moist ground. No tree is more admired from the time it has made its spring growth until midsummer, when the bluish, lilac coloured bloom of its leaves begins to fade. The name of Blue Spruce is not well chosen, since many trees are so far from blue that at a short distance they might be mistaken for Norway Spruces. It is too soon to say with any certainty how this promising tree may compare with the Norway Spruce or its many handsome varieties. As judged at this time, it is the equal of any of them, with the promise of superiority in several important respects, such as hardness, retention of its lower branches, less liability to injury from exposure and storms, and freedom from insects.—*Rural New Yorker*.

We have a large number of plants of the Colorado Blue Spruce (*Picea pungens*, from Colorado mountain stock), planted in different soils and exposures. It thrives well in poor soil and in rich soil, in bleak and in sheltered places, and it seems to be the hardiest of all our Spruces, native or exotic. It is not nearly so fast-growing while young as is the Norway Spruce, but it is a harder and prettier tree, and in situations where the Norway Spruces are sadly marred on the north-west side by searing winter winds, the Blue Spruces are perfectly uninjured. In winter, especially in February and early March, we often have icy storms, that is, sleet immediately followed by hard freezing, which encases the branches and twigs in a coating of ice. In case of a wind storm when the trees are in this condition the points of the twigs of the Norway Spruces are snapped off in countless numbers, but those of the Blue Spruces are injured only very little. Our Norway Spruces are often much infested with red spider in summer, but the Blue Spruces, in our grounds anyway, have so far been exempt from this pest. Whether or not old trees of the Blue Spruce may hold their lower branches I am unable to say, as none of our specimens are large or old enough to judge by; but true it is, our old Norway Spruces are thin and ragged enough near the ground. Our bluest Spruces are all grafted plants. From seed they run from plain green to blue; indeed, some of our Blue Spruces from seed are just as good as the grafted ones, but I should say only about 20 per cent. of seedlings are good Blues. The Blue Spruce is easy to transplant. From Waukegan, over 1000 miles away, we got, a few years ago, as many as would plant a triple row for a shelter-belt to our orchard, and we have not lost one of them.—W. FALCONER, *Queens County, Long Island, N. Y.*

The first specimens of *Picea pungens* I obtained were got five or six years ago, and planted on my little farm near London, Ont. The trees have grown well and have proved perfectly hardy, having wintered without any injury. In the spring of 1888 I bought a number of specimens both of the blue and green varieties; these are planted at the experiment farm here, and have stood the past winter re-

markably well; I cannot say that any of the specimens have been injured, although the thermometer showed about 50° below zero on several occasions.—PROF. WM. SAUNDERS.

We are greatly pleased with the *Picea pungens*. It seems to be an extremely hardy and vigorous tree, of graceful habit, with beautiful blue foliage.—ELLWANGER AND BARRY, *Rochester, N. Y.*

THE CORSICAN PINE.

(PINUS LARICIO.)

THIS tree was first discovered in dense forest masses in Corsica, whence it was introduced into this country towards the end of the eighteenth century. It has since been found over several countries of Southern Europe, including Spain, Greece, and Italy, and it abounds on the mountain lands of Calabria. In these, its native habitats, it attains to a height of 140 feet, and forms a noble tree of bold, erect, open habit. The wood is extremely resinous, tough, and, although tending to coarseness, is not so brittle as Scotch Fir or Austrian Pine of equal age, but is elastic and durable; under the tools of the carpenter it works smoothly and easily, and is much prized for many outdoor or constructive purposes. Felled when about seventy or eighty years old the wood is found to be well matured, of a whitish colour, and brown near the heart. In this country, the Laricio has been extensively planted during recent years as a timber crop, and since the Larch failure, probably this Conifer more than any other has been substituted for it. It thrives in almost any soil where the Scotch Fir or Spruce succeeds, but will not attain its full development at the higher altitudes, preferring a rather good deep soil and sheltered situation in its younger stages; for being of very rapid growth and early vigorous habit, like *P. austriaca*, it is apt to form a top rapidly, which the slower formation of roots cannot support during heavy gales. In this respect, however, it does not equal the Austrian Pine, and is materially assisted by its characteristic tendency to throw the vigour of its growth more into the trunk and terminal leader than to form a dense head or many heavy side-branches. Another benefit accruing from this erect or fastigate habit is the ultimately enhanced value of the timber, by its being less knotty and of better texture. In general appearance when young the *P. Laricio* somewhat resembles the Scotch Fir of the old Strathspey indigenous type, but it is more open and longer between the tiers of branchlets. Its value as timber is not so marked when the tree is young, for thinnings of Laricio are found too soft and less durable than Larch, but when old it is reported to be remarkable for its toughness, and it is strongly impregnated with resinous sap.

Numerous groups and specimens of the Laricio, 40 feet in height, exist in various parts of the country; and in Perthshire, at 600 feet elevation, in a loamy soil and gravelly subsoil, it proves equal to any indigenous Fir, resisting alike the gale and winter's storm, and rapidly shooting above contemporary trees of Scotch Fir, Larch and *P. austriaca*. It may indeed be described as a tree consisting of the bole of Larch, with the lateral branchlets and foliage of Scotch Fir. One qualification of considerable importance possessed by the *P. Laricio* should not be overlooked—namely, its distastefulness in its young state to hares and rabbits. Without positively asserting that ground vermin will absolutely shun the young Laricio if mixed with other Conifers in a plantation, it may be safely asserted that they will nibble away everything else before they will touch it. An experi-

ment to test this was made some years ago at Tortworth Court, in Gloucestershire, where Lord Ducie planted a young Laricio in the centre of a rabbit warren, and which, until the ground was quite covered with snow, the teeming population of the spot did not touch; and even then, when starving, and naturally less capricious in their bill of fare—after an attempt to consume the young needles of the buds—they abandoned the experiment, and sought some less bitter and astringently resinous food. In like manner, *Pinus Laricio* is less liable than any other Pine to suffer from the ravages of insects or such like enemies, which infest and disfigure many of the coniferous family. Although we have said that the Laricio exhibits a preference for a deep, good soil, it thrives in almost any other description, if we except soft, spongy, and undrained marshy ground. Being of a deep tap-rooted habit, in such a situation the sponginess of the main radicle get chilled and water-logged, and hence the tree will not succeed. Throughout the country it has within the last thirty years been freely planted in all sorts of soils and elevations, and has proved perfectly hardy, and altogether such a variety as ought to be more generally cultivated; for while it is a rapid grower and a handsome tapering tree, it is very suitable for planting in masses, as a crop to produce not only quantity within a period of forty years, but quantity of heavy size, and timber of excellent quality. Although in its native country it is felled at about eighty years old, it may be profitably used at even thirty years. It may be seen luxuriating, and of considerable height at Dolphinton, in Lanarkshire, at an altitude of 900 feet or 1000 feet above sea-level; and in many other counties in the north of Scotland, specimens of the *P. Laricio* show that it is suited to the climate of Scotland. From the long tap-root of this Pine, it is, unless frequently and regularly transplanted when young, somewhat difficult of removal, and when plantations are being made small plants should be used, as they will ultimately succeed better than those that have had their tap-roots cut when young. Care is requisite to obtain the true Corsican Pine when desired for ultimate profit and for heavy timber purposes.

Gathering Fir cones.—No time should now be lost in finishing the collection of Scotch Fir and Larch cones, so that the seed can be extracted in due time and ready for sowing when a favourable opportunity occurs next month. The former had better be collected in the natural forests in the Highlands, where the seed is pure and of superior quality. With regard to the Larch, many of the trees in the north, east, and other parts of Scotland are badly affected with ulceration, and although these generally produce a great wealth of cones they should be left alone, and only those produced by fine healthy trees gathered. When these cannot be had in sufficient quantity foreign seed may be used.—J. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE!"—*Shakespeare*.

ORCHARD AND FRUIT GARDEN.

MULCHING HOTHOUSE FRUITS.

VINES.—This very important operation has been practised by all good Grape growers for a great number of years; indeed in times past it is just questionable if the use of rank manure not only for covering, but also for warming outside borders was not much overdone. Some early Vine borders at the present time even are never free from a thick covering of manure, and these if closely examined will be found cold, pasty, and sour, quite destitute of fresh healthy roots, and, if one part of the garden be worse than another, the least likely to produce high class Grapes. The Vines with deeply-seated thong-like roots may make very strong long-jointed wood and enormous leaves, but the clusters will be small, and if the berries colour and do not shank, their very flavour will smack of rank manure. This abuse of manure does not, however, end here, as Vines so treated very soon wear out, when border-making, an expensive operation, may be reckoned upon every ten years. Market growers whose aim is quantity, I believe use a great deal of rotten manure in the formation of their borders, but then it is below, not above the surface; consequently it is less injurious, as it does not exclude sun-heat and fresh air. The pace, nevertheless, soon kills or would produce this result, but they do not wait for this, for the first sign of falling off is the signal for rooting up, changing the crop, and extending their rustic glass vineyards to fresh land. Private gardeners cannot do this, for their substantially-built vineries are fixtures, and in these upon a given spot they must produce good crops of Grapes for scores of years. In what way, then, do they proceed? Do they repudiate manure altogether? Certainly not. They use, perhaps, quite as much as their less successful neighbours; but instead of poisoning the roots when the Vines are at rest, they pack them up with dry Fern, Oak leaves, or long litter in winter and feed and prevent evaporation by mulching when they are in full growth. This mulching may be continued and secured until the Grapes begin to colour, but when this stage is reached they leave off, and when the crop is cleared and the foliage shows signs of ripening the old manure is removed. If roots are found clustering on the surface of the staple of the border the strongest are shortened, a sprinkling of bone dust or some approved artificial food precedes the annual 2 inches of sound turfy compost, and the borders are left fully exposed to the action of autumn sun, fresh air, and rain. If very early forcing is contemplated, the winter covering may be applied in time to prevent the escape of latent heat and the cooling influence of frost and snow, but stimulants are withheld until the Vines are again in full growth.

Peaches confined to a limited trellis area are more likely to be too strong than too weak, a condition which militates against the setting and stoning of the fruit—at least this is my experience with trees on suitable stocks in good Peach loams. If root-lifted and checked they invariably set plenty of fruit; if left alone, the crop frequently is light, when they rush away and get out of bounds. Mulching in this case confounds confusion, but given plenty of water, especially in the autumn, the buds stand, the

flowers set, and fruit being plentiful, the first mulch must be given when thinned, the second when stoned, and warm diluted liquid may be given as well. When the Peaches have attained to the ripening swelling, the mulch and liquid will have done their work, when some of the manure may be removed, but not to an extent that will disturb the surface roots. Then, if pure water takes the place of liquid, the flavour of the fruit will be good. When the crop is gathered and the buds are plump the mulching may be raked off, a shake down of horse litter will keep the surface roots moist, but being pervious to warmth and fresh air, the feeders as well as the wood will become thoroughly ripe. Figs may become as dry as possible through the period of rest, but once started they must have water *ad lib.*, and when the fruit is swelling they will take rich top dressing, good mulching, and warm liquid as well. There are, of course, certain conditions which justify a departure from these rules, such, for instance, as heavy overcropping which may have rendered stone fruit trees or Vines decidedly weak, great age, or a light hungry border deficient in suitable food, but when borders are well drained, well made and kept thoroughly moist, the less manure the better from the fall of the leaf to the swelling of the fruit. W. C.

NOTES ON STRAWBERRY FORCING.

WHATEVER Laxton's Noble may be when grown in the open, it is very certain it is of little or no value for forcing, and I must sympathise with those who have depended largely upon it for the earliest supplies. I find it somewhat shy-setting, or more so than older favourites, more than half the fruit being of bad form, and, what is even more to be regretted, both keeping and eating qualities are bad. In the open it is an enormous cropper and very early, but even there the quality is inferior; while under glass it seems impossible to impart any sweetness to it. Princess of Prussia flowers more abundantly, sets better, and ripens a week in advance of any variety tried against it; but this is its principal recommendation. On the whole, it is doubtful if there are any equal to Vicomtesse Héricart de Thury for early forcing, and unless I am much mistaken, those who have discarded it in favour of newer varieties will again revert to their "old love." Its only fault is the comparative smallness of the fruit, and the rage for monstrosities, or at any rate extra large Strawberries, still prevailing, we are perforce constantly on the look-out for something to please the eye as well as the palate. What is wanted is a variety that will force well and produce fruit somewhat near the size of that of Auguste Nicaise, and of the same colour, firmness, and good quality as that of Vicomtesse. The last named is the only variety that can be gathered fit for eating direct from plants without transferring these to a lower temperature for a few days.

Strawberries in pots invariably start into growth more strongly when given the benefit of gentle and moist bottom-heat at the outset, the top-heat not ranging much above 55° by night and 60° in the day-time. This promotes early activity at the roots, and also causes the plants to push up extra strong flower-trusses. When the much root-bound plants are transferred direct from the open air or cold frames to dry shelves in forcing houses, there is every prospect of both the young leaves and trusses being of a flimsy character, and a light crop is the usual result. All things considered, the value of heated pits and a hot-bed of leaves, or leaves and manure, for starting Strawberries cannot well be over-rated, and they are almost indispensable when shelf-room is limited. If successional batches of from fifty to a hundred plants be started in a pit, they can be introduced to stronger heat directly the crops are set. Here the fruit will swell off quickly and to the largest size. Red spider is always very difficult to keep under, more forced plants probably being ruined by this pest than from all other causes put together. Starting the

plants on a mild hot-bed is one of the best preventives of red spider I am acquainted with, as it seldom effects a lodgment on the plants before they reach dry hot shelves.

It is not generally realised how very hot the shelves usually devoted to Strawberries in pots really are, or otherwise something would oftener be done either to find more suitable positions for the plants, or else to ameliorate their condition. When the temperature of a forcing house is, say, somewhere near 75° at about 4 feet from the floor, it may be from 15° to 20° hotter where the Strawberries are located, and this baking and stewing are most prejudicial to them in every way. Frequent over-head syringing and the application of water twice daily may keep the plants in a fairly healthy condition, but more often than not they are much crippled for want of sufficient moisture. Moreover, these extra high temperatures are apt to cause scalding, this taking place soon after the fruit is set. Last spring we were frequently favoured by quite summer-like weather, and in many instances the Strawberry plants had a bad time of it. In one large garden I could name, where the houses, in addition to being very hot, are also badly ventilated, thousands of strong plants were completely ruined, these producing nothing but small, hard and worthless fruit. As a matter of fact, there is no real necessity to force or forward Strawberries on shelves very close to the glass, as they succeed much better, the main and late crops especially, at a much greater distance from the glass. Light, air, and sunshine they must have, but a sufficiency of these would reach plants thinly arranged on front plant stagings, as well as those more raised in the body of light forcing houses. In such positions they are easily attended to, are less liable to be overrun by red spider, and a heavy and superior crop is the result.

Unfortunately, very few gardeners are in a position to give up the principal portion of a house to Strawberries, and they are therefore under the necessity of doing the best they can with suspended and back shelves. Occasionally attempts are made to keep the plants in a moist state at the roots without very frequent resort to the watering-pot, setting the pots in saucers on shelves being the plan most generally adopted. As it happens, this is about the worst practice that can be tried. When plants in pots are set constantly in water, it is not long before the soil becomes first saturated with moisture and then sour, a state of affairs most prejudicial to most kinds, and certainly very much so in the case of Strawberries. The crops of the latter may swell to a good size and colour fairly well, but they are inevitably exceptionally sour, or much more so than is the case with Strawberries generally ripened under glass. The only recommendation the plan has is the fact that the plants require very much less water than when not set in water-tight saucers, trays, or troughs, but after giving each a fair trial, I am confident they ought not to be used. But if none of these contrivances for saving labour are commendable, it does not follow there are no modifications worthy of being tried. A friend of mine who fruits somewhere about 6000 Strawberry plants in pots sets the greater portion of them on small squares of freshly cut turf, these being placed on the shelves grass downwards. From first to last the pots never leave these turves, as should it be necessary to transfer a batch from one shelf to another, there is very little extra trouble connected with their removal. There is a two-fold advantage attending the use of these turves. In the first place, they serve to keep the pots much more moist and cool than they would otherwise be, and, what is of even greater importance, a rich food supply is afforded for the much confined roots. It is not long before these turves are well taken possession of by the roots, and this increased activity must act most beneficially upon the crops. My experience with turves has been most satisfactory, but the practice scarcely suits my conveniences for forcing, especially seeing that I have to start the different batches in heated pits. There is also another difficulty I and many other gardeners have

to contend with, viz., a scarcity of turves. Loam I have in abundance, but turf has to be held sacred hereabouts. Moss, however, is far more generally plentiful, and this is my substitute for squares of turf. The plants having been started in a moist bottom-heat, soon root through the drainage hole, and these roots I preserve as much as possible when removing the plants to shelves covered with a thick bed of Moss. It is not long before the Moss is well over-run by lively roots, and being retentive of moisture, and to a certain extent of liquid manure, it answers even better than turves of heavy or clayey loam. The latter is liable to become too moist and quickly turn sour; but not so the Moss. Something of the kind is particularly necessary during the months of April and May, or there may be more failures than successes.

I. M. H.

PEACH TREES ON OPEN WALLS.

"A. D." (GARDEN, March 22, p. 276) desired to elicit the opinion and practice of outdoor Peach growers as to the value of detaching the trees from the walls during the winter by way of retarding the bloom. I have often seen the advice given, but I have never practised it, and I have not seen it done. I have never lost a crop through the bloom being over early when the trees have flowered freely, which indicates thorough ripening of the wood the previous year. After a fine season I invariably succeed in obtaining a full crop from free-flowering varieties. Other varieties which are not naturally disposed to bloom freely may be caused to do so the second season by lifting the roots. I would strongly advise anyone who has healthy unfruitful trees to lift part of the roots, cut off the large ones, retain the fibrous ones, and apply lime rubbish, bone meal, and other stimulating manures, as the case may require. We have a wall 140 yards long and 12 feet high covered with Peach trees, one of them more than sixty years old. This portion of wall has been covered when the trees have been in flower with double-ply 1-inch mesh fishing net for many years past; another portion is covered with grey baize or frigi domo curtains, drawn back by day to expose the trees to the sun. The crops under the net have generally been equal to those under the curtain, but should we have a severe frost the curtains would certainly have the best of it. This is the more costly method. I find some method necessary to protect the trees from the dry east winds, apart from the flowers, until about May 20. Trees have been left without protection, and the blister on the leaves has been very great; whilst those under protection at the same time have had little. Unless walls need repair and trees cleaning, I have found no reason to detach the trees. This place is $3\frac{1}{2}$ miles from the sea, about 200 feet above it, open to the wind. We do not suffer from extremes of frost in the spring and autumn as places situated further inland. We have not filled the ice house this season, yet a few miles west of this ice has been secured. In the month of September Potatoes, Dahlias, &c., have frequently been cut down a few miles west, when the same here have been scarcely damaged. Royal George and other early Peaches are now in full bloom and most profuse; I have never seen them better. The flowers of Apricots also appear most perfect, and there is usually a good crop.—GEORGE HARRIS, *Alnwick Castle Gardens*.

— With regard to the query on unnauling Peach trees by "A. D." in THE GARDEN, March 22 (p. 276), it would greatly depend on the district, soil, situation, and character of annual growth. The autumnal loosening and partial tying up of branches have, if I mistake not, been often advocated by Mr. Coleman, and are doubtless practised by him. In this way the ripening of the wood on cold, wet, and retentive soils would be assisted, and, in conjunction with root-pruning every third or fourth season, prove beneficial in those districts where a warm, moist atmosphere is conducive to a late sappy growth. Here, however, in West Surrey, with a warm, dry, and light soil, resting on sand, both root-pruning and wood-loosening are unneces-

sary; established trees make comparatively little annual growth, the wood is well ripened, and we are nearly sure of an even crop of fruit every season unless the spring is exceptionally severe.—E. B., *Claremont*.

— In reply to "A. D." (p. 276), I have practised unnauling the Peach tree, or principally the smaller branches, in order to keep the bloom late to secure a crop independent of all covering or shading, and am at present tying the trees and branches to the wires. (I send you a sample of the shoots.) I find from my memorandum book that the tying of the trees to the wires is being done about a month sooner than last year. My practice has hitherto been to leave the tying in of the small shoots until almost the very last. This season our trees got so forward in January that I did more than my usual. I took, as far as was safe, the trees bodily from the wall and tied them to strong poles placed at a good distance off, and now, with all my care, the trees are more forward than last season. Our wall faces south-east, and it gets the full share of the morning sun. During my apprentice days Peaches and Apricots were the last to be nailed.—J. MILLER, *Ruxley Lodge, Esher*.

. The shoots sent were laden with large, fully-developed blooms, the wood also well ripened.—ED.

DESTROYERS.

PESTS IN THE FRUIT GARDEN.

BEFORE the growing season is fairly upon us it would, perhaps, be as well to again call attention to the necessity of an early crusade against insect pests. The old adage that prevention is better than cure is very true in this case, and the destruction of spider, thrips, and aphides in various forms at an early stage of their existence is at once a stitch in time from a labour point of view and a step in the right direction towards carrying a healthy plant or tree well through the season. There are some districts specially affected by red spider, as may be proved by an examination of hardy outdoor foliage early in the season, and when the enemy is found in quantity on Ivy and the buds of the Thorn it is high time to look to bush and wall fruit. Possibly a close inspection of Gooseberry and Currant buds will disclose the fact that these are covered with the pest, and a vigorous washing must be at once applied or the foliage will be completely riddled before it can expand. It is not necessary to use insecticides for this purpose, but with a view to leave a slight deposit on bud and wood that may be distasteful to the insect, I usually mix 1 lb. of soft soap and 1 pint of paraffin in each barrel (18 gallons) of water. I may add that a bright warm day must be chosen for the operation; the spider keeps too far down in the bud in cold dull weather for any washing to affect it. This same mixture should also be applied to all walls tenanted by trees that are likely to suffer from the ravages of this particular insect before the spring covering is put on, and if neglected at this time it should be used immediately a set is secured. With a view to dispense as much as possible with anything that might serve as a harbour for insect life, I have this year substituted small tar twine, and that used sparingly, for shreds. A little more time is required, but it has a neat appearance, and will, I think, be in the long run a saving of labour. If red spider is prevalent out of doors Strawberries in pots will, no doubt, be more or less affected, and must be dipped once or twice in a solution prepared with an insecticide before placing them under glass, especially if their destination is the vinery or Peach house. Aphis in its various forms will not prove troublesome until a set of fruit is secured if the walls and trees have received their early spring syringing, but immediately the spring covering is removed it will be necessary to examine the trees and apply either tobacco powder or insecticide in a liquid state if there is the least sign of fly. I have often thought that the various forms of aphides might be more effectually and expeditiously destroyed if a movable wood or glass coping from which cloths could be suspended were

attached to all Peach, Cherry, and Plum walls. If the coping was sufficiently wide to allow the cloths to swing clear of the trees from 12 inches to 18 inches it would enclose a space that could be very easily fumigated and the confined area would so concentrate the smoke on the trees as to be certain death to the fly. The coping must be movable, as anything in the shape of a fixture that would stand as far out from the wall as above mentioned would be an abomination on all outside walls. It seems hard to write of birds under the heading of destroyers, but it is a fact that if at all numerous they are a great nuisance in gardens, and it needs very careful watching to guard against and prevent their depredations. The first nets were taken out early in the season to stretch over a quarter of choice Gooseberries and Currants where an attack had been commenced on the buds, and from that time until the ingathering of the last choice Apples and Pears the said nets will be in use to keep off the birds, either in the fruit or vegetable garden. One can naturally sympathise with those who plead for the retention of birds, but at the same time it is difficult sometimes to understand in what way they are the gardener's special friends, or realise that it is more comforting to lose a crop by the destruction of bud or fruit than by any one of those insects that are food for the feathered race, and are multiplied by their slaughter. In the matter of the destruction of fruit alone it is impossible to regard them in any other light than enemies; there is no fruit, with the single exception of the Medlar, that is always free from attack. I have known them spoil a lot of Peaches and Apricots before the trees were netted, and strip a tree of Plums in a day. As in the case of red spider, wasps have their favourite seasons and districts. In some seasons I have not been troubled with them to any extent, and the following years I have taken more than eighty nests within half a mile radius, and this too after killing some dozens of queens in the spring. Where they are very troublesome there is nothing for it but to cover choice trees with tiffany or wasp netting and fasten the same material to back and front of vineries. A few may be taken in bottles, but the wasp has a dainty palate and will not take kindly to sugared beer if there is a luscious Peach or bunch of Hamburgs within his reach.

E. BURELL.

Claremont.

THE DAWN OF LANDSCAPE GARDENING IN ENGLAND.

A VERY scarce tract on landscape gardening has just fallen into my hands. It is entitled "An Essay on Landscape Gardening," by John Dalrymple, Esq., author of "An Essay towards a general history of feudal property in Great Britain." This John Dalrymple was a Scotch advocate, and (I suppose subsequent to the writing of this essay) according to Lowndes, Sir John Dalrymple, and if the compiler of a book catalogue in my possession is to be trusted, still later on became Earl of Stair.

I do not find this essay recorded in any of the biographical manuals which I possess. The MS. was procured from Mr. Dalrymple for Mr. Shenstone through the medium of Mr. Dodsley about the year 1760, and became the property of Mr. Bolton Corney in 1815. The last-named gentleman edited and published it in 1823, but only a few copies were printed. I may remark *en passant* I have glanced cursorily through Shenstone's published letters, but do not find any allusion to this pamphlet, although Mr. Dodsley's name frequently occurs in them.

It will, I think, be generally admitted that this essay possesses much interest, 1, because it was written in the twilight of landscape gardening, before the great controversy on that art nearly a century ago, which has settled down into the general adoption of the present style of English landscape gardening; and 2, because it is probable that Shenstone (whose beautiful

garden, or rather *ferme ornée*, "The Leasowes" was still talked about in my early days) derived some of his inspiration from this source. Shenstone, the author of "Unconnected thoughts on Gardening," was a practical landscape gardener as well as a poet of that age, and of his estate, "The Leasowes," Johnson, in the "History of Gardening," remarks, "when it came into Mr. Shenstone's hands it was a mere grazing farm, but he left it a perfect fairyland." About the time of which I am writing (1760) Bridgeman and Kent had broken in upon the dull uniformity of the existing style of laying out grounds, and they are the only landscape gardeners mentioned (the latter approvingly) by Dalrymple.

This brings me to the consideration of the essay itself, which, whatever may be its merits or demerits, the author has evidently thought the subject well out and gives his conclusions generally, although not always, in a clear style and with a logical precision which is rarely equalled in writings on this subject. The author commences by asserting the desirability of uniting 'pleasure to utility in gardening, and reminds us that this art is comparatively young and "not as yet arrived at the same degree of taste to which some of the other arts have." His first principles are thus stated:—

There seem in Nature to be four different dispositions of grounds, distinct from each other and which create distinct and separate sentiments.

The first situation is that of a highland country consisting of great and steep mountains, rocks, lakes, impetuous rivers, &c. Such a place is Inverary. The sentiment which a situation like this creates in the breast of a beholder is obviously, and everyone feels it, that of grandeur.

The next is what one may call a romantic disposition of grounds, consisting of sunk vallies, woods hanging over them, smooth rivers, the banks steep, but accessible, and the rocks appearing high, not so much from their own height as from the trees which crown, and the wild birds that are continually hovering over them; such a situation is generally destitute of prospect; but then in return, both the whole and parts of it being very precisely marked, give the same room to the imagination of the gardener that they give to that of the landscape painter. Places like this we have on the banks of many of our small rivers in the low countries of Scotland. The sentiment which such a situation seems to flatter is that of composure of mind and perhaps even of melancholy.

A third disposition is that of grounds running by gentle falls and rising easily into each other. In situations of this kind are placed many of the English modern gardens, and particularly those which Kent delighted in laying out. Such a situation as this is generally attended with great verdure, cultivation, and populousness, and naturally creates in the mind that sentiment of cheerfulness which society and action are apt to create.

The last situation is that of a dead flat. A situation of this kind may, from its verdure, or from its extent, or from its contrast with other grounds which surround it, create some particular sentiment, but merely considered in itself, it appears to create little or none.

Nature not only raises these different sentiments, upon the view of these different situations, but she gives a love and attachment for one or the other of them, according to the different tempers of men. A man who is fond of great projects or great exploits, or who has a high regard for the splendour of his ancestors, will love the first situation. . . . A man in misfortune will naturally retire to the second situation; and for this reason many of the convents abroad are observed to be built in such places. A cheerful, gay temper will naturally love the third, and a person of no taste or feeling will as readily be pleased with the sameness, and (if I may use the expression) uninterestingness of the last situation.

These remarks may not cover all the ground that the modern landscape gardener claims as the just basis of his practice, but considering that this is perhaps the first comprehensive treatise written on the subject it is marvellously trite and true. A strictly formal style of gardening was then in vogue, borrowed from Italy, Holland, and France, while the excellent, but meagre, views put forth by Bacon, Addison, and Pope, were acknowledged as the written law. Loudon and Wise, Bridgeman and Kent had designed or laid out gardens before this date, but they had published nothing on the subject, and our author would seem to have been more indebted to Bacon, Addison, and Pope than to them, while giving free play to his own originality and force of thought. Perhaps he may also have been aided in his task by Sir William Chambers' "Dissertations on Oriental Gardening," then recently published (1744).

Before descending from situations to details of practice he remarks that "as Nature has created a love in different tempers for one or other of them it would appear to be the perfection of art to second these her operations." This remark, however, is qualified by the admission that it may sometimes be desirable to soften or temper instead of heightening any sentiment not agreeable in itself.

The author proceeds: "The objects, either natural or artificial, which enter into the composition of a garden are chiefly four: buildings, grounds, water, and trees," to which it may be said he might have very well added rocks. For the first or highland situation he recommends the castle with Gothic tower, with which the other buildings through the garden should correspond, although there may be particular spots where the Doric or even the more rustic Tuscan order would be proper to supply its place. If a piece of water is to be made it should be a lake, not a pond. "The rapidity and noise of the rivers should be increased by artificial bulwarks and impediments, as is done at Inverary; and the falls of water should, either by the interposition of rocks, or of new streams brought over them, be made to look more like cataracts than cascades." If a plantation is to be made it should consist of the great forest trees, and they should be planted irregularly. "As there should be a greatness in the quantity of the plantation, so should there be a greatness in the view of particular trees." The chief natural defect of a highland situation is considered to be that it is generally ill-inhabited, and has too much the appearance of dead life, and to counteract this, "whatever buildings are erected should be in conspicuous places to create a notion of life and populousness." It is remarked: "There is a fine gradation of inanimate objects up almost into objects of life. A barren hill has a very dead appearance; covered with waving woods it has a more animated show; but if a cascade is seen tumbling down that hill through these woods, it becomes still more enlivened."

Of the "second" or "romantic" situation, he considers the sentiment to be created by it is that of composure rather than of grandeur. He still recommends the Gothic for houses intended for use, but with regard to the architecture of ruins they may be of the Grecian form; the plantations should consist of evergreen groves, the trees set very near each other in the quincunx order, sometimes producing "long straight walks," and "long arched walks." Water here should be smooth and quiet, and if a river, it should be made to lose itself at the end in a thick wood, and may be shaded in its course with Weeping Willow and other trees.

A small stream may be made to run purling over pebbles, and if a waterfall or cascade is introduced, the water should not be broken, but made to fall in one regular sheet. "It is difficult to give directions for the management of the ground in such situations; smoothing into a flat is always against taste; and yet, perhaps, it would here flatter the indolence of the mind." Again, "The best disposition is to throw the ground into smooth walks, following the course of the water and hills; a solitary walk in a deep valley, by the side of a smooth water, and covered by the shades of the neighbouring hills and woods, is the very region of melancholy." This is one of the very few points in the essay in which I do not find myself at one with the author. "I would not 'flatter the indolence of the mind,' nor could I feel happy in 'the region of melancholy.'" A garden and its surroundings may very properly be designed and planted for rest and meditation, but it is going a little too far, in my humble judgment, to provide for indolence and melancholy. The change of scenery presented by a varied and picturesque or beautiful garden is the safest rest, but as to melancholy, is it not dangerous to cater for its gratification?

The third situation is that of a champaign rich country full of gentle inequalities. "The sentiment which it creates is cheerfulness, and, therefore, in a garden in this situation the disposition and assemblage should be such as may still farther carry on that sentiment." Here follows an eulogium on Kent, succeeding which are the author's opinions of water, planting, and buildings in association with ground of this character. The river should be of a serpentine form—

sometimes losing itself in the appearance of a thicket and sometimes in that of a lake, but for the most part keeping its own pleasant meander. The planting in such a place should consist of trees of the most beautiful forms and colours, both of home and of exotic kinds. They should be planted in the loose and open manner, so that the beauty of each particular tree, and the beauty of the ground they cover may be seen, or if the particular roughness of a hill forces the gardener to plant them in thickets, he should if possible make the colours run into and lose themselves in each other like the colours of the rainbow. As this is the situation in which the beauty of single trees may be best seen, so it is here chiefly that the connoisseur in the science of trees should exert his knowledge and taste.

Nothing could be finer than this passage, and I would commend it seriously to the consideration and adoption of those who have the responsibility of choosing trees for ornamental planting. Over and over again (in some instances even as recently as this year 1890) have I looked upon plantations for ornament with disgust rather than pleasure, owing to the ill-chosen and ill-assorted individuals of which they are made up. It is green, universal green—even the various shades of that colour not being made the most of—while the gold and silver tints, the brown, the purple and other shades are almost or altogether ignored. It is surprising how little known or used are some of our most beautiful shrubs and trees. Am I going too far in saying that the landscape gardener has only half learnt his profession who lacks the knowledge of the habits, forms, and tints of the modern as well as the old-fashioned hardy ornamental shrubs and trees? As regards buildings, the Chinese and Grecian architecture are recommended here, also the simplicity and elegance of the Ionic order.

The fourth and last situation is that of a dead flat.

The English in such a situation attempt to

humour Nature; the French in such a situation attempt to hide her. The first, from their too great love to her, expose even her weakness; the last, from their contempt of her, conceal even her beauties. If these two tastes were to make concessions to each other, perhaps the points of perfection might lie between the two.

The moulding of the flat into the gentle unevenness of Kent, which no one understood better than the late Robert Marnock (and which is exemplified in his construction of the gardens of the Royal Botanic Society in the Regent's Park, London), is spoken of approvingly. Art is here courted. But such a situation, as is aptly remarked, is calculated to afford pleasure to the senses rather than to the imagination. Buildings of all species that have dignity in them are admissible here.

On the last page the author remarks:—

Could we suppose a great monarch lavishing his treasures, as it is said the Emperor of China has done, in beautifying the face of Nature, the most fortunate disposition of grounds for an attempt towards perfection in this art would be where there was a considerable flat adjoining to the palace; where that flat ran into gentle unevennesses; where these unevennesses lost themselves in a romantic retired situation; and where that romantic situation again opened and extended itself into a view of awful, magnificent, and simple Nature.

This passage recalls to my mind the gardens at Drummond Castle, Perthshire, where the most cultivated scenes are gradually and artistically blended with the grandest and wildest in a manner that would almost lead one to believe that the artist had been influenced by this dictum in landscape gardening.

When taking up the pen with the view of bringing this essay under the notice of the lovers of gardening, I had no idea of running on to so great a length, and yet much is left unnoticed that is well worthy of a thoughtful perusal; consequently, I would recommend all who are interested in the subject to get the pamphlet, and they will not, I judge, regret the time spent in reading and digesting its 22 small octavo pages.

WILLIAM PAUL.

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PUBLIC GARDENS.

A LESSON FROM AMERICA.

THE Americans are a wide-awake people. They do not like to be behind the world in anything, even in such a matter as the provision of public parks in their large cities. New countries, like new men, have to supply themselves with necessities before they can afford luxuries. Our cousins across the Atlantic having compelled Dame Nature to open wide for them her overflowing storehouses of food, clothing, and other requisites of life, have now time to consider how existence can be made healthful and pleasant as well as profitable, and as they are a city-loving people, they are endeavouring, and with no small success, to create parks for the people which shall rival the famous royal and aristocratic "pleasaunces" of the Old World. I have some photographs collected during a recent tour in the States which show what some of their parks are like. Each city desires to be ahead of its rival. Chicago will not be beaten by New York, and St. Louis sees no reason why it should not possess as fine a park as Baltimore or Philadelphia.

In addition to the above, several of the principal cities have made magnificent pathways and broad boulevards, uniting their open spaces

by belts of greenery often miles in length, bordered by numerous rows of trees.

The boulevards of Chicago, shaded by six rows of trees, are 250 feet in width, and over twenty miles in length.

Brooklyn boasts of its ocean parkway, $5\frac{1}{2}$ miles long and 210 feet wide, with a triple row of trees; and its Eastern Parkway $2\frac{1}{2}$ miles long, 210 feet wide, with eight rows of trees. New York has likewise connected its new parks with broad strips of land, and Boston is engaged in a similar manner. St. Louis also possesses a fine avenue connecting Forest Hill Park with the city. Several American municipalities have cast the main burden of the formation of these avenues on the adjoining landowners, considering it only just that those who benefit by the expenditure, through the increase of value thus given to their land, should bear the principal cost of the improvement. It would be well if London were gradually to surround itself with a similar broad belt of green connecting the principal suburban parks, thus forming a boulevard which, when completed, would probably be without a rival in the world.

Several American parks, notably those of Chicago and Baltimore, contain broad and lofty glass houses, sheltering choice specimens of Palms and tropical plants, in which the spectator can walk and even sit at ease, enjoying the warm temperature, while he studies the beauties and wonders of the strange vegetable world by which he is surrounded. Others contain large tanks of warm water in which grow the gorgeous Lilies of Africa. Boats, apparently propelled by large graceful swans, float on artificial lakes; fountains, statues, and flowering plants abound. Music is provided in almost all the parks gratis for the people, and Chicago has not been afraid to build a large pavilion, where dancing is permitted on a polished maple floor, to the strains of a band stationed in an overhanging gallery. Merry-go-rounds are provided for the children as well as self-acting swings, goat carriages, and other delights, whilst their elders can drive for the small sum of $2\frac{1}{2}$ d. per head in well-appointed four-in-hand drags to distant parts of the parks. Every facility is given for games and picnics, tables, seats, water, and attendants being provided gratis. In short, no effort is spared to make the parks attractive to the people, and tempt them during the summer months from the streets and lanes of the cities.

This jealous rivalry between city and city for the possession of the largest and most beautiful park has already made the United States the possessor of the largest number of municipal open spaces of 500 acres and upwards of any country in the world. These are:—

	Acres.
Fairmount Park, Philadelphia	2791
*Pelham Bay Park, New York	1756
Forest Hill Park, St. Louis	1372
*Courtlandt Park, New York	1132
*San Francisco Park	1040
Lynn Park	1000
Central Park, New York	864
Druid Hill Park, Baltimore	704
*Belleisle Park, Detroit	700
*Bronx Park, New York	653
Lake Shore Park, Chicago	593
Jackson Park, Chicago	586
†Prospect Park, Brooklyn	526
*Franklin Park, Boston	518
Soldiers' Home Park, Washington	500

In course of formation.
† Only partly laid out.

England justly prides herself on her magnificent parks; but her finest ones are private property, unless the Royal ones may be considered public. If they who have charge of her municipal "pleasaunces" do not desire to be distanced in the race by the conservators of

public parks in America, I warn them that they must look sharply to their laurels. Public parks in that country are, as a rule, under the direction of gentlemen who have made a life-long study of the art of the landscape gardener—men of the highest education and of trained taste; they receive high salaries and are backed by the liberal support of wealthy and ambitious communities. In competition with such men the ordinary gardener or man without special training would not be in the running.

We possess the largest municipal park in the world, viz., Epping Forest, of 5348 acres, not to mention such unapproachable, wild retreats as that of Windsor; but many of our city parks are not as well cared for as they should be. Our private parks are acknowledged to be the finest in the world, and our municipal ones should be maintained at the same high standard.—EARL OF MEATH, in *Daily Graphic*.

Regent's Park.—This park is now bright with large breaks of Crocuses and the common *Scilla bifolia*, which makes a soft shimmering cloud of blue colour, like a mass of Bluebells seen from a distance. The charming *Chionodoxa Lucilæ* is also planted here freely, and we are pleased to see this little gem introduced into the London parks. It is one of the freest and most easily grown of hardy spring-flowering bulbs, the sprays of blue and white flowers amongst the Grass giving a real touch of Nature to the parks, where, until recently, such a way of using our choicest hardy bulbs was unheard of. The pink Hyacinths are in full beauty, and before long the Tulips will lift their heavy cup-shaped flowers to the sun. Spring is now a season of flowers in the London parks, and we welcome the change from bare beds to blocks of gay colour and breadths of early Squills.

Mitcham Common.—At Mitcham Vestry Hall, recently, a meeting was held to consider what steps should be taken to protect the public rights over Mitcham Common. The chair was occupied by Mr. G. P. Bidder, Q.C., who said that this common had been so misused, that it had become necessary to see what they could do in the matter. He himself had spent £4000 on the question. They were there to see what could be done to prevent their common from being bodily carted away before their eyes. Mr. Bonsor proposed a resolution in favour of preserving Mitcham Common as a recreation ground. He said that gravel must be obtained from somewhere, but he thought that persons taking it should at least see that the surface was arranged decently afterwards. The resolution was carried. A scheme was then laid before the meeting by Mr. Burckett, and agreed to, as to the best manner of going to work to secure the end desired. Twelve ratepayers of Mitcham and twelve of Beddington were to lay a petition before the Board of Agriculture, and the petition being granted, a Board of Conservators would be appointed who would draw up bye-laws for the common. The cost of management would be small, and could be met by a rate levied by the vestry. If an economic body of conservators were chosen, the cost would be very small. This plan had been successfully tried in the cases of Hackney Common, Tooting Bec, Chislehurst, and others.

North Woolwich Gardens.—Londoners in the far East have come into possession of a new playground. The Royal Victoria Gardens, North Woolwich, have just been thrown open to the public. The ground covers $11\frac{1}{2}$ acres, and has been purchased for £19,000, which has been raised partly by subscription and in part by a grant from the Charity Commissioners and other contributions from public funds. The gardens have long been popular as a place of entertainment, but they have suffered from neglect, and some outlay will be necessary to make them presentable. For this purpose the public will have to wait until the County Council have obtained Parliamentary powers for acquiring sites outside the metropolis, the greater part of the gardens being in the parish of East Ham. In one respect they resemble Battersea Park, having a fine front to the river.

TREES AND SHRUBS.

DEUTZIAS.

THE illustration that accompanies these remarks shows truthfully the rich beauty of the best of all the Deutzias, the now common *D. scabra*, or *crenata*. The genus is named in compliment to a friend of the great Thunberg, John Deutz, the Dutch naturalist, and is allied botanically to the Mock Orange (*Philadelphus*), to which, however, in general aspect it bears very little resemblance. Although natives of India and Japan, all the Deutzias, even the pretty *D. gracilis*, forced by the thousand for the adornment of the greenhouse, are quite hardy, though when first introduced, gardeners were chary of exposing the presumed tender shrubs to the variable British climate. The value of the Deutzias for forcing is well known, but we would rather draw attention to their beauty and distinctness when forming a graceful bush 6 feet or 8 feet high, as *D. scabra* will

in the flowery land it is cultivated for the sake of its beauty when in full bloom, and finds a home in most gardens, while it is also used as a hedge plant. The leaves are covered with minute hairs—hence the name *scabra*. There are two varieties worth special note. One is the double form introduced by Fortune from Japan in 1860; the flowers are quite double, white, tinged deeply with rose, and borne in large terminal racemes. Although used for forcing, it does well in the open air. The other is *candidissima* fl.-pl., the flowers of which, each like a miniature rosette, are snow-white, and delightful when clustering thickly on the slender shoots. This was raised from *crenata* *florepleno* by Messrs. Ellwanger and Barry, Mount Hope Nurseries, Rochester, New York. It is now forced very largely, but its value for the garden is somewhat overlooked. Some may know it under the name of *Pride of Rochester*, as it is labelled thus in some collections.

When we have finished with the hairy-leaved



Deutzia scabra in Mr. Serase-Dickins's garden at Coolhurst. Engraved for THE GARDEN.

do in the shrubbery, or in some position where its prodigal display of the purest white flowers will not be lost to view. Of recent years the endeavour to make everything subordinate to evergreen shrubs and conifers has been successful in banishing many fine plants from the garden, Deutzias amongst the number; but such shrubs give three times the beauty and pleasure when not planted in some hidden corner of the grounds. Their culture is very easy, one great essential being a light, well-drained soil, especially if such a kind as *gracilis* is planted in the open, while plenty of sun and shelter from cold winds are also necessary to obtain handsome bushes wreathed in early summer with panicles of bloom. Prune every year to cut away the old wood, and thin the young shoots, in this consisting the principal annual attention required.

The most useful of all, for those who are unhappy enough to be without Deutzias in the garden, is *D. scabra*, which was brought from Japan in 1822, and grows to between 7 feet and 8 feet in height. We can understand that

D. scabra, the brightest species of the genus is described, but the dwarf *gracilis*, forced in such numbers in the spring, merits a word for its value in the open garden when planted in a light, well drained soil and in a sheltered sunny position. It was introduced about 1835 from Japan. The Deutzias mentioned are the most useful; there are others, as *corymbosa*, the sweet-scented *staminea*, and *parviflora*, but to the ordinary planter who does not want a collection, *D. scabra* or *crenata* and its varieties will give sufficient pleasure. Not only do they grow well in a shrubbery, but on a sunny wall will flourish vigorously, and there are plenty of such to cover in all gardens. Propagation may be done easily early in summer by cuttings placed under a hand-glass, or strong shoots dibbled in a sheltered spot in autumn will root.

Coleonema alba.—The Coleonemas form a group of small evergreen Heath-like shrubs, natives of the Cape of Good Hope, and succeed well under much the same conditions as the numerous *Ericas* from the same region. *C. alba* forms a neat-

growing, profusely-branched bush, clothed with bright green linear leaves. The flowers, which are small and pure white, are borne in little clusters on the front of every shoot, even to the smallest, so that at its best the entire plant is quite a mass of pretty neat blossoms. In potting this *Coleonema*, the soil should consist principally of sandy peat, with which a little good fibrous loam may be added. It is a plant that may be placed out of doors during the summer, but, as is usual with most Heaths, it needs great care in watering. After flowering (which it does during the winter and early spring months), the plants should be cut back rather hard, otherwise they are liable to run up thin and naked towards the base. The Coleonemas are nearly allied to the *Diosmas*, another neat-growing, free-flowering genus of South African shrubs, the members of which were at one time more commonly cultivated in this country than they are at the present day.—T.

Pinus muricata.—Although of no value to the planter for timber, this Pine is very ornamental and distinct. When young, it forms a somewhat irregular specimen, but afterwards the upper part of the plant subdivides into several large branches, so that generally all trace of a leader is lost. When in this stage it is so distinct as to be recognised at a glance, the whole specimen having a massive appearance from its ample dark green foliage. This Pine is a native of the Californian mountains, and is said at times in its native country to attain a height of 40 feet, but here a specimen 10 feet or 12 feet high is a large one. It belongs to the two-leaved section of Pines, that is, those with two leaves in a sheath, and included among its immediate associates of this section may be particularly mentioned the Austrian and Scotch Firs, as well as the Corsican, Stone and Cluster Pines. The cones, each about 3 inches in length, are furnished at least on the one side with very hard sharp prickles, from whence the name of *muricata* is derived. These cones are borne generally in whorls round the branches after the manner of the Cluster Pine (*P. Pinaster*), and will remain on many years, so that sometimes branches may be met with studded with whorls of cones for a considerable distance. This Pine, which was introduced by Hartweg in 1846, is also known under the specific names of *Edgariana* and *Murrayana*, for though by some there is considered to be a slight difference between them, it is probable that this difference may often be found in a group of seedlings raised from one individual tree. One very desirable quality possessed by this Pine is, that it is by no means fastidious as to soil and situation, for it will do well on rocky or gravelly soils and in a bleak exposed spot. In this last respect it differs greatly from most other Californian Pines, but this no doubt is owing to *P. muricata* being a native of a mountainous region.—T.

Tsuga Sieboldi.—All the Hemlock Firs to which this belongs are natives of North America except the above-named species and the rare *T. Brunoniana*, which, on account of its liability to be injured by spring frosts, is quite uncommon. *T. Sieboldi*, on the other hand, is perfectly hardy, and quite distinct from *T. Albertiana* and *canadensis*, the two species that are most often seen. It is of an open pyramidal habit of growth, and has generally some secondary stems springing from about the base of the specimen. The branchlets are numerous and clothed with broad, Yew-like leaves, the under side of which is glaucous. It differs from its nearest ally, the Canadian Hemlock, in the leaves being altogether larger and of a deeper green, while the plant is much denser in habit. This Fir is a native of the mountainous parts of Japan, and is consequently perfectly hardy in this country, while it will flourish in sandy and gravelly soils better than any of the allied species. It is one of the best of all Conifers for a small lawn, or as a single specimen where space is limited, as while, to a certain extent, compact growing it is totally devoid of any stiffness or formality. There is a variety (*nana*) which is of very slow growth, and to the lover of miniature Conifers is a very desirable kind. The Himalayan *T. Brunoniana* is a very beautiful species, which forms a blunt pyramid with spreading branches

that droop gracefully on all sides. The leaves are longer than in any of the other Hemlock Spruces, and silvery white underneath.—T.

SILVERY-LEAVED CONIFERS.

VARIATED CONIFERS are seldom or never satisfactory, but amongst those with silvery leafage are some very beautiful forms, which associate well with the very dark green kinds. Perhaps the best of all is the glaucous variety of *Abies Engelmanni*, itself a very ornamental member of the Spruce Firs, which usually forms when young a compact pyramid with horizontal growing stiff branches, very thickly covered with sharp-pointed leaves. The glaucous variety differs from the type in the foliage being of an almost silvery whiteness, that is when the best forms are obtained, for being raised in quantity from seed there is, of course, considerable variation in the progeny. This Spruce is a native of the colder districts of the Rocky Mountains, and is perfectly hardy in this country, for it does not start into growth early enough in the season to be injured by the spring frosts. Each species of Cedar is represented by a silvery-leaved form, the finest of the three being the glaucous variety of the Atlantic Cedar, which in the case of a variety in good health is almost a silvery white. There is a form of Lawson's Cypress (*argentea*) in which the glaucous character is very pronounced. In several Junipers the foliage is more or less silvery, the finest being the glaucous form of the Red Cedar (*glauc*), whose branches are somewhat more slender, and the foliage much more glaucous than that of the type. The upright variety of the Crimean Juniper (*J. excelsa stricta*), which originated in the once famous nursery of Messrs. Rollisson, of Tooting, some years ago, differs from the type, being of a more tapering outline, while the leaves are very glaucous. *J. excelsa* itself is of a greyish-green tint, but the foliage is in whiteness greatly surpassed by the variety *stricta*. A very distinct, but uncommon species of Juniper must be included in this group, viz., *J. pachyphlæa*, a slender, upright growing kind of tapering habit, with foliage more silvery than that of any of the Junipers. This species is a native of the mountains of New Mexico and Arizona, and it does not appear likely to take high rank as an ornamental tree, being irregular in growth and liable to lose its bottom branches. Another species from somewhat the same locality is *J. occidentalis*, which forms a specimen a good deal like the Crimean Juniper (*J. excelsa*); indeed, it was regarded as synonymous with the European kind by its discoverers. The last to mention is *Retinospora squarrosa*, which is considered by some as a form of *R. pisifera*, in which only the juvenile or primordial leaves are developed. The *Retinospora* in question is, however, horticulturally very different from *R. pisifera*, as it forms a dense-growing low tree, while the needle-shaped leaves are of a light glaucous green, and at times of almost a silvery whiteness. It is a very pretty Conifer, which can be easily struck from cuttings, and will succeed better than many of its class in sandy soils, though, of course, it is seen best in a good, open loam fairly moist, and in a position fully exposed to the sun.

T.

Grafting Lilacs.—As mentioned on page 281, thanks chiefly to Continental sources, there are many new varieties of Lilac, and it would be gratifying if Continental nurserymen could be induced to propagate them by means of cuttings, layers, or by detaching rooted suckers—in short, by any means rather than by grafting or budding them on to the common Lilac, which, as is well known, produces such an abundance of suckers. The practice of grafting these newer varieties seems to be almost universal, and in most cases the result is a continual forest of suckers, which need to be constantly removed, and if left untouched for a little time grow very rapidly at the expense of the grafted portion, which on examination will be often found to have made but little headway. The old arguments in favour of grafting will, no doubt, be brought forward by some in the case of Lilacs, but there is really no reason why they should be propagated exclusively in this way, as cuttings are

by no means difficult to strike. I am sure many purchasers would be willing to pay a higher price for a plant on its own roots (whose suckers might be encouraged) than for a grafted specimen which would need unremitting attention in the removal of suckers. The beautiful *Prunus triloba* also and the pretty little *P. sinensis*, when grafted on the common Sloe, as is usually done, must be constantly watched, and even then a grafted specimen is seldom satisfactory.—H. P.

THE PLUM-FRUITED YEW.

(*PRUMNOPITYS ELEGANS.*)

WHEN I state that this beautiful Taxad is a native of Chili no one need take alarm, as it is perfectly hardy in this country and grows freely in any ordinary well-drained, yet fairly moist soil. On the Andes of Valdivia, in Southern Chili, where it is found from 4500 feet to 6000 feet elevation, it is said to attain 40 feet to 50 feet in height, naturally grown trees in its native mountains resembling in habit well-grown specimens of *Abies Douglasi*. Whether trees planted in this country will attain the above dimensions it is as yet impossible for anyone to say, but, judging from several specimens put out here in 1868, I am inclined to think they will, that is provided they are kept to single leaders and the side shoots for a few years after planting are moderately pinched. This manipulation, however, I have not allowed; consequently our best trees composed of numerous equally strong branches are about 16 feet in height and 12 feet through. In this form they make light, bright, graceful specimens, densely clothed with branchlets and foliage from the turf to the tip, and now thoroughly established the leading growths average 12 inches in a year.

Messrs. Veitch, the introducers in 1860, through their collector, Mr. Richard Pearce, give the following interesting description of this as yet little known tree: "Leaves linear flattened, from half to three-quarters of an inch long, sub-distichously arranged, deep bright green above and slightly glaucous beneath. Fruit resembles in form and size the berry of an ordinary white Grape, but in structure that of a Cherry, the kernel being contained in a hard stone or nut, surrounded by a soft fleshy pulp enclosed in a tough rind. The ripe fruit, both fresh and dried, is eaten in large quantities by the natives, and has by no means a disagreeable flavour. The wood is hard, dark red in colour, and susceptible of a high polish."

To the owners of large collections of Conifers who have not yet introduced this Taxad or *Podocarp* I can strongly recommend *Prumnopitys elegans*, as here it has stood all weathers, including 34° of frost, and has not turned colour or shed a leaf. For planting in the shrubbery and for making hedges I believe it is as well adapted as the common Yew, whilst for forming unclipped screens in villa gardens or growing into neat cheerful lawn specimens on heavy calcareous soils I have an idea that it will succeed where some Conifers from colder countries fail. It stands well in Messrs. Veitch's nursery at Coombe Wood, where numerous stout bushes are in perfect health, and being so light and glaucous these small plants show a beauty of their own when moved by the wind. Our trees have not yet borne drupes, neither have I seen any sign of pollen; consequently I can form no opinion of their sex, but this matters little, as cuttings inserted in sandy soil in the autumn and covered with cup glasses make rooted plants within twelve months.

W. C.

Daphniphyllum glaucescens.—This is a very distinct evergreen shrub, which appears to be

perfectly hardy in this country. It is a native of the northern and central districts of Japan, from whence it was introduced by Messrs. Veitch, through, I believe, their collector, Mr. Maries. At the first glance the plant might almost be mistaken for a *Rhododendron*. The leaves are oblong, pointed at the apex, from 5 inches to 7 inches long, and about 2 inches in width at the broadest part. The upper surface is of a delicate pale green, while the underside is covered with a bluish grey glaucescence. The bark of the young growth, the foot-stalks of the leaves, and the mid-ribs are bright crimson, thus contrasting in a marked manner with the soft colour of the leaves. The whole plant is of a dense sturdy growth, plentifully furnished with leaves, which are bold and spreading. A second species, or perhaps a variety of the last, is *D. jessoensis*, which is found on the west coast of Jesso, where it at times forms an undergrowth of the forests. It differs from the preceding in being dwarfer and denser in habit, while the leaves are smaller, somewhat rounder, and of a deeper green above, the glaucescence of the undersides being of a more decided bluish tint. Both are well worth a note where distinct evergreen shrubs are desired.—T.

Thorns and Lilacs.—I was glad to see a good word for these on p. 281. There is hardly a garden or landscape in the country that would not be greatly improved by an addition to the number of these charming dwarf trees and shrubs. Both are also most effective in groups of considerable size. The system of dotting Thorns singly in parks or pleasure grounds and Lilacs in shrubberies has done great injustice to the colouring value of both, and the berries of the Thorns prove almost as ornamental and varied as the blooms. There is also a great variety of form, colour, and size in the leaves, so that every feature of the Thorn has its special value in the landscape at certain times and seasons. "E. H." also refers to their special value for forcing or forwarding in a large state in comparatively cool houses. For very many years it was my practice to furnish a nice collection of standard Thorns for Easter. These furnished the chief attraction of a conservatory attached to the mansion, and nothing could be more admired. They were also greatly valued for Easter church decoration, dinner tables, &c. They do not last long cut unless carefully placed in water. Lilacs are much more used, and their value for decoration is better known than that of Thorns.—D. T. F.

SHORT NOTES.—TREES AND SHRUBS.

Ribes albidum is waxily lovely just now, and one feels so much obliged to anything that will be good-natured enough to grow under drip.—R.

* * We suppose this to be a form of the Flowering Currant.—E.D.

Cupressus Knightiana.—I think I saw noticed by Mr. Nicholson somewhere that *Cupressus Knightiana* is very rare. One I planted here is about 18 feet or 20 feet high, and looks like a lovely fountain drooping all over, thickly set with these little cones—some in masses of brown tint, others almost orange and some light.—M. R.

The Weeping Cornel.—This is the pendulous variety of *Cornus florida*. Though of an exceedingly graceful, drooping habit, it retains its upright leading stem and is one of the handsomest of our weeping trees. It has the large white bloom, brilliant red berries and rich crimson autumn foliage of the species and is perfectly hardy.—*Orchard and Garden*.

Berberis stenophylla.—This is one of the most valuable and showy shrubs that anyone can plant, as it flowers in the greatest profusion, for every branch, twig or shoot comes laden with rich orange-coloured blooms. The plant, being of a naturally drooping habit, is best planted on high ground or other raised position, as then it shows off its beauty to the greatest advantage. Those who have not got this *Berberis* will find that the best way is to obtain it in pots, as, like most or all of the others, it is difficult to transplant, and unless caught just at the right time when starting into growth, plants moved are almost sure to be lost.—S. D.

Japanese Wineberry.—Perhaps few more interesting and valuable novelties have been intro-

duced this season than this. As we have grown and fruited it, we may be permitted to know something about it and to tell our readers that it is really a good thing. It is a Japanese Raspberry, but differs considerably from any variety common to this country. It is the product of some seeds sent home by Prof. Georgeson, late of Tokio, Japan, and gathered by him from a plant growing in a wild state on the mountains of that country. The canes of this interesting plant are large, robust, and entirely hardy here; they are thickly covered with purplish-red hairs which extend along the stem to its extremity. The leaves are large, tough, dark green above and silvery grey beneath. Each berry is at first tightly enveloped by the large calyx, forming a sort of burr, which is also so thickly covered with purplish-red hairs as to present the appearance of Moss Rose-buds. These gradually open and turn back, exposing the fruit in all its beauty. The berries are of medium size as compared with our Raspberries, but of a beautiful translucent appearance, running through the shades of deep amber to crimson as they ripen. In quality it may be rated first-class, being sprightly and of a brisk subacid, but good flavour. Ripens early in July.—*Orchard and Garden.*

KITCHEN GARDEN.

CAPSICUMS.

THESE are well worthy of being cultivated, even for decoration only. A good cook or house-keeper, however, can make good use of either green or ripe pods, there being, therefore, still stronger reasons why Capsicums should be more generally grown than they are in this country. The varieties best known are those with long, thin, tapering pods, these being catalogued as Long Red and Long Yellow. They are of free branching habit and very productive. The Chili is a suitable companion for the foregoing, this form having small erect pods which are produced in great profusion. Williams' Little Gem is quite distinct from the foregoing, this being of dwarf, compact habit, and setting abundance of tiny pods. The varieties with larger pods are, as far as my experience goes, much milder in flavour than those previously noticed, and also somewhat more shy bearing; but they are far more attractive in appearance, and quite hot enough for most purposes to which Capsicums generally are devoted. One of the most ornamental will be found in Prince of Wales, a batch of this golden-fruited form in small pots being very serviceable in the autumn. The fruit of the red and yellow Tomato-shaped Capsicum so much resembles medium-sized ribbed Tomatoes as to convey the impression to an inexperienced observer that they are really samples of the latter, and I have had them sent to me under the name of "new Spanish Tomato." Golden Dawn much resembles the very fine form shown at the Chiswick vegetable conference by MM. Vilmorin et Cie, under the name of Golden Queen, a single plant bearing thirteen large handsome fruit. The same firm staged a plant of Large Bell or Bull's Nose, with ten immense red pods, some of which were fully 4 inches deep and as much through; also equally well-grown specimens of Sweet Spanish and Pepper Improved, the pods in each case being extra large and richly coloured.

Most of the varieties I have named or synonyms can be obtained from English seedsmen, and at a comparatively cheap rate, and their cultural requirements being of the simplest description, there is nothing to prevent either a trial of a few or several of them being made. The seed ought to be procured and sown at once in either small pots or pans, and if plunged in or set on a hotbed in a house or frame and

properly attended to, it will germinate quickly. Before the seedlings become much drawn transfer the pots to a shelf or well raise them to the light in a warm house, and when in rough leaf pot off the required number either singly or in triplets. Where the plants are intended principally or solely for decorating greenhouses and conservatories, they are best grown singly, being first sunk up to the seed leaves in 3-inch pots, and from these eventually, or before they are much root-bound, shifted into larger sizes, 6-inch pots being none too large for the more vigorous growers. The commoner forms, or any that it is intended to either plant or plunge in the open, may be placed round the sides of 6-inch pots, three in each, no further potting being needed. For a time all must be kept in gentle heat, lightly shaded and carefully watered, but as soon as they are well established, a light airy shelf in a warm greenhouse is the best position for them.

Subsequent treatment ought to depend very much upon circumstances. In all moderately warm localities the commoner or small-fruited varieties will in most seasons succeed admirably at the foot of sunny walls, or even on warm borders. I have known them do well when plunged in pots along the fronts of outside Vine borders, this plan admitting of all being transferred to a warm greenhouse in the autumn to ripen their crops if need be. In this case the plants will require to be watered occasionally, and almost daily in hot dry weather, liquid manure also being needed frequently, and they must be housed before wet, cold and frosty weather in September injures them. Planted out in a single row on a slightly raised border at the foot of a south wall or fence (there is no reason why they should not be located immediately in front of Tomatoes), about the first week in June, and after they have been hardened off somewhat, the plants, without much further trouble other than mulching, grow strongly, set, and, as a rule, ripen off a good portion of their heavy crops before frosts destroy them. If lifted without breaking the balls of soil and roots, Capsicums may be potted up fairly well, though not so readily as Solanums. Stakes are not often necessary, but if the plants show signs of breaking or falling down in any way they ought to be lightly supported, as it is very certain the pods will ripen badly on any growths resting on the ground.

In cold late districts and in most cases where the plants are needed principally for house decoration, a different method of culture should be adopted. All ought to be shifted into fruiting pots early in the summer, and be otherwise made to grow sturdily and branch naturally, stopping the shoots in any way being a faulty practice. Capsicums set fruit most freely when grown in the open air, and they may well therefore be transferred to a sunny pit or frame, the lights being drawn off whenever the weather is favourable. Whether the plants be returned to light greenhouse stages to ripen their crops or not must rest with the cultivators, but I have always found the extra large varieties especially to be very attractive during August, and for many weeks afterwards, and consider them well worthy of house room. Capsicums should be grown well, or not at all, starved specimens being anything but ornamental or profitable. Any light and fairly rich loamy soil will suit them, and scarcely any kind of liquid manure, used in moderation, comes amiss to them.

In some few establishments there is annually a demand for a considerable number of ripe Capsicum pods or Chilies for making into

pepper and other purposes, this being found superior to the much adulterated stuff generally sold as Cayenne pepper. As before pointed out, it is only in the more favoured localities that open-air culture succeeds, but a few dozen plants put out in a warm pit, or even a frame on a hotbed, in succession to Potatoes or Beans will usually yield abundance of pods without much trouble. In one garden that I was employed in a long central pit in a three-quarter span-roofed forcing house was annually planted with Capsicums soon after it was no longer needed for propagating, and such large quantities of ripe and green pods were gathered and used, that I have often thought it might prove a good commercial speculation to grow them in a somewhat similar manner for the market.

W. IGGULDEN.

CULTURE OF THE GLOBE ARTICHOKE.

GLOBE ARTICHOKEs of good quality are always appreciated. Artichokes grow best in a sandy loam liberally manured and trenched to a depth of from 2 feet to 3 feet, and in an open situation. Where the natural soil is of a rather stiff texture, it is a good plan to open trenches at 3 feet from centre to centre, 2 feet wide, and about 2 feet deep, and to fill them with a mixture of manure, leaf-mould, and any waste soil from under the potting bench, mixing the whole well together. In April, when offsets having leaves 6 inches or 9 inches long can be had, slip off the required number of these from the best furnished stools, securing them with a heel and a few roots. These should be planted in triangular clumps at from 6 inches to 9 inches from plant to plant, in rows 3 feet apart, and at the same distance from clump to clump in the rows. The suckers should be planted about 4 inches deep, care being taken to make the soil firm about them. This work is best done in showery weather, but if no rain falls at the time of planting, water should be given to settle the soil about the roots, repeating the application at short intervals, according to the weather, until the plants have become established. The ground between the rows and the plants should then have a surface dressing of short manure to the thickness of 2 inches or 3 inches. This will preserve the roots in a uniformly moist growing condition during the heat of the summer and early autumn months. Young plants of the Globe Artichoke may also be raised from seed sown early in April thinly in rows 15 inches apart and about 2 inches deep, in light rich soil. The young plants should be thinned out to from 6 inches to 9 inches in the rows when large enough and before they become crowded, subsequently transplanting the remaining ones with nice balls into their permanent positions. It is a good plan to destroy a row or two of the old plants every year, and to plant an equal number of new ones in the manner indicated, inasmuch as new plantations made annually in spring yield a good supply of heads of fine quality till late in the autumn, and long after those which have been planted a year or two have ceased to produce any. Old rows should have any blanks there may happen to be in them filled up with young suckers or offsets, afterwards forking in the few inches thick of short manure which were laid on as a surface dressing and protection to the roots from frost the previous autumn. The Artichokes should be cut while the scales remain closed, otherwise they will not be fit for table. In the south they are fit to cut in ordinary seasons about the end of June and in the north a fortnight later. When the Artichokes have been all cut, the stems may be cut down and all dead leaves removed. In the first or second week in November sufficient stable litter to save the plants from injury from frost should be wrapped round each stool from the ground to within 2 inches or 3 inches of the top of the leaves, following this with a good mulching of rotten manure laid on between the rows and plants. The only summer attention which Artichokes require is to keep them free from weeds. As to varieties, the green and the purple are the two sorts generally cultivated in English gardens, some *chefs*

and connoisseurs preferring the green and others the purple. The former is the larger variety and the one most frequently met with in prize collections of vegetables staged at the leading metropolitan and provincial shows; both are excellent varieties to grow.

H. W. WARD.

Longford Castle, Salisbury.

TOMATOES.

WHEN we read of Tomatoes being sold in America for canning at so low a price as 26s. per ton, or at 1s. per basket of 30 pounds, we realise how absolutely impossible it is for us to compete with the American canners in that form of trade. We should complain of our ripe fruits being sold for 26s. per cwt., and usually look for prices ranging from 4d., 6d., and 9d. per pound, regarding an average of 6d. per pound as fairly satisfactory. Then it is evident that our comparatively cold and fickle climate will not permit us to profitably grow Tomatoes out of doors on a large scale. We may get a few good seasons, but then a few bad seasons are almost sure to follow, so that taking the average the produce is very poor indeed. America is not the only canning country, however, as I have before me a tin from Bordeaux, containing 2 pounds of excellent fruits, sold retail for 6d., and probably purchased wholesale at 4d. per tin. These fruits are bought by French canners probably for about $\frac{1}{2}$ d. per pound, possibly cheaper, and therefore we cannot hope in outdoor Tomato culture to compete with sunny France. Of course, properly looked at, we should be very pleased that our enormous population can thus, through the enterprise of growers and merchants elsewhere, enjoy wholesome Tomatoes all the year round at so moderate a price. What we should aim for is first securing in our fruits exceptionally high flavour and solidity of flesh, allied to fewness of seeds and thinness of skin; second, exceptional precocity in fruiting; and third, free-fruiting quality. So far as the last feature is concerned, probably it will be difficult to excel the cropping capabilities of some of our best varieties. The new Chiswick crossed form called Conference is a wonderful cropper, largely because, like its parent Prelude, it is such a free setter. The fruits are not so large as are those generally of the Perfection type, but they are solid and rich in colour as well as handsome. With such a form as this largely grown in houses, we ought to be able to supply our home markets with fresh, ripe, high-coloured fruits in advance of the Continental grower, because we have more richly coloured varieties than he has. But our hope in the future of home Tomato culture lies rather in the anticipation that in time these fruits will be regarded as edible in a raw, though well-ripened state with the same zest found for Apples and Pears. They lack flavour perhaps in the sense that the term is applied to ordinary fruits, and yet once a liking for them in an uncooked state is gained they are as pleasant eating as the best soft fruits. It is doubtful whether we can partake with so much ease and facility of so great a bulk of any other fruit as of Tomatoes. Specially enjoyable are the soft, thin-skinned fruits to old people. One of the charms of the Tomato is that it is unnecessary to remove the skins before eating, and our more solid forms give us both thin skins and little core. The chief desideratum seems to be found in adding to flavour, so as to increase their consumption as an ordinary fruit. Apart from the subject of flavour, it is obvious that driving to gross growth is not at all conducive to fruitfulness.

A. D.

Blanching Seakale.—"A. D." (p. 251) says that he should regard straw as a peculiarly objectionable substance wherewith to blanch Seakale, giving as his opinion that it would be productive of vermin, but how straw produces vermin he does not explain. That it may form a favourite cover for slugs and snails, if they are in or on the ground, I readily admit; but if they are there, I suppose they would make their way to the Kale if it was covered with anything else, and the way to prevent that, in both cases, would be, before covering, to give a

surface-dressing of lime. "A. D." goes on to state that sodden straw is exceedingly undesirable, and that it is cold and clammy; and so also is ordinary garden soil in the same state, which must of necessity get washed or fall into the axils of the Kale leaves, from whence it is difficult to dislodge it or get the Kale clean. As to stable litter being preferable to straw, I hold that it is only a makeshift, and no one would think of using it if they can obtain the clean article. As to the straw-covering retarding growth, that, as regards late Kale, for which I advocated it, is very desirable, and I should be glad if we could keep ours back much beyond the time we usually do, so as to further prolong the season. I believe market growers use straw or litter for blanching or protecting Rhubarb, and if not bad for that, surely it cannot be bad for Seakale. I have used straw now for many years, and have within the last fortnight again covered a large breadth of ground, and from this I feel sure I shall cut the best Kale. Under the straw the Kale comes short and thick and pure white, and those who have it at table praise it for its size and quality, and visitors often ask how it is obtained. "A. D." appears to think that the heads of Kale work into and get mixed up with the straw; but instead of that they lift it up and the straw comes off readily, and no pots, boards, nor slabs are needed. This mode of blanching gives very little trouble and entails no expense, as the straw after it has done duty is almost as serviceable as before.—S. D.

SEASONABLE NOTES ON ASPARAGUS.

APRIL is the best month in the twelve for sowing, planting, and dealing with Asparagus plantations. I am most partial to its culture, and it is a favourite subject everywhere. The roots may be forced to give a supply from November onwards. By giving Asparagus space and proper attention it may be cut for seven months in the year. Asparagus seed is offered at 4d. per ounce, and roots for planting at 3s. 6d. per 100 by some of the best nurserymen, and at these prices surely no one need be without abundance of plants. Asparagus is easily raised from seed. I prefer sowing a few ounces of seed annually and keeping up a constant succession of roots to replace those used for forcing. The seed beds should be composed of light sandy matter, without rough manure or lime. The soil should be well stirred to a depth of 15 inches or 18 inches, and the seed is best sown in rows 1 foot apart. The drills may be opened to the depth of 2 inches, and the seeds should be sown thinly. Early in April is the best time to sow the seed. In a sunny well drained aspect the growths from the seedling roots will attain a height of 3 feet the first season, and they only require to be kept free of weeds. It is ruinous from the first to sow it and neglect it by allowing the weeds to grow as they like amongst the seedlings, and this, unfortunately, is often observed. Indeed, Asparagus beds generally are frequently a mass of weeds throughout the season, a condition wholly against the production of good Asparagus. Those who have no choice of a time to plant the roots may do so from October until April, but all who have no hindrances to contend with will find the early part of April the most advantageous time to plant and form either temporary or permanent plantations and beds. I have seen a great deal of unnecessary labour spent on forming an Asparagus bed. It is generally understood that the roots are partial to a high bed with a very open foundation. To secure this I have seen quantities of brushwood buried at the bottom and soil placed on the top. This may answer for a year or so, but as soon as the branches rot the subsoil becomes poisonous to the roots, and such a bed will never be a success. Ground naturally well drained requires no further drainage. It is only heavy soils that require draining for Asparagus, and a good way of doing it is to trench the soil 2 feet deep and add a large quantity of rough material as the trenching goes on. The accumulation of a rubbish heap, charred rubbish, and such like are very suitable for this purpose. After trenching, a quantity of road scrapings, half decayed manure, and sand, such as is deposited in a pond or

by a river, should be forked into the surface. If the ground, especially wet soil, can be raised considerably above its natural level by this means it will be greatly to the advantage of the plants, but nothing should be introduced or done that will interfere with the success of the plants in two or three years hence, as it is then they should be meeting with materials that will be conducive to their producing an innumerable quantity of useful heads. It is worse than useless to make an Asparagus bed under the impression that what is done now will "give the plants a good start" and keep them going on well for a "couple of years." Their permanent progress, which should go on for a dozen years or more, is the point to consider and provide for; once the roots come into bearing, they cannot be lifted and replanted without the greatest deterioration to the crop. This is the understanding that all should work on, and it ought to be sufficient to ensure the beds receiving the most careful attention in the first instance. We have roots here now that are bearing as well as they did five or six years ago, and they promise to remain remunerative so long as we choose to retain them, a condition that I attribute to the care taken in preparing the soil previous to planting. There are two forms the plantations may take; one is the bed, the other a general planting all over the piece. The beds may be from 3 feet to 6 feet wide, and are the best in a cold heavy soil, as they can be well raised up with deep footpaths between. In planting these, the roots may be put in 1 foot apart each way, but in planting row after row all over a quarter they may be kept $1\frac{1}{2}$ feet apart, or if ground is plentiful 6 inches more. The heads and plants will develop to a great size at this distance, and each root will produce more heads than will be the case when closely planted. The plants should be put in 3 inches below the surface. A handful of crushed bones put into each hole before inserting the root will be found very beneficial. After planting and covering in, the surface of the soil should be mulched over with horse droppings to the depth of 2 inches. I have generally noticed that where the roots are allowed to be exposed until they become shrivelled subsequent blanks occur in the plantations, and if this is avoided failure from transplanting need not be anticipated. Cutting the heads from roots before they are robust and fully established tends to weaken the plants, and they should not be cut until the roots are two years transplanted or three years old. In buying roots those two years from seed are preferable to one-year-old ones. Another good way of raising plants is to prepare the soil as if for planting, make holes at the proper distance for the roots, and drop a few seeds into each. These are not to be disturbed, but allowed to grow until they have formed a useful plantation, which will be in three years. Just now is the proper time to sow seed.

Margam Park, Port Talbot.

J. MUIR.

Pea Champion of England.—This is one of our most useful Peas, and can always be relied upon. Though sometimes put on one side by the newer kinds, for general purposes it is hard to beat. It is most prolific, remains in bearing for a long time, and does well in light soils. For a good mid-season Pea, where a large quantity is required it is difficult to replace. We sow it three times at intervals of a month, as it is required for a long time, and is liked more than any other variety during the summer. Our first sowing follows the early kinds, and is treated much the same, but the two later we sow thinly in shallow trenches, well manured. These give us enormous quantities of Peas for a long time. When the Peas reach the top of the stakes they are stopped. We scarcely ever get mildew, owing, no doubt, to the Peas being sown in the trenches with a good thickness of decayed manure to assist them. A cool moist bottom is of great importance in light soils. We have plenty of water, and in dry seasons a boy with the hose can soon get over a lot of ground.—G. W. S.

Mushrooms in sheds.—I am glad that Mr. J. Miller (*GARDEN*, March 29, p. 307) has had such good results from his Mushroom beds formed in sheds. The system of growing Mushrooms in cool sheds has been advocated by me for some years. The heated Mushroom house is still, I fear, one of the particular cares of the majority of growers; but every additional year,

especially the winter season, impresses me more and more that the heated Mushroom house is unnecessary to the production of abundant and lasting crops. We are gathering Mushrooms at present from beds that were bearing in January. The bed is in a pot-bin in an unheated potting shed, and we have quantities here every winter. The same results are obtained in other unheated houses, and several in the locality whom I have advised to form beds in spare stalls in the stable and cow sheds are surprised at their success. —J. MUIR, Margam.

FLOWER GARDEN.

JAPAN ANEMONES AND SALVIAS.

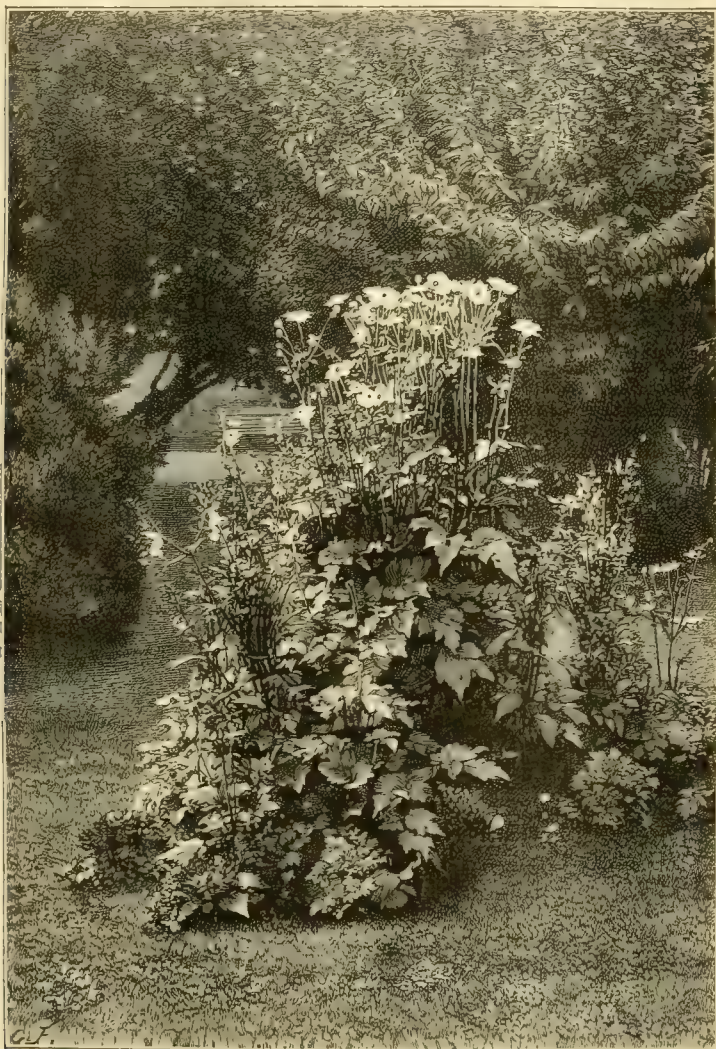
To obtain the most suitable position and background when forming a group of showy hardy

these groups need not be planted specially as a protection to hardy flowers; let them by all means have a meaning of their own, assisted and made more beautiful and attractive by the addition of choice and suitable flowering plants. We have often seen many of the very showiest of these hardy flowers look simply hideous, rising, as they are often made to do, out of a broad expanse of closely shorn turf, with neither a tree nor shrub near them. These groups when composed of tall straggling subjects, however beautiful they may be in themselves, present in such a position a sorry sight to the student of Nature. All gardens are more or less artificial, and this can hardly

flowers. The Japanese Anemone has played no mean part in the additional interest taken in plants of this class since its introduction. It is most suitable for the rockery, a charming addition to the mixed flower border or bed, and on account of its robust constitution and adaptability to nearly all soils and situations, one of the very best plants for naturalising in our woods and wild gardens. It is so robust that it can well take care of itself even amongst brushwood and Brambles, and in such company it gets the partial shade it seems to love so well. The half-opened buds open nicely in water and last a considerable time.

OUTDOOR AURICULAS.

WE shall certainly find few outdoor Auriculas blooming during the month of April. Practically these plants are assumed to be naturally in flower during that month here in the south. Really they bloom most freely during May, and in cool seasons are often beautiful and fresh in June. The holding of the southern Auricula shows in April naturally leads to the inference that Auriculas are then ordinarily in bloom. Probably nine-tenths of the plants sent to the shows have been developed in heat, and do not represent growth under natural conditions. It would seem as if this year Auriculas were later in developing bloom than usual, pretty conclusive evidence that the spring is anything but an early one, although some few things may seem to be rather precocious; therefore, whilst the Auricula shows are being held, our outdoor plants, and largely those in cold frames, will probably have hardly a pip expanded. And yet such being the natural order of things, I see no cause for complaint. Of the hardy Primulaceæ family, I find, as a rule, Primroses at their best in March, Polyanthuses in April, and Auriculas in May, an arrangement which is satisfactory, because it gives us a long season of favourite hardy spring flowers. All these flowers suffer somewhat because they bloom so close to the ground, and when heavy rains beat on the soil there is much splashing with mud. Mulchings of Cocoa fibre refuse may remedy that evil to some extent, as also may the planting about the Auriculas, &c., of carpets of mossy Sedums, and very pretty indeed do the plants look under such conditions. Still the evil is one which may be endured even without mulchings or carpets, for flowers come so fast once blooming has begun in earnest that there is little room for complaint. We have had just recently heavy beating rains, which have sadly spoiled the beauty of the Primroses, but these same rains will help to keep the plants blooming for a long season, and a few days' sunshine works wonders. The Auriculas show up their leafage with bright effect in spite of heavy beating rains; they seem, in fact, to be indifferent alike to rain or to frost, and deservedly rank amongst the hardiest of plants. The severe frosts of a few weeks since, which withered and burnt, as it were, the old leaves of the Polyanthuses, left the Auricula leafage unharmed, a tribute to the assured very hardy nature of the foliage. Outdoor Auriculas may be grown under all sorts of conditions. I have them in rows in beds planted with mathematical exactness. That system of culture answers my purpose, but it is not an artistic style. In ordinary flower borders the plants are best disposed in good sized clumps or clusters of allied colours, and to secure that desideratum, the seedlings should be first bloomed in beds, and then lifted and grouped into colours. All are very pretty, but the most effective are those of deep hues; yellow and mauve-coloured varieties are also pretty, but many of the thin or washy tints may be dispensed with readily. If Auriculas be employed to fill flower-beds in May, the best effect also will be got out of a few massed colours, not that a mixed lot have not elements of beauty in them, but the general effect is of a somewhat bizarre character.



Group of Japan Anemones and Salvias in the garden of Captain W. E. S. Battiscombe, Hillside, Worle, Somerset.

flowers, such as that shown in the accompanying cut, is very often half the battle. In cold districts these backgrounds—the denser the better—have a double value, as they not only serve to display to the best advantage the beauty and form of the plants in front, but they also act as a natural shelter, often of a highly ornamental character, against cutting winds, a very necessary precaution in outdoor gardening, even in well-favoured localities. Of course,

be avoided, but it can be lessened, and that considerably, by carefully following Nature in her mode of grouping and arranging the various forms to be dealt with in the garden. The accompanying cut shows an informal group of Japanese Anemones and Salvias. As will be seen, the grand effect is given by the background, which has been cleverly chosen, and serves to show what may be done in making our gardens beautiful with a few simple

Those who raise Auriculas from seed solely to develop their best points from the florist's point of view will find a wide field open to them in relation to ordinary border forms. To such growers the gathering of the plants into clumps of colour is of no moment. They are concerned for quality of flower, stoutness of stem, boldness of truss, and general good effect individually, whilst there is very much room for improvement of pip both in markings and in substance. The great need in Auriculas is found in habit of a stouter and more erect kind. The stems specially need strengthening for carrying so many pretty flowers, and often those of the deepest hues yet are very flaccid, and fall about in all directions. It is not too much to hope for stems always stout, stiff, and standing fully 6 inches clear below the truss. Very large trusses or heads of bloom are not so desirable as are many smaller ones, as large trusses are usually produced in flattened stems, or the pips are so crowded that their merits are detracted from. Seed of border Auriculas may be sown at almost any time, but the best germination is got on the whole if sown as soon as saved. Auricula seed is fully ripened and fit to sow in July, and as the seedlings will stand well through the winter in pans or boxes, if in sandy soil, they are in good condition for dibbling out into a patch of fine soil in the spring, where they may stand through the summer, and be further transplanted into the blooming beds or borders in the autumn. Auriculas, even of the strongest strains, grow slowly, and usually require two years to make strong plants. When seed is sown in July, however, several months are saved, and the plants in the second spring are quite as good as would be the case after two years, if seed were sown in March or April. Those who have to purchase seed should, however, waste no time, but sow at once before it becomes hard or stale. Generally, shallow pans or stout wooden boxes do admirably for seed sowing. If half filled with rubble and the rougher parts of the soil, the other half being filled with a mixture of turfy loam, leaf-soil and sand, well sifted and mixed, the material for the seed-bed is all that can be desired. The seed will require to be strewn thinly over the surface, be gently pressed into the soil, and further covered with a very thin sprinkling of fine soil, then gently watered. The pans or boxes may be stood in a frame or greenhouse, being during hot sunny weather shaded with newspapers for a few hours each day. Covering the pans or boxes with large pieces of glass is a good plan, as the soil is thus kept evenly moist and germination is accelerated. Once the seedlings are well through, little special care is needed, beyond giving occasional waterings, until they are strong enough to be transplanted.

A. D.

Seedling Hellebores.—I quite agree with J. Wood's remarks (THE GARDEN, March 8, p. 225) as to the future of seedling Hellebores. I know of nothing more striking than a plot of many hundred plants, of almost every shape and colour, covered with thousands of blooms throughout the winter and early spring. As he remarks, many beautiful varieties spring up annually from spontaneous crossing; but I would go a little further, that the utmost attention should be directed to artificial crossing. Every instance of a newly developed good point, whether in form or colour, should be made use of in crossing to get rid of a bad point in an otherwise desirable flower. By careful selection and patience very much may be done. Take, for instance, the guttatus section. Beautiful as many of these have been, I have always observed at least one sepal not quite so good in form, the white not quite so pure, and upon which the spots were not quite so evenly nor copiously distributed as on the other sepals. That has been my experience, and this year, for the first time, I have one which appears to me faultless in all these particulars. This is on a white ground. I have also a good guttatus on a pale pink ground which is new to me, and I have named it "Unique." The crimson-spotted grounds are very beautiful, and spring up readily and in every variety and degree of perfection, but I think the lighter colours are more

specially attractive. By similar care I find the whites gradually advancing in shape, size, and purity. The same, too, may be said of the "Shell," or as others call them, the "Apple blossom" section; nothing can be more beautiful nor more satisfactory.—T. H. ARCHER-HIND, *South Devon.*

NOTES ON HARDY PLANTS.

Cypripedium spectabile.—Now that thousands of roots of this splendid hardy Canadian Lady's Slipper are being imported and planted, a few remarks may not be out of place. I believe that not only in the wild state, but under cultivation this is absolutely a bog plant; I mean more so than many things that could be mentioned that are found wild in boggy places, and yet are made to do well in gardens under ordinary treatment. My reasons for this opinion are various. I never grew the plant well, as it only pushed stronger growths year after year when grown in an artificial bog, and when the boggy character of the soil ceased, owing to a stoppage in the water pipes, the plants failed to prosper. I have seen it in many gardens, but never doing well except in boggy stuff, and I must admit not always when what appeared to be the proper conditions of the soil were present. If we examine the stuff about the natural or collected roots, we may clearly see that it has not only come from a wet place, but the Cypripedium roots have permeated the freshly fallen and decaying matter of other bog plants. The newest roots are always mixed with the lightest humus, and the crowns are always the fattest where the greatest amount of vegetable matter is in process of decay. These are important points for the observation of the cultivator. There is another difficulty out of which we obtain little help by reference to the plant in its home. It is hard to so place the large and flat mass of roots so that it looks and sits comfortably. Mr. Wolley Dod tells me that he cuts away the wig of roots. I have not tried the plan until this season. Not only does this Cypripedium make fresh roots every year, but I never yet found that any of the existing roots did other than decay. Unlike some greenhouse sorts, this and the hardy herbaceous section do not make lateral rootlets or fibre, so that to shorten the blackened ends could not result in new growths therefrom. We should not overlook the sustaining quality of old and new roots that have all their parts sound as regards most plants, but in this case they soon decay after being transplanted. The rhizome, of course, should not be cut away in the least. I strongly believe there is something in the depth at which the roots or rather crowns are placed. It is not only true that the spread of roots of imported clumps with soil indicates that they grow near the surface and in loose stuff that will admit air and possibly some light, but I have noticed that the roots of healthy plants in cultivation have the habit of coming visibly to the surface, as one friend said, "My plants are doing nicely, but I cannot keep the roots under the soil." A loose covering of lumpy peat or old leaves at once keeps the roots moist and cool and allows air to reach them.

Podophyllum Emodi.—It is worth while to raise this singular and beautiful plant from seed in order to watch the young plants as they appear the first spring after germination. Seedlings in February, with their Mushroom-like forms and pea-green, brown-dappled tops, are as pleasing objects as can be found in the garden so early. I keep the seedlings in a cold frame all the winter with plenty of air. The delicate and succulent appearance of the little plants in no sense denotes a tenderness as regards cold, for the three pans of 1888 seed have been frozen solid many times. I have had experience of five or six successional batches, and I find it better to sow thinly, placing the big seeds about an inch apart, and not to transplant the seedlings until they have made two years' growth in the seed pans. Meantime, they are useful and interesting in the above named way.

Chionodoxa Luciliae.—I have this planted in all sorts of varying conditions with regard to position and soil, and I always have the finest flowers

from bulbs that were deeply set in the side of a gravel walk, where they escape being trodden upon. There is but a very small portion of fresh loam in the gravel, and the aspect is due south. In such a position and soil the bulbs are perfectly ripened.

Trillium grandiflorum.—I am induced to make a note of this, from having the results of an experiment before me. I do not know how to adequately describe the beauty and purity of this plant when grown in pots in slight heat, stood on a greenhouse floor, where the circulation of air is cooler and more free. The flowers are each $2\frac{1}{2}$ inches across, and the grand three-lobed, apple-green leaves form a beautiful setting for the snow-white pendent blossoms. The whole specimen has a delicate appearance of colour and form, but the habit is otherwise robust. Specimens 1 foot across, with eight to a dozen flowers open at the same time, suggest many uses to which they might be put, and especially when the flowers prove so lasting as three weeks. I ought to explain that such results are obtained by the use of strong clumps. A quantity in pots, not placed in any heat whatever, but in a cold frame, promise a little later to be equally fine.

The coloured Hellebores in frosty weather.—During the very severe frosts at the beginning of last month all the varieties were levelled to the ground. But we have seen them so before, and we have seen them bravely rise with the temperature. It would, however, be a mistake to suppose that the flowers do not suffer, though the plants go on as if nothing had happened. What I wish more particularly to speak of is that we may minimise the injury by a little timely attention. Some permanent protection would doubtless be a good thing, but where that has not been given, a copious drenching of cold water early in the morning after a night's keen frost and before the sunshine can reach the plants will be found to act like magic. Something of this kind we know has long been practised by gardeners for their kitchen garden crops, especially for Peas and Potatoes nipped by late frosts, and it might generally be practised in the flower garden at such times.

Ferulas.—I have been asked if the late severe frosts have not cut down the new growths of these. I am happy to say that they do not show a single sign of injury, and the leaves or fronds of Linki, tingitana, glauca, gigantea, conspicua, and communis are from 8 inches to 2 feet long. In fact they are the best bits of foliage one can find in the garden here at the present time.

Hemerocallis fulva.—Some time ago I spoke of this favourably compared with Valeriana Phu aurea as a yellow-foliaged plant for early spring, and to justify what I said I only need now refer those who grow both to the effect of patches as seen either close to or at a distance, and of course it is known that in a very short time the Valerian will outgrow its golden hue and no longer be of any decorative value until next year; whereas the Day Lily is always a stately plant, and its flowers are large and beautiful, though short-lived.

Woodville, Kirkstall.

JOHN WOOD.

SHORT NOTES.—FLOWER.

The common Huntsman's Horn (*Sarracenia purpurea*) is quite hardy at High Beech, where in the bog garden there are several splendid clumps. A few others have been tried, but without success.

Narcissus Daniel Dewar is a distinct trumpet variety with a medium-sized flower, neat, and richly coloured in the trumpet and lower half of the segments with yellow, the upper portion creamy-white. It is showy in a mass.

Narcissus C. J. Backhouse is a charming variety of the Leeds section, and if only names were given to flowers as distinct as this there would be a shorter list. The perianth is yellow, and the cup of a rich orange-scarlet colour, very deep and striking. One of the finest of all the Narcissi.

Tulipa linifolia is not only the earliest to flower here, but it is distinct and handsome also. As the name implies, the leaves are long and narrow; the flowers are intense crimson-scarlet with dark spots at

the base of the petals. This, *Iris orchoides splendens*, and *Anemone stellata alba* in flower together form a trio of sterling beauties just now unmatched.—T. SMITH, *Newry*.

Fritillaria armena is a dainty little plant growing about 3 inches high, with nodding fair-sized flowers varying from greenish-yellow to intense deep yellow. It is similar in colour and height to the rather miffy *F. pudica*, but it has a much better constitution. To be seen to advantage it should be planted on a damp ledge a few feet above the ground level.—T. SMITH.

Begonia Princess Beatrice.—This charming bedding Begonia deserves to be better known. It belongs to the fibrous-rooted section, and now is a good time to work up a stock by division of the plants, every bit soon forming compact bushy plants. Cuttings strike freely, but they do not make a compact plant. The flowers are of a soft pale pink colour, and associate well with Lobelias.—W. CRUMP, *Madresfield Court*.

Trillium sessile californicum is a very fine plant, vigorous and easy to establish. It grows from 1 foot to 1½ feet high, has ample leaves richly marbled after the manner of some Anthuriums. The flowers are ivory-white, and have the delightful perfume of *Magnolia grandiflora*. A 6-inch pot with five to seven stems forms a table ornament of no mean value.—T. SMITH.

Chionodoxa gigantea.—There has been some comment as to the distinctness of this *Chionodoxa*, but from a large group of it in Mr. Ware's nursery at Tottenham, it is quite different from *Lucilia*, with which it has been identified. It has a bulb not unlike that of *Muscari comosum*, and larger, more massive and broader flowers than *C. Lucilia*; the colour blue, with very little white in the centre. They appear usually in twos and threes, not several together, as in *Lucilia*. It is quite constant—the same bulbs for two years showing the same individuality of character. "*Gigantea*" is a big word; it is misleading applied to this hardy early flower. Mr. Ware has changed it to *grandiflora*.

The sweet single Violet odorata.—This I consider the finest and sweetest of all single Violets. With fine foliage, larger than either that of *The Czar* or *Victoria Regina*, and flowers also larger and more fragrant than either, it leaves little to be desired. The flower stems are also of about the same length as those of these well-known much-prized varieties, and are stouter than either. From the size of its leaves it should be grown at a distance apart of 18 inches to 1 foot. This hardy Violet will thrive and flower fairly well under the hard treatment accorded to Violets in olden times, when they were left in the same beds and borders for years and seldom failed to yield a few flowers in season. But to have it in full perfection and plenty, it must be divided annually in the same way as *Marie Louise*, *Neapolitan*, and *Comte de Brazza*. It also much enjoys a change of site and fresh soil. As this specially sweet variety is a giant among Violets, it should not be planted in over-rich beds or borders, as it may thus be forced into more leaves than bloom. But in soils of average quality, and in sunny dryish nooks and corners, there are few or no Violets so satisfactory as this appropriately named *odorata*, which I presume was the parent of *The Czar* and *Victoria Regina*, and is still quite equal to either, if not superior to both.—D. T. F.

Flame Nasturtium (*Tropæolum speciosum*).—The excellent illustration of this fine species on p. 253 reminds me of the several fine examples which I had the good fortune to see in full beauty early in September of last year, when making a holiday tour through the Highlands of Scotland. I met with it in several situations, both near the sea and inland, but the finest by far were those in the first-named situation. I took particular note of two fine specimens just out of Oban and opposite to the island of Kerrera. These were both trained in a similar way to that in the illustration, and were equally as luxuriant as the example given. One was on the walls of a one-storied cottage and nearly covered all of the front (west aspect) even up to the eaves. This was growing most luxuriantly, being evidently well cared for by the occupant; the flowers also were produced in profusion. Both plants and flowers were well set off by the light ground colour of the walls. This

was within a stone's throw of the seashore; so also was the other group, which particularly took my attention; the latter did not, however, appear to have been planted so long as the former. The aspect of the vegetation in that particular locality bore ample evidence of abundant humidity in the atmosphere in which I believe this *Flame Nasturtium* luxuriates. Those which I saw more inland were in somewhat sheltered spots, but they did not seem to be so much at home as their friends by the seashore.—J. H.

GRASS WALKS.

No doubt Grass walks are beautiful in a kitchen garden where there is so much soil exposed during the greater part of the year, but they are not suited to all gardens or to all parts of a garden, as they are much more expensive to keep than those made of gravel, and one cannot do the same wheeling upon Grass, especially in wet weather, as can be done upon those made of more durable material. As I have several miles of both kinds here to keep in order, experience has proved that gravel is twice as cheap as Grass. All that our gravel walks require is one good dressing of a weed-destroyer in two years, and sometimes they will keep free from weeds for even three years after this, but Grass walks occasion much labour for six months in the year (the busiest months too), and yet "A. D." (*GARDEN*, March 1, p. 202) would have us believe that Grass is the least expensive to keep and suitable for all kinds of work. To call them beautiful is right, but they are not economical.

A lawn is one thing and a Grass walk is another, but I fear your correspondent confounds the two, as he seems to imagine that Grass can be employed to form the surface of any walk, and will withstand the wear and tear of any work that is likely to be done upon it. If he will call upon me some day I will show him that a Grass walk, in certain portions of the garden here, would soon resemble the rough track met with in country lanes, or the foot-paths seen in fields adjoining towns. Where Grass walks are made in gardens there should be an extra staff of men to keep them.

When I took charge of the gardens here I had ample proof of the evil resulting from badly kept Grass walks, for the Grass had been allowed to run wild, and the borders on either side were almost as good a sward as the walks themselves. Thousands of Dandelions scattered all over the garden bore testimony of what may be expected from Grass walks if not well kept. Another thing "A. D." recommends in case of heavy wheeling is the laying down of planks for the purpose. How much per foot will such planks cost and how long will they last? With gravel walks planks are unnecessary, as the gravel can be drawn aside when wheeling has to be done, and the gravel returned after the work is finished. I have heard of hand-barrows being used for carrying manure over Grass walks in wet weather, and although I have never done this myself, yet it shows that mistakes are sometimes made in choosing unsuitable material where there is much traffic and hard work to be done. Weeds, too, are spread by Grass walks if strict attention to mowing and clipping is not attended to, and the kind of weeds these walks supply are not the easiest to eradicate. R. C. H.

Yorks.

Doronicums as pot plants.—These beautiful, early-flowering, hardy perennials are very useful when grown in pots. I have had *D. plantagineum excelsum* and *D. caucasicum* in flower for about a month, and very showy both are, especially the first named, the large, golden yellow flowers being quite distinct from anything else now in bloom, and either on the plant or when cut they last for a considerable time. The flowers, if cut when first expanded, will last fully a fortnight. They are not so useful as some flowers for bouquet work, as they soon wither unless kept in water. The *Doronicums* will not stand much forcing; in fact, it is not necessary to give them much warmth. Give them a light open position and sufficient warmth to keep out frost, and they will start away

freely. They should be taken up from the open ground and potted early in the autumn. Plants potted later will flower as well, but they do not stand so well, as they wither in a bright sun. *D. plantagineum excelsum* may be grown in pots throughout the year, and plants so treated flower equally well, and do not grow quite so vigorously, which is an advantage, as it is a little inclined to get too tall. *D. caucasicum*, however, is naturally dwarf and less vigorous in growth, and plants grown in pots do not flower so freely as those taken up from the ground. *D. austriacum* is another dwarf-growing sort, which may be recommended for pots.—F. H.

Books.

THE GRAPE VINE.*

WHEN Mr. Thomson puts pen to paper upon any subject pertaining to horticulture, the most practical and learned members of our profession do not fail to read. When he discourses on the culture of the Grape, we know that all he says may be accepted as the outcome of ripe practical experience in one of the many departments in which he excels. Nearly forty years ago he published his first "Practical Treatise on the Culture of the Grape Vine," and since that date it has become so popular and so widely called for, that at the present moment he stands as the proud, yet modest living author of a tenth edition which he simply says has "met a felt want." Having myself read his ninth edition over and over again, I can safely say it met a felt necessity, for never since the Vine was introduced has Grape culture made such rapid strides in any one decade as it has within the past ten years. This edition from the pen of a man of whom the members of our craft are proud now has a place in all gardeners', owners' who take an interest in our profession, and amateurs' libraries, and so clear, so distinct, and so exhaustive is it, that one may wonder at the first blush how Mr. Thomson, whilst retaining all he has previously said, can have added fresh interest to his latest work now before me. In this, however, the author has been successful, for whilst repeating the numerous short chapters which every young gardener should learn by heart, he assures us that he has made great discoveries as to the nature of the manure the Vine requires, the most suitable form in which to apply it, and last, but not least, in the manufacture of borders. To the empiric, who still believes in fat animal manure, this additional information may appear of little consequence, but to the thoughtful cultivator who looks upon a sound border that will last for years as his sheet anchor, and regards opening fertilisers as mechanical forces which will keep up the steam, these additional remarks are of immense value. Considering that numerous quotations have been made from past editions and the latest volume can be purchased for 5s., a price which brings the work within the reach of all cultivators, it would not be fair to make numerous extracts, and yet I must give readers a taste of the good things so recently provided for them. Treating upon composts, Mr. Thomson says:—

In making up the border, if the soil is what may be termed light loam, let it be well beaten and made evenly firm by a steel fork, but do not tread it hard with the feet, or wheel barrows over it. If the soil is what may be termed heavy, and specially if damp when the border is made up, the above caution is even more necessary.

I know of nothing in the field of horticulture that exhibits greater lack of scientific knowledge than ramming damp soil hard together in positions where it is to remain for years, unless it be the thumbing of soil in a damp state round the roots of a plant in a pot, forgetting altogether that the action of the air in the soil is most necessary.

Knowing from personal experience how often professionals and amateurs go wrong in this matter of making borders, I feel that the preceding sentences cannot be made too widely known, but pur-

* "Practical Treatise on the Grape Vine." By W. Thomson, Tweed Vineyard. 10th edition. Wm. Blackwood and Sons, Edinburgh and London.

suings the same subject, I must have yet another quotation:—

The reason why many Vines have failed to be fruitful in a few years after they were planted must be sought for in the absurd materials used in making up the borders. Not content with mixing large quantities of crude farmyard manure with the soil, recourse was had to the slaughter-house, and even the knacker's yard, as if Vines were carnivorous animals.

Until within a recent date, there was not the choice of manures we have now, and the farmyard was all but the only resource.

It is of great importance that nothing should be added to the soil of a Vine border which, after the plant-food it contains has been absorbed, leaves a residuum of inert humus, which shuts up the pores of the soil, hinders the healthy action of the atmosphere, and retains an excess of water like a sponge, in time rendering the border what gardeners justly term sour. This farmyard manure at its best does. There is the additional danger of horse manure breeding fungi.

If Vine roots are not confined by bricks and mortar to such a border as I have indicated, they escape from it to soil that was not prepared for them, and sometimes thrive better in the latter than in the former.

Another mistake that, up to the present date, is not uncommon is that of mixing half-inch bones in Vine borders. They are of little or no value. I have seen them as whole as when mixed with the soil, after being thirty years in it, and not a root near them. Bones are an excellent element in a manure for Vines or any other fruit-bearing plant, but they should be ground as fine as possible. In this state they form a considerable portion of the manure I feel bound to recommend.

While on the subject of borders, I must enter a protest against the extreme folly of planting flowers or growing vegetables on Vine borders. The roots rob the soil of the food intended for the Vines, and, even worse than this, keep off the genial heat of the sun. I called at a fine garden down the Clyde last autumn. The gardener took me into a range of vineries, and remarked that of late years the Vines had yielded very inferior Grapes. I replied that little else could be expected, seeing the enormous crop of plants on the borders up to the vinery front-sashes. First a row of single Dahlias 3 feet high; then came *Perilla nankinensis*, Stocks, Geraniums, &c. The gardener said his view was the same as mine with regard to the cause of the injury to the Vines, and he had often pointed it out to Mrs. —; but she said she could not bear to see naked borders, at the same time she expected good Grapes. This is one of the many difficulties gardeners have to contend with.

Bones, no doubt, form a very important item in the formation of Vine composts, but I quite agree with the author in his remarks as to their being ground as fine as possible. Then as to cropping Vine borders, I was hardly prepared to believe that this baneful practice was pursued so near to Galashiels. In one of the most princely gardens in France I once saw Roses and other flowering plants hugging the front wall plates.

I should like to quote from the chapter on bottom-heat (p. 7), a bone of contention with many Grape growers, but, notwithstanding the author's stubborn facts in its favour under certain conditions, space forbids.

The chapter, again, on open-air culture is interesting, and although of little use to us, it should be read by all intending emigrants to the Australian irrigation colonies.

With these remarks I must close my notice, with the request that all horticulturists who have not already done so will at once secure a copy of Thomson's tenth edition, as it conveys in a clear, yet concise way the practice of one of our most accomplished Grape growers. W. COLEMAN.

SOOT AS MANURE.

I HAVE hitherto had a good opinion of soot either used in the form of a top-dressing to growing crops, or worked into the ground at time of planting. It has, no doubt, a beneficial effect; but I have come to the conclusion that in the case of light soils it may do more harm than good. For some years past I have been in the habit of dressing with soot the soil in frames in which Strawberries are planted out for fruiting in the latter end of May.

Of late I have remarked that there was some difficulty in keeping the soil sufficiently moist, and I have come to the conclusion that this is caused by the too frequent applications of soot. On examining the soil, it seems to have become dark-coloured and dusty, so that it will not hold moisture for any time. I shall therefore be obliged to add some heavy loam or clay to render it more holding. In the case of heavy land, this effect would be rather beneficial than otherwise; but soils through which the water passes rapidly are not likely to be improved by anything that is naturally of a drying nature. Soot appears to be a very lasting manure, as traces of it may be seen several years after a liberal application has been given. My soil is so light, that I am now quite convinced that dressing it with soot causes it to dry out very quickly in hot weather, and except for the purpose of preserving things from the attacks of insects, I shall no longer use it. Had I a stiff loam to deal with, I should, on the contrary, give frequent liberal dressings of soot. I think that money spent on soot would, in the case of light soils, be more profitably employed for bone dust, heavy loam or even clay; neither do I care to top-dress pot plants with soot. It cakes on the surface and one can never be so sure about the needs of the plants in the way of watering. For coarse-growing things such as Chrysanthemums and Strawberries, a slight admixture of soot with the compost is beneficial, as it gives a good colour to the foliage, and in the case of late-blooming plants I am inclined to think that it acts as charcoal does—helps to keep the soil sweet. For mid-winter Chrysanthemums I do not think the manure water, used in a general way, very safe. There is naturally less root-activity, and even mild doses are apt to injure the active fibres; but there is no danger in clear soot water so weak that it is but just coloured. Whenever I have used any kind of manurial stimulant but this after the middle of November, I had cause to regret having done so.

J. C. B.

GARDEN FLORA.

PLATE 747.

SMALL GROWING VANDAS.

(WITH A COLOURED PLATE OF VANDA KIMBALLIANA.*)

THIS is, I think, the only coloured figure of the plant now under consideration; it flowered for the first time in Europe in various places last season, and at once took everyone by surprise by its large flowers and by its charming colour and freedom of flowering. It is a wonder to me and many others that these exquisite gems do not awaken the interest which at one time existed in the genus *Vanda*. The delightful fragrance of the flowers of most of the species is an additional charm, and the graceful contour of the plants renders them beautiful even when not in bloom. Many of the *Vandas* flower twice and thrice in a year, but we at present cannot determine what will be the habit of this variety from Upper Burmah. *Vanda Kimballiana* evidently grows in the neighbourhood of *Vanda Amesiana*. We do not hear so much of natural hybrids amongst *Vandas* as amongst *Odontoglossums*, and it is for this genus and others from the same regions that *Vandas* have been cast on one side by Orchid growers. With the advent of cool Orchids came a neglect of warm house East Indian kinds; they were wiped out, and nothing but *Odontoglossums* and such like plants

from the cool regions of South America were to be tolerated, most of the growers at home quite ignoring the fact that there were higher mountains in India than in South America, and that most of the Indian Orchids are hill plants. I do not, however, wish to introduce the present or any of the varieties mentioned below as likely to thrive in a cool house such as *Odontoglossums* can be grown in, but I maintain that *Vandas* may be grown, and grown well in a much cooler temperature than is usually accorded them. I know of a large collection of these plants which are kept through the winter months in a temperature seldom above 55° or 60°. These plants are just now sending up many spikes of flowers, and they are furnished with bloom down to the base, many of the plants being 5 feet and 6 feet in height. This is, I think, about the lowest temperature which *Vandas* of the tricolor and *suavis* sections should be subjected to. Of course this temperature was maintained by the admission of air. I have grown these plants and flowered them well in a heat of 60°. These figures I know have been considered high by some writers, but there is a difference in writing and doing, and I would advise 60° as being low enough, of course allowing a degree or two for sudden changes of temperature. The small growing *Vandas*, however, require more care and a somewhat warmer temperature than that quoted for those of larger growth, and I have noted that more especially is this the case with newly imported plants, which seem to require a gradual inuring to the system of cultivation, as they have not sufficiently recovered from the great change of conditions to which they are subjected. The plants named below appear to me to thrive best in well drained hanging baskets, filled with sweet and clean living Sphagnum Moss. During the growing season they enjoy a liberal supply of water both to their roots and in the atmosphere. They also enjoy light and the morning and afternoon sun, but the sun's rays during mid-day should be broken by some slight shading. During the winter season *Vandas* should not be kept quite dry; indeed, they are nearly always growing, but when kept at the low temperature quoted above they must be kept nearly dry.

V. KIMBALLIANA.—This cannot be dispensed with by anyone growing warm house plants. It is another of the valuable Orchids obtained by the Messrs. Low and Co., of Clapton, from Upper Burmah. I have now before me well dried flowers which opened in the Clapton Nurseries and a proof of this plate, and all I can say is, it is the most exquisite gem of all the small-flowered and small-growing *Vandas*; indeed, it can scarcely be called a small-flowered species, for it bears flowers which are individually as large, or larger, than those of many of the species of large growth, and leads us to hope that plenty of new forms, only waiting a zealous hand to find them, may yet be found in Burmah. The plant was dedicated to Mr. Kimball, one of the keenest and most zealous growers of Orchids in America, so lately as the end of February of last year by Professor Reichenbach, and he at that time had not seen fresh flowers of this great beauty, which would have delighted him. The stem is slender and the leaves narrow and deep green, the spike being upwards of a foot long, and the

* Drawn for THE GARDEN by H. G. Moon in Messrs. Low's nursery, Clapton, September 20, 1889. Lithographed and printed by Guillaume Severeys.



VANDA KIMBALIANA

traveller says he saw one bearing from fifteen to twenty flowers; at present, however, the plant is not vigorous enough to do this with us, and in the spikes before me six flowers only have been developed. The flowers are somewhat over 2 inches across, the dorsal sepal and the petals being nearly equal. The lateral sepals are much larger and broader and of the purest white; lip somewhat triangular, flat, and spreading. The front lobe is of the richest purple, which, however, varies in its intensity; the side lobes erect, yellow, with dotted lines of brown; the spur is conical and slightly recurved. It is one of the most charming and fascinating Orchids in the whole family. With the knowledge of its native country disclosed, for which I am very thankful, for I had anticipated it came from some little island in the Indian Seas, I suppose we may give the same home to the next species. It came home with Kimballiana, but whether this is the same plant as that figured in the "Orchid Album" as *V. Amesiana*, I am unable to say; it appears to be more robust in its growth, much freer rooting, and the flowers themselves are much paler in hue. It has occurred to me several times that this plant is a different species, yet very nearly allied to *V. Amesiana*, but the typical plant is now in America, in the collection of Mr. Ames, another most enthusiastic Orchid grower, and as there was but one plant of it, he only can settle the question by careful comparison of the two flowers.

V. AMESIANA.—This plant was originally imported by the Messrs. Low & Co. in an accidental manner, one plant only coming home with many other things. It was thought by everyone in the Messrs. Low's establishment to be something different, and when it flowered I had the pleasure of seeing it, and the flowers were much richer in colour than those of the plants imported by the Messrs. Low & Co. more recently. This original form is figured in the "Orchid Album," t. 296, and it does not in the least flatter the species as to colour. The plant gave one the impression that it was more nearly related to *Aerides* affine, and the spike of bloom was a foot or more high, bearing numerous flowers, the sepals and petals of which are white, the lip of a rich rosy magenta throughout, fading somewhat towards the outer edge. The plants of the more recent importation are of strong growth, more free rooting, and the flowers, although similar in shape, lack the rich colour. Some plants of this form have produced nearly white flowers.

V. BENSONI is another small-growing species of great beauty; it is a native of Burmah, whence it was imported by the Messrs. Veitch, of Chelsea, about twenty-five years ago. It appears to have been first discovered by Col. Benson, whom it worthily commemorates. In general appearance the plant greatly resembles *V. Roxburghi*. The spikes of bloom, erect and much longer than the leaves, bear many flowers, which individually measure upwards of 2 inches across; the petals, a little smaller than the sepals, are china white on the outside, yellowish green within, where they are profusely spotted with small dots of reddish brown; the lip is furnished with a spur, which is white. The side lobes are also white, whilst the reniform front lobe is of a deep violet-blue. It is quite without tessellations, and is thus distinguished from the species to which it is nearly allied. It comes from Rangoon.

V. CÆRULESCENS is a very beautiful species, inferior only to *V. cærulea* in size of flower, the colour being equally good. It is, however, not such a difficult plant to manage as *V. cærulea*, whilst from its size it may be grown in a small pot or in a hanging basket, this latter plan being perhaps the best. When hung exposed to sun and light the flowers come up more vigorously, the colour becomes a more vivid blue, and the lip rich purple. This plant was found in Burmah by Col. Benson, and was sent home for the first time in a living state upwards of twenty years ago. The species had previously been found and named by Griffith.

V. CÆRULESCENS BOXALLI.—This, discovered by the collector whose name it bears, is a variety of

the preceding, differing from the type only in colour. The growth is the same, and the flowers, like those of the type, are borne upon an erect stem. The sepals and petals are pure white, tinged with violet; the lip deep blue or violet, with a narrow marginal band of white. It comes from the same country as the typical plant.

V. CRISTATA is an old species, and has been grown in this country for about fifty years. Like nearly all old plants, it has been neglected by the majority of Orchid growers. The raceme is from 3 inches to 5 inches long, and bears from three to six flowers, which are about 2 inches across; the sepals and petals nearly equal, and all of a yellowish green; lip large, deep yellow or white, streaked with broad lines of purplish black; the point of the lip is drawn out into three cylindrical points. It is a spring-flowering plant, and found growing upon trees in Bhotan and Nepaul. In some varieties the colours vary from those given above.

V. DENISONIANA.—This is another of the interesting discoveries of Col. Benson in the Arracan Mountains, in Burmah, and he says that when it is not in flower it is very difficult to distinguish from *V. Bensoni*, a species already described in this article. The flowers of this plant are white. The plant was named in honour of Lady Londesborough, and was first flowered by Messrs. Veitch, of Chelsea, twenty-one years ago. The sepals and petals are thick and fleshy, white, tinged with green and faintly dotted with pink at the base; whilst the lip is pure white, having a short conical spur. The tip or front lobe of the lip has quite the curl of a blackcock's tail.

V. DENISONIANA HEBRAICA.—This also comes from Burmah. It has the growth of the typical plant, but differs in the flowers, which are wholly of a pale yellow, the inner surface slightly darker and tessellated.

V. INSIGNIS SCHROEDERIANA.—This is in the collection of Baron Schroeder, whose name it bears, and is, I believe, the only plant bearing flowers of such a light clear yellow colour. In no other respect does it differ from the type. The sepals and petals are clear light yellow, and the lip and column white. It is as beautiful as it is rare. This variety was figured in *THE GARDEN*, March 1, 1884. It comes from the Malay Islands.

V. LAMELLATA BOXALLI.—A charming small-growing plant, which has not yet become so generally distributed as it deserves. It is a plant which comes from the Philippines, where it was found by Mr. Boxall whilst collecting for Messrs. Low, and has the habit of growth of most of the species, but with longer leaves. The dorsal sepal and the petals are about equal and of a uniform creamy-white; the lateral sepals larger, the outer half creamy-white, the inner half reddish brown tinged with rosy-purple; lip rich magenta in colour, streaked with purple. I have seen this plant remain in flower in the nursery of Messrs. Williams and Son, of Holloway, through the entire winter. A coloured plate of it was given in *THE GARDEN*, June 4 (p. 574).

V. LIMBATA.—This showy species was introduced by Mr. B. S. Williams, of Holloway, from Java in 1873, and flowered with him for the first time in England in the summer of the year following. The spike is erect, bearing from ten to fifteen flowers, which measure individually about 2 inches across. The sepals and petals are bright cinnamon-brown, with a narrow marginal border of rich yellow, tessellated on the inner side with a darker colour; lip soft lilac, becoming nearly white at the tip. On the outside the flowers are French white.

V. PARVIFLORA is a remarkably handsome species and is rare in collections. There were several examples of it in the Kew collection years ago, but I have not seen it since. It has much the appearance of the typical *V. Amesiana*, but with broader leaves; it is also known by the names of *Aerides testaceum* and *A. Wightianum*. It produces an erect spike, bearing from ten to twenty flowers, which are each more than 1 inch across. Sepals and petals soft nankeen-yellow, the outside approaching to white. The ground colour of the lip is the same as that of the petals, but the greater portion is covered with

bluish-purple, the marginal yellow border being dotted in front with reddish-purple. It is one of the prettiest plants I know. The plant is found in Ceylon, and also on the mainland in Bombay and Madras, and I hope to soon see it again in cultivation.

V. ROXBURGHII.—This is an old and well-known species. I used to import it largely from Northern India some few years ago, but owing to the *Odontoglossum* craze the plants did not sell well. I am glad to find, however, that it is again asked for. It is a variable plant and several varieties of it are known; the spike is erect and many-flowered; the sepals and petals are nearly equal, the inside olive-green or olive-brown, tessellated with darker markings, being of a plain china white on the outside; lip deep pink.

V. ROXBURGHII CÆRULEA.—It would appear that these two Orchids grow together, and it is impossible to determine between the two when out of flower. When in bloom they are very distinct, as the lip is of a rich deep violet-purple.

W. H. GOWER.

** We believe the proper spelling is Kimballiana, and not Kimbaliana, as on the plate.—Ed.

ORCHIDS.

ANGRÆCUMS.

IN comparison with the other tropical regions of the globe, Africa has, up to the present, supplied very few Orchids of real horticultural value. With the exception mainly of a few *Disas* and *Lissochilus* in the south, and *Ansellia africana* and a few *Angræcums* further north, the known African representatives of this family are either so difficult to grow or bear flowers so small and inconspicuous as not to be worth cultivation. Its comparatively unexplored state may, of course, account for this, as Madagascar, which is much better known, has produced a considerable number of valuable and ornamental Orchids.

Angræcum contains the greater portion of the best of tropical African Orchids; indeed, during recent years so many new species have been discovered and added to our collections that it now occupies a foremost place amongst all tropical genera. The main features of the genus are very distinct and characteristic. All the species are evergreen and epiphytal, without pseudo-bulbs, but having erect stems bearing two rows of leathery or sub-fleshy leaves. The flowers are distinguished by the remarkable spur, which attains to a greater length in this genus than in any other of the Orchid family. The blooms throughout the genus are destitute of bright colour, the majority varying only from pure sparkling white to ivory or greenish white. White flowers, however, are always welcome, and differences in habit, time of blooming, as well as in size and outline amply compensate for lack of variety in that respect. The number of species is very large, many of them, however, like *A. odoratissimum* and *A. aschantense*, being of no value as garden plants. The species enumerated below, although by no means comprising the whole of the ornamental kinds, fairly represent the different types in cultivation:—

A. SESQUIPEDALE.—This is one of the most wonderful of all Orchids; its beauty and interest make it worthy of a place in every garden where there is a moist stove, especially as it is very easily grown. It is a native of Madagascar, and the Rev. Mr. Ellis states that he found it in considerable abundance growing along with *A. eburneum*. Describing its habitat, he says that it grows on the outer branches of trees to which it attaches itself by roots of remarkable length, running along the cracks in the bark. In removing some of the plants Mr. Ellis found roots occasionally 12 feet to 15 feet

long. According to his description the majority of the plants are not very handsome in their native home, often consisting of a long bare stem with a few leaves at the top. The finest specimens are those growing on fallen trunks, where they are shaded by the leafy growth of other trees and are near enough the ground to root in the vegetable mould which lies there, but they do not flower like their sun-burnt brethren overhead. Under cultivation this Orchid is certainly one of the handsomest of all; it is probably unequalled in the rich glossy green of the leaves. The flowers are produced in racemes of two or three, each measuring some 6 inches in diameter. They are of a beautiful ivory white, with the spur usually from 10 inches to a foot long; occasionally, however, I have seen them 15 inches long.

A. EBURNEUM.—Although devoid of the elegance of the preceding species, this is one of the largest and most striking of tropical Orchids. The leaves are pale green, very stiff and leathery, and about 2 feet long. The flowers, densely packed on the tall, erect spikes, emit a delightful fragrance. The sepals and petals are greenish white, whilst the large cordate lip is of the purest white. It flowers during the first two months of the year. In obtaining this species care should be taken to get the typical form; a variety named *virens*, with smaller flowers and a greenish lip, is by no means so ornamental.

A. SANDERIANUM.—This is a native of the Comoro Islands, whence it was introduced a few years ago by Mr. Sander. It is a dwarf species, and is probably the most useful of the smaller-growing kinds. Upwards of twenty flowers are produced on the raceme, which is pendent and about 1 foot long; they are pure white, and measure each 2 inches across, with a spur about 3 inches long. It flowers in March and April.

A. CITRATUM has been imported in such numbers at different times, that it is now one of the most generally known of *Angræcums*. The leaves are from 3 inches to 5 inches long and bright green, the slender arching spikes being closely set with two rows of numerous, delicate, creamy white flowers, individually upwards of an inch across. It flowers in spring and is certainly one of the daintiest of Orchids flowering at that season.

A. FASTUOSUM is now flowering very freely in Messrs. Veitch's establishment. The plant altogether is only 3 inches high, with oblong leaves about that length. The spike is four-flowered, each flower being an inch across and pure white, with broad segments, and a spur 4 inches long.

A. HYALOIDES is one of the latest additions to this genus, having been introduced by Messrs. Low. It is a delightful little plant, perhaps the smallest of cultivated *Angræcums*. The leaves and flower-spikes are a little more than 2 inches long, but the latter are borne in great abundance; we have counted as many as fifteen clustered round the base of one plant. The flowers are white, and, as the name implies, so transparent as almost to be glass-like.

A. SCOTTIANUM is the only terete-leaved species, and is altogether as remarkable as it is beautiful. It was discovered about twelve years ago on the island of Johanna (one of the Comoro group) by Sir John Kirk. For several years it remained extremely rare, but recent importations have brought it within the reach of most cultivators. The flowers occur singly on the scape and have yellowish white sepals and petals. The lip is a prominent feature, being large and rectangular, and measuring fully $1\frac{1}{2}$ inches across. The spur is 5 inches long and very slender. The plant is dwarf, and bears two rows of curving, cylindrical leaves. It flowers about midsummer.

A. ELLISI worthily commemorates the gentleman who introduced it. The figure is very ornamental, being strap-shaped and dark green. The flowers appear on long, gracefully curving racemes, and are pure white and fragrant. The spur is 5 inches in length.

Amongst the remaining species may be mentioned *A. bilobum*, with its variety *Kirki*, both

very pretty and distinct; *A. falcatum*, which is remarkable on account of its widely separate habitat; it is found in Japan, and should be given an intermediate temperature; *A. caudatum*, a curious and rare species, but too difficult to keep in good condition to be of much value as a garden plant. It appears to come next to *A. sesquipedale* in the length of the spur; on a plant which flowered about two years ago it was 9 inches long.

Some of the *Angræcums* are quite easily grown, whilst the cultivation of others has yet to be mastered. *A. caudatum* is, as far as I have seen, a wayward subject, and *A. bilobum* requires great care during the winter months. I find also that *A. citratum* is liable to exhaust itself by flowering. Indeed, many other species flower so freely and remain so long in bloom, especially the first year after importation, that it is wise policy to remove the spikes some time before the flowers would naturally fall. The great majority of those above mentioned, however, ought to present no difficulty. *A. eburneum* and *A. sesquipedale* I have grown and flowered for many years in a rather lofty house along with a mixed collection of tropical Orchids, where the night temperature in winter ranges between 55° and 60° . A position, however, near the glass is much to be preferred, and this applies to all kinds. I have been most successful with the smaller species in a house chiefly devoted to *Phalænopsis*, and where a humid atmosphere is maintained throughout the year. As may be surmised from the absence of pseudo-bulbs or other reservoirs, they resent a continuance of drought either at the root or in the air. Beyond the natural reduction of heat and moisture during the darker months no attempt at resting should be made, while during summerscarcely too much water can be given. For the large species pots are most convenient, but for such as *A. Sanderianum* and *A. hyaloides* hanging baskets are more desirable. These should be clean and filled to one-third their depth with potsherds and charcoal, the remaining portion with clean, fresh Sphagnum, with a few pieces of charcoal interspersed. If the plants are not in flower the present is the best time for potting.

B.

Epidendrum O'Brienianum.—This is another remarkable hybrid raised by Mr. Seden in the establishment of Messrs. Veitch and Sons. I had often heard of the plant, but had never seen it before. It is a cross between *E. radicans* and *E. evectum*; in growth it resembles *E. radicans*, but its flowers are larger, and the side lobes of the lip more resemble those of *E. evectum*, while the flowers in shape somewhat resemble those of that species, but all the segments are longer and the column is straight; the sepals and petals are of a lovely shade of cardinal; the lip somewhat rosy-pink, bi-lobed in front, the side lobes being deeply fringed, the crest yellow. It is one of the most lovely gems which I have seen for a long time. It is now flowering in the Woodlands collection at Streatham.—W. H. G.

Vanda Sanderiana.—The question is asked whether this handsome species of *Vanda* has been grown in a cooler temperature than that of the warmest Orchid house. It has been so grown in the garden of the Rev. F. D. Horner at Lowfields, Burton-in-Lonsdale. It is grown remarkably well in a house of a lean-to description, where Orchids of many countries grow freely. The temperature would be nearer that of the *Cattleya* house than that of the East Indian. For instance, *Cattleya citrina* has made wonderful development suspended from the roof glass in the same house. A great deal, more in fact than is generally supposed, depends upon the care taken of the plants. Constant, watchful attention is needed so that they receive water at the right time, and that a fresh food supply be

given to them before the last is quite exhausted, and that when being potted, care is taken that the roots do not get damaged. Orchids seldom do well unless they have been enabled to lay hold of the pots, pans or baskets in which they are growing with their thick aerial roots, and mischief is done by disturbing the roots when they are thus firmly attached. The *Vandas* not only line the insides of the pots with their roots, but they also push roots over the surface of the Moss, run over the rims and down the sides of the pots, and take such a hold that they cannot be easily displaced.—J. DOUGLAS.

Phalænopsis Luddemanniana.—Many fine varieties are flowering with Mr. Smee, and the old flower spikes are producing young plants in some instances. There is one peculiarity about these plants which I wish to point out. I have always contended that they should not have much soil about them. Here Mr. Smee has fastened the plants to blocks of stone with just a little Sphagnum at their base to retain moisture, and the plants are rooting freely to the stone. I have no doubt that they will succeed well. One thing, however, will be necessary, and that is, to shade from the direct rays of the sun, or the roots will be liable to be roasted. Many other species have been placed in similar positions, and I hope to watch their progress, which I shall do with a good deal of interest. I do not know or see why the cultivation of these plants should be considered difficult, but I feel convinced that surrounding the roots with an amount of wet soil or Sphagnum Moss is one of the reasons we have so signally failed to maintain them in good health. Mr. Searing at Cheshunt never erred in this respect, and to him must be awarded the title of premier *Phalænopsis* grower in the country.—W. H. G.

SHORT NOTES.—ORCHIDS.

Cattleya Trianae.—Several varieties of this are in excellent flower in Mr. Ellis's garden at Carshalton. One form is almost pure white, saving the yellow in the throat. It is astonishing how rare the pure white variety still remains.

Odontoglossum triumphans.—This beautiful Orchid varies considerably, and in a large collection will be found richly marked forms. In the nursery of Messrs. Veitch and Sons at Chelsea are some excellent varieties with unusually deep blotches of chestnut-brown.

Cymbidium Devonianum.—This is a distinct and uncommon species, introduced from India in 1837. It has a drooping raceme, from 1 foot to 2 feet in length, bearing several flowers, which have greyish-coloured sepals and petals, each with a central stripe of mauve; the lip is tipped with this colour.

Calanthe striata, synonymous with *C. Sieboldi*, is an interesting species. The leaves are deep green and ribbed, and from the centre of the plant rises the spike of flowers, of which the lip is pale sulphur-yellow, with three yellow ridges in the centre; the sepals and petals brownish-red. It is in bloom at Kew.

Dendrobium primulinum giganteum is, as its name suggests, a large-flowered variety of a beautiful *Dendrobe*. It is in bloom now in the Forest Hill nursery of Messrs. Laing and Sons. The lip is unusually large, of the palest yellow, with a tip of rose-purple, the sepals and petals wholly of this colour.

Lycaste fulvescens is a showy Orchid when in full bloom, as we saw it recently. It was sent to the Rev. John Clowes, of Broughton Hall, Manchester, who received it with *L. gigantea* from the province of Coro, in Colombia, having been collected by Linden. The lanceolate sepals are each over 2 inches long, and the petals are similar, though smaller; they are buff-yellow in colour, the lip rich orange.

Peristeria guttata.—This is more curious than beautiful. The flower-spike is borne close to the pseudo-bulb, and each flower is freely spotted with deep crimson on a yellowish-white ground. It is quite dwarf, only rising 6 inches in height, and came from South America in 1837. It is in bloom at Messrs. Veitch's now, though in some books its date of flowering is given as September.

Maxillaria Harrisonæ has several synonyms, and is often classed amongst the *Lælias*. A large specimen is in full bloom in the Chelsea collection of Messrs. Veitch. The scape bears one flower, sometimes two,

each about 3 inches across; the sepals and petals fleshy, creamy-white, with the lip purple-rose, shaded inside with red, and rich yellow in the throat. It was introduced from Brazil.

Pilumna fragrans.—What a delightful odour is yielded by this flower, and yet it appears as modest as a Violet. Its blooms are pure white, with just a tinge of yellow in the eye. A plant bearing forty flowers was recently to be seen at Mr. Ellis's establishment at Carshalton, a place where Orchids are well done.—G.

Cattleya Rollissoni.—This is a very beautiful form of *C. Triana*: delicata. It was figured by Moore, I believe, under the above name. A very fine form of this flower comes to me from Mr. R. H. Measures; it is $7\frac{1}{2}$ inches across, the sepals and petals pure white, the lip white with the front lobe delicate mauve, with a backing of rich yellow. It is one of the most elegant forms of this ever-changing Orchid.—W. G.

Angraecum citratum.—This lovely and chaste little Orchid, to my mind one of the gems of the whole family, was shown in beautiful condition at the last meeting of the Royal Horticultural Society on March 25. Its comparatively long spikes of miniature flowers were most attractive and pleasing. These contrasted well with the dark green of its Phalaenopsis-like foliage and habit of growth. The specimen shown was in a most healthy condition.—J. H.

Cypripedium cardinale.—Flowers of this kind are sent me by Mr. J. Cross. It is the top of the spike and bears three fully expanded flowers. They are not remarkable for size, as they naturally enough would not be, as I am told the spike has been flowering for over three months. The sepals and petals are pure ivory-white, and the lip is very highly coloured. It is the result of a cross between *C. Sedeni* and *Schlimi albi-florum*.

Oncidium Larkinianum.—I have received a flower of this beautiful and showy kind from Mr. Larkin, of Highbury New Park. It evidently combines the beauties of *O. Forbesi* and *O. Marshallianum*, the sepals and petals being bright chocolate with a yellow undulated border, whilst the large lip is deeply bi-lobed and brilliant yellow, the side lobes small and with the crest on the disc reddish-brown.—W. G.

Cypripedium Schroederæ.—Also from Mr. J. Cross is another hybrid of very great beauty, and it also has size to recommend it. It is a cross between *C. caudatum* and *C. Sedeni*, the dorsal sepal being large, ivory-white tinged with rosy-pink streaked with green veins, the lower sepal broad and white. The long petals have a twist or two in them, and are bright rosy-pink at the ends which become paler towards the base, the lip being of a bright and deep rosy-pink.—W. H. G.

Oncidium sarcodes.—A fine variety of this is flowering in Mr. Smee's garden just now, and a friend ("W. M.") writes me saying he has a spike with 220 flowers. This is a beautiful plant and it should be more widely grown. A few years ago it was a rare plant, and was thought a great deal of; now, however, when it can be obtained cheaply, it appears to have lost all its attractions. This is not as it should be, as plants should be grown for their beauty and not because they are expensive.—W. H. G.

Nanodes discolor.—I was pleased to see this plant growing freely with Mr. Smee a short time ago, and in a manner seldom seen. I was informed that the plant had been grown extremely cold, and when I saw it it was in the coolest end of the house devoted to the *Odontoglossums* and *Masdevallias*. Many people have trouble with this plant, fearing that they may lose it if it be grown too cold. This, however, need not trouble them any longer, for Mr. Smee's plant is growing more freely than I ever remember to have seen it.—G.

Odontoglossum Alexandræ guttatum.—This is another beautiful form closely allied to *O. A. Cooksoni*. It is now flowering with Mr. Goodhart at Langley Park, Beckenham; the flowers are white, smaller than those of *Cooksoni*, and the petals are narrower and not nearly so beautiful. The spotting is very heavy, in some instances continuous and of a chestnut-brown; the lip is white, bearing a large blotch of chestnut-brown in front of the yellow crest. The flowers of this variety are certainly not so good as those of *O. Alexandræ Cooksoni*.

Dendrobium nobile nobilium, D. Sanderianum, and D. Cooksoni.—These are three magnificent forms of the old species. The amount of propagation to which nobilium and Cooksoni have been subjected naturally weakens them; consequently the flowers are small. *Sanderianum* has not suffered so much in this way. It

is a very fine and highly coloured form as good in colour as nobilium, but lacking the size of that variety. *Rollissoni*'s nobilium and Sander's variety (*Sanderianum*) are certainly the two most highly coloured forms of *D. nobile*.

STOVE AND GREENHOUSE.

SHADING PLANT HOUSES.

Now when the season is at hand that many of the plants cultivated under glass require protection from the sun, a word on the subject may be of service. The question is sometimes put, "How is it that so many of the plants that come from hot countries, where the sun is much more powerful than with us, need, when under cultivation, to be shaded?" The query requires more than one answer. In the first place, some of the plants in question exist naturally in places where they are not fully exposed to the solar rays, as they get partial shade from the arborescent vegetation by which they are more or less overhung. Respecting the numerous plants from warm countries which, in a state of nature, are fully exposed to the sun, yet when grown in hothouses will not bear it, the apparent anomaly is not difficult to account for. In the hot regions of both the Eastern and Western Hemispheres the air is heavily charged with moisture, which condition in the cultivation of the plants that belong to these countries must be imitated, as in a dry atmosphere, even when accompanied by the requisite amount of heat, the plants would not thrive. To do this, it becomes necessary to restrict the admission of the cold, ungenial air with which we have to deal. This, coupled with the limited light that our clouded sky affords, weakens the plants so that their leaves cannot bear the direct action of the sun in the way that they are capable of doing in a state of nature. At the same time, it may well be said that the shading, which becomes a necessity, is at best only a necessary evil that should never be used to a greater extent than will suffice to prevent the plants being injured, for it is impossible to shade without diminishing the light, of which far the greater portion of the plants grown in glass-houses under the best conditions that can be given them get too little. Yet this does not always appear to be understood, otherwise the methods and the materials so often used in shading would be different to what they are. That fixed shading of all kinds, whether it consist of canvas or any of the various other textile fabrics of which blinds for plant houses are made, is wrong, does not require further proof than simply to point to the long hours in the spring and summer that intervene between the dawn of day and when the sun gets high enough to need its rays intercepting, and the like time in the latter part of the day, during the whole of which much of the light that is so indispensable to the well-being of the plants is shut out. And this is not taking into account the numerous days that occur in the course of the growing season when the sun never shows its face. Where fixed shading is used there is no exaggeration in saying that between the time of putting it on in spring and its being removed at the end of summer for half the hours there is daylight the shade does direct injury to the plants. Another mistake that is often made with movable blinds, and which is still worse when they are fixed, is in having material that is too thick. The object in shading is to diffuse and intercept the force of the solar rays, not to shut out the light they give. To effect this, much thinner or less closely woven material

than is commonly employed is sufficient for all but a few things, such as Filmy Ferns, cutting striking, and the like, respecting which the shading in question does not apply. Where shading is effected by smearing the glass with whitening, flour paste, or anything of a like nature, its weakening effect on the growth of the plants is similar to that of fixed blinds, and the more thickly it is laid on the more harm it does. About the tinted stuff with which one sometimes sees plant houses shaded, the less said the better. Its use is on a par with that of the green glass, the imaginary merits of which for growing plants under now and then find an advocate.

The injury which is done by fixed shading varies with the character of the houses on which it is used and with the nature of the plants that are grown in them. In low structures, such as the market growers have, the effect of the slight smearing of whitening that is laid on the glass is less injurious than it is in the heavier, darker houses that do duty in private gardens, where often the plants are much further from the roof than they should or might be, if effective arrangement was not more considered than the condition of the plants individually.

In stoves, some of the leading kinds of plants are frequently shaded that would be better without. Amongst these may be named *Allamandas*, *Dipladenias*, *Ixoras*, *Stephanotis*, *Bougainvilleas*, and the like, which are better exposed to the sun, unless, may be, when the plants are in flower, to prolong the bloom. In the ornamental-leaved section of stove plants, in the cultivation of which the first essential is to have the foliage in faultless condition, nearly all require shading, the *Crotons* being the exception. These plants will bear all the sun that can be given them; their leaves colour much better when not shaded in the least. Of the few heat-requiring plants which are grown for their flowers, that do their best not only without sun, but with less light than most things require, is the *Eucharis*, which is quite exceptional in this respect. The best examples of *E. amazonica* I have ever seen were grown in houses that were too dark for most plants, and besides this the plants were a long distance from the roof, and shaded whenever the sun was bright. *Franciscea confertiflora*, one of the best and most telling of stove plants when seen in the shape of a large, well-managed specimen, but of which it is doubtful if such an example could now be found in the country, is another plant that will not bear sun; if allowed to reach the leaves it soon does them irreparable injury.

With Ferns, except a few species, the prevailing idea used to be that they did the best when so heavily shaded that not a glimpse of sun could reach them. The mistake of this is now seen by those who follow the opposite course of shading them lightly, and that only in the middle of the day in bright weather. The worst effect of overshadowing where little or none is required is with plants of a slow-growing, permanent nature, such as most of the New Holland and Cape species. To give anything in the way of shade to the generality of these, except in the early stages of their existence, results in weak, long-jointed wood, with leaves thin and wanting in the substance necessary to their lasting as long as they should. Of greenhouse plants there are two or three that do not like much sun—*Acrophyllum venosum*, *Pleroma elegans*, and several of the *Staticeæ*. The *Acrophyllum* is now scarcely to be met with, yet it is a distinct and beautiful plant, to produce which in large specimen size and in perfect condition used to be looked upon as a proof of the

cultivator's skill. Unlike most hard-wooded subjects, the *Acrophyllum* does best when not exposed to much sun. The leaves of the *Pleroma* and of the *Statice*s, especially those of *S. profusa*, suffer if not shaded when the weather is hot and clear. T. B.

GREENHOUSE RHODODENDRONS.

UNLESS in the large glasshouses to be found in our public or a few private winter gardens, these magnificent plants are most effective grown in pots or tubs. This enables them to be placed out of doors to finish and harden their growth and plump up their flower-buds from the end of June to the middle or end of September. Such a course of treatment not only favours their free and continuous blooming, but also keeps them clean. By such treatment the fine species as those named by "H. P." on p. 271, and others, such as *arboreum* and its several varieties, *Russellianum*, *Shepherdii*, *Duchess of Edinburgh*, *Princess Alexandra*, *Duchess of Sutherland*, *Taylori*, &c. Confined as closely as may be to moderate-sized pots or tubs, there are few plants so magnificent or more easily bloomed than *R. arboreum* and its various types and hybrids. And these contrasted with the more dwarf and delicately coloured or white species or varieties are wonderfully brilliant and effective.

My first and finest plants of *Rhododendron arboreum* were flanked every Christmastide for many years with large specimens of the white Indian *Azalea*, but, of course, the white and fragrant *Rhododendrons* now so plentiful would form far more telling contrasts. This *Rhododendron arboreum* was the centrepiece of a lofty conservatory for many years; it may be so still, for the last time I saw it was still in robust health, and seldom yielded fewer than two of its magnificent trusses. It was seldom shifted, but it was top-dressed annually with about 2 inches of peat and thoroughly rotted cow manure. It seemed unnatural food for *Rhododendrons*, but nevertheless it suited this huge plant well, and preserved the leaves in robust vigour as well as produced a yearly display of bloom of abnormal size and brilliancy of colour. CALEDONICUS.

Camellia Mathotiana alba.—Of white flowered *Camellias*, the old double white (*alba plena*) is usually grown almost to the exclusion of any other variety, and where the flowers are required as early as possible, I know of no better kind. Still, where a succession is needed, a note should be made of this, as the flowers are pure white and it is altogether later in blooming than the common kind. *C. Mathotiana alba* is a free, vigorous-growing variety, with very deep green leaves, thick in texture and of a somewhat rounded form. From a foliage point of view, it is one of the finest of the *Camellias*, which cannot be said of the common white, and it also appears to be more easily grown.—T.

Rondeletia amœna.—This is one of those subjects that though grown for a long time at Kew never seems to have become well known. By a few nurserymen it is kept in stock, but is never seen to such advantage as in the case of large plants having vigorous shoots, as then the flowers are borne in massive clusters. The blossoms are pale pink or blush-coloured, with a quantity of yellow hairs in the middle, which thus form a golden centre. The oblong-shaped leaves are larger than those of the commonly cultivated members of the genus, and it forms altogether a bolder-growing shrub. By some this species is included in the genus *Rogiera*, rendered familiar to us by that beautiful flowering greenhouse shrub *Rogiera gratissima*. *R. amœna* is of easy propagation and culture.—T.

Centropogon Lucyanus.—I was glad to see this plant noticed (p. 274), as it does not appear to be at all well known or much cultivated, although it is one of the most useful winter-flowering things anyone can have. Besides being well adapted for pot culture, it is also equally suited for baskets, as its habit is naturally somewhat pendent, and when

suspended the brilliant flowers show off to advantage. The plant admits of ready propagation both by cuttings and division, but when cuttings are taken off it is necessary for them to lie and dry a little, as they exude much milky sap, and if put in immediately they are taken off, they are apt to decay at the base. The pot plants are cut down nearly to the crowns, and as soon as they break they are shaken out and divided, if we wish an increase of stock. Although a stove subject, *Centropogon Lucyanus* grows well in any ordinary pit or frame during the summer if shut up early in the afternoon, but in winter it requires rather a brisk temperature to have it in the highest perfection. The soil most suitable to grow the plants in is a mixture of loam and peat in about equal parts with just enough sand to keep it open and porous. Excepting green-fly, which now and then affects the flowers just before they open or when in the bud, I have never seen any insect on this *Centropogon*. It is very easily cultivated, and well worthy of extended cultivation.—S. D.

CYCLAMENS.

THE capacity of this popular winter-blooming plant to stand a heated, gaseous atmosphere where dust is prevalent and in the daytime light is of the dullest, was admirably exemplified at the close of the recent show at the Royal Aquarium, as also at the two days' show in January last. No finer collections of *Cyclamens* were to be seen anywhere than were presented at the two exhibitions in question by, as it happened, totally diverse growers, as neither of those who exhibited so finely in January put in an appearance at the recent show. At the first show, Messrs. Clarke, of Hounslow, and May, of Twickenham, were unapproachable. At the late show the finest plants, and in almost immense numbers, came from the St. George's Company, Hanwell, and Mr. Odell, Hillingdon, thus showing that for some inscrutable reason or other West Middlesex carries the palm for *Cyclamens* at our exhibitions, and probably also in the market. Even the fine plants from Langley were grown in the same air, being but just over the Middlesex border. The plants when carted away late on the second day of the show seemed as clean and fresh as ever; indeed the immunity from dust in such a building was remarkable, as I found *Primroses* to be still wonderfully fresh and clean—an altogether unlooked for result. So far as I have seen efforts to grow *Cyclamens* in private gardens, I have found the best results when a small span house has been set apart specially for their culture. Where of necessity compelled to be grown amidst other plants, the result rarely has proved satisfactory. Those who would strive to grow *Cyclamens* well should carefully note the methods of culture adopted in the market nurseries specially devoted to them, and also the kind of structures in which reared. It is of the first moment when some 10,000 plants have to be grown annually that the culture should be of the best. All the same, the structures in which *Cyclamens* are so well done are not pretentious buildings; they are usually low spans, with only the doors and top flaps for ventilation. Some have trellis staging, some flat boards or slates, or crushed shell or shingle floors on which to stand the plants. The chief elements of culture are found in the securing of good seeds of the best strains, sowing at the proper time, usually August and September for succession, keeping the plants constantly on the move without unduly exciting them, and always clean and in sweet loamy soil. The size of the pots should never be too large. It is best to have too small pots than too large ones, with proper drainage and due attendance to watering as needed.

The *Cyclamen* is not a telling exhibition plant as ordinarily staged. It is of a somewhat compact and almost lumpy habit, and sadly wants some assistance from dwarf Ferns or *Selaginellas* to give a green base. The ordinary dead level seen in a bank of *Cyclamens* materially detracts from the beauty which the plants should otherwise produce. Set up in clusters of colours, the effect would be much more striking than is now seen when plants are dotted indiscriminately without taste or judgment. A. D.

Witsenia corymbosa.—This is a beautiful old plant from the Cape of Good Hope. It used to be grown largely many years ago, but now it is seldom to be seen in any garden. I therefore feel great interest and love for a place where I can see these old plants are cared for, and it leads me to hope that I shall again see them become popular. It belongs to the natural order *Iridaceæ*. The flowers, which are very freely produced in dense corymbs, are of a beautiful light almost azure blue. It is very easily grown. The pots should be well drained, and the soil should consist of good peat and leaf-mould, mixed with a little loam. It requires an abundance of water; hence the necessity of good drainage. It was recently very fine in Mr. Smee's garden.—G.

Variegated Aralia Sieboldi.—There are two very distinct forms of this beautiful variegated *Aralia*, by far the best being the one in which the foliage is more or less irregularly marked with white, the variegation in some instances running for a little distance along the margin of a leaf, and then extending here and there into the leaf itself. In this the variegation is well defined, even when the leaves are quite young, and it is retained throughout all stages of growth. The other variety has the usual dark green surface of the leaf broken up by irregular patches towards the edges of pale yellowish green when the foliage is first expanded, but as it matures the variegated portion becomes of a more decided yellow tint. It appears also to be a looser grower than the white variegated form, which, next to the *Aspidistra*, is the best variegated foliage plant we have for the dwelling-house.—T.

Thunbergia Harrisii.—This *Thunbergia* is a beautiful plant for draping the roof, pillars, &c., of a large stove, such as the Palm house at Kew, from whence the specimen figured in THE GARDEN, Sept. 25, 1886, was obtained. Though generally known as *T. Harrisii*, it is regarded as the same as *T. laurifolia*, which is certainly a very appropriate name, as the bright shining green leaves are *Laurel*-like in appearance. Given ample space for its full development, this *Thunbergia* will produce its clusters of large mauve-purple-coloured blossoms in great profusion, and the flowering season will be extended over a considerable period. The plant should not be kept in pots, but planted out, and treated in this way it gives little trouble, except in watering when necessary and a good syringing occasionally. It is a stock plant in most nurseries, yet it is very seldom seen, and I have several times heard it spoken of as shy flowering, when in reality, if allowed sufficient space, it is just the reverse. No doubt the reputation of being shy blooming has originated from the mistake so often made of planting strong growing climbers where there is no room for them, and consequently the plant has to be continually cut back to keep it within bounds, the result being that flowers are very sparingly produced. I recently saw a good illustration of this. A small structure was draped with this *Thunbergia* and *Batatas paniculata*, neither of which were, as can be imagined, at all in a satisfactory condition from the trimming they were obliged to undergo to keep them within bounds.—H. P.

Veltheimia viridifolia.—This old Cape bulb is now flowering in great beauty in a greenhouse in Mr. Smee's garden. It belongs to the *Liliaceæ*, and has been in cultivation over a century. It is one of those old plants which few people know, and few care for it; but here in Mr. Smee's garden are to be found many old and curious plants, which have

been quietly shelved in the rush for bedding plants. This *Veltheimia* is tolerably hardy and it makes a fine window plant, its long reddish-purple, tubular flowers being very handsome. It, like many more of the Cape bulbs, does not like frequent shifting. Potted in good sandy loam, it may be left alone for years, provided the drainage is all right.—G.

STRELITZIA REGINÆ.

EXCEPT in our old-established gardens this plant is but rarely met with, and to the younger generation of gardeners is not well known. It was introduced from the Cape of Good Hope to Kew by Sir Joseph Banks in 1773, and its first flowers appear to have created quite a sensation, which one can well understand, considering the brilliant colouring and curious structure of the blooms, and the then comparatively unknown state of the exotic flora. An excellent figure is given in the early pages of the *Botanical Magazine* (t. 119). This plant belongs to the same family as the *Canna*, and produces the flowers from the top of a stout fleshy scape a yard high. The three sepals are of the brightest orange, about 4 inches long, the two upper ones standing erect. The petals are strangely modified; two of them are united on the inside, and together form a remarkable pointed half-bird-shaped organ, in the centre of which the stamens are enclosed; the third is small and hood-shaped, all three being of a rich bright purple. On account of a fanciful resemblance to a bird's head and the gorgeous colouring, this has been termed the "Bird of Paradise Flower." The plant itself is of handsome and striking proportions, the leaves being large and oblong, on stems 2 feet to 3 feet long, springing from an underground rhizome. It requires a warm greenhouse temperature, thriving much better in this than in a stove. It likes ample pot room and should have a compost of turfy loam, peat and silver sand, with abundance of water and little shade. In Mr. Hanbury's garden near Mentone, the *Villa Valetta* at Cannes, and in the Casino Garden at Monte Carlo I saw fine specimens last autumn planted out in the open, and in perfect health, bristling with flower-spikes. It may now be seen flowering at Kew. Our illustration gives an excellent idea of the noble appearance of *Strelitzia Nicolai*, which although common in many Continental gardens is very rarely to be met with in this country. B.

Neumannia nigra.—This plant belongs to a genus containing half a dozen or more species, most of them of great beauty; but this one is especially so, being both beautiful and showy. Its leaves are deep green on the upper side, slightly glaucous beneath; they are from 9 inches to 12 inches long, and taper to a sharp point. The whole plant is totally unarmed, rises upon a short, slender stem, and bears an inflorescence which is erect and as long or longer than the leaves, and is composed of rich, coral-red, sheathing bracts, from which the flowers, of a very dark purplish shade, appear. Baker classes it as a sub-genus of

Pitcairnia, and he says that it is a native of Colombia and the Amazon valley, having been introduced by Linden about twenty years ago.

HIPPEASTRUMS AT CHELSEA.

THE *Amaryllis* house in the nurseries of Messrs. J. Veitch and Sons, Chelsea, is once again the home of a remarkable exhibition of a flower, which, through a modern creation in the form we now see it, has become firmly established in English gardens. Each year this annual show increases in interest, as Mr. Heal, to whom we owe more than any man for the present perfection of the flower, brings to light by his skilful hybridising new shades of colour, a more perfect expression in the character of the bloom, and a finer range of varieties. The house in which the bulbs are grown and ex-



A handsome *Strelitzia* (S. Nicolai).

hibited has been often described, so that it is unnecessary to refer to it here, but a slight departure in arranging the plants along the sides as well as in the central bed has made the show less formal and brighter, if such a thing were possible. From the time the first bud expands until the last bloom has faded several thousand spikes have contributed to the display, and there is no artistic grouping or seeking after mere effect in the arrangements, but simply a mass of colour to greet the vision. This year the plants are finer than in any previous season, the stems are stronger and straighter, the foliage more robust, and, of course, we have to welcome new colours, which show that improvement is still going on, though we thought this impossible. To those who have not yet grown the

Amaryllis, we can only say that much interest in the plant house in early spring is lost. The plants standing alone have a certain formality that is scarcely prepossessing, but grouped with Fern or foliage plants rich effects are obtained at little outlay of time or labour. The *Amaryllis* is easily grown, being one of those bulbous flowers that a little care will bring to full beauty, and comparatively little artificial heat is needed. Messrs. Veitch use this very moderately, just sufficient to maintain a buoyant atmosphere and drive away frosts. In the middle of January the bulbs are potted, half their depth, in soil composed of turfy loam, well decayed cow manure, and silver sand. Then the pots are plunged in tan, and there the plants remain. From the time they are plunged until the flowering season the great point is to attend carefully to the watering, and give a little bottom-heat at the end of February. After the flowers have faded the bulbs are kept growing, given plenty of air, and only screened from the fierce summer sun. It is, of course, of great importance to well ripen the bulbs, which receive no water from the middle of August until the end of the following February.

This is the brief outline of the cultivation of this noble flower, which we see in its finest possible phase at Chelsea. Although each exhibition bears a similarity to the preceding, the *Hippeastrum* fanciers, who watch keenly the development of the flower, will become more enthusiastic as new varieties are produced. The biggest variety of the present year, and we believe the largest flower ever raised, is *The Champion*, which was exhibited recently at the Drill Hall, Westminster, as the latest triumph in the *Hippeastrum*, and compared with the types which have given rise to the present race, it is an example of the astonishing perseverance and success of the hybridist. The species that have given the finest results by intercrossing them are the charming *reticulata*, itself a type that should be well grown, *vittata*, *Leopoldi*, and *brasiliensis*, and we owe the present race to *Leopoldi*, crossed with the still useful *Empress of India*, itself a hybrid, and long since surpassed in colour and breadth of segment. A brief summary of its history and culture will be found in *THE GARDEN*, March 15 (p. 262). The variety *Champion*, the giant so far of its race, has a flower that measures almost a foot across, the segments broad, massive, and self rich scarlet, with the green bands breaking very little into the body colour. Contrasted with the variety *Dr. Masters*, a model of exquisite symmetry, its dimensions will be more pronounced.

What all will notice with pleasure in the *Hippeastrums* of this year are the gradual obliteration of the green central star, the purifying of the hitherto so-called whites, and the developing of both light coloured flowers and those of rich scarlet or crimson shades. To give many names would be wearisome, but a few must be instanced as an illustration of our remarks. Each day, however, sees the opening of some flower new in colour, or a variety finer in shape than another, or with some other qualification to entitle it to a good place, so that it is impossible to describe this or that as the best when any day might bring to light something far better. But the gem of the collection at the time of our visit was *Illuminator*, a rich scarlet-crimson colour, absolutely self, and with the fine smooth petals covered with a lustrous tint as if polished, a peculiar satiny shade that reflects the sunlight and adds brilliancy to the flower. It is this class of flower that is now obtained, another in the same way being *Olivette*, but this is lighter, and therefore loses in brilliancy. *Lucrece* is also a bright scarlet, the flower of moderate size and very handsome. *Faust* is a splendid rich crimson, with an almost white band extending down the greater portion of each segment, the centre green. *Esmonde* is bright scarlet, veined with a deeper colour, and carrying a sturdy spike. We have a dwarf and not undesirable habit in *Der Kaiser*, a bold flower of great breadth and scarlet in colour. Another departure as regards tint is seen in *Credo*, in which there is a brilliant rose-carmine shade, that we

hope will be encouraged in the flowers. A pure rose or pink variety would be a treasure of no small value, but it has yet to be obtained, also a self yellow and a blue. It is never safe to prophecy when each season brings something novel, but as yet the prospect of either of the above is exceedingly remote. *Cephalus* is a good scarlet, and *Clothilde* a pretty light scarlet-coloured flower. A perfectly shaped flower—at least as obtained so far—is *Fielding*, and a rival to *Dr. Masters*. The colour is rich crimson and the flower of medium size, but so beautifully shaped as to make us wish for more such types, especially as it has the same shimmering lustre that distinguishes *Illuminator*. *Magnificat*, rich rose, broadly banded down the centre with white, is also a new variety of rich beauty.

All the kinds mentioned are of some shade of crimson or scarlet, but we must mention a few of the light coloured flowers, as it is these that have undergone the most marked improvement the last two or three seasons. *Desdemona* is one of this class. It is a beautiful variety, carrying a spike of four flowers, each almost clear white, feathered with scarlet. *Eros* is a good flower of a similar shade, and very pure in its white is *Dorothy*, purity the of the colour bringing out the feathering of red. A striking light-coloured flower is *The Czarina*; the broad segments are rich red, but there is a deep margin of white—a splendid contrast. Of the older varieties, *Her Majesty* stands amongst the best of the light flowers, and it will be hard to eclipse the beauty of *Finette*, white, finely feathered with red; while we have also amongst those raised some time ago such distinct types as *John Heal*, one of the best of the *Leopoldi* character; *Adolphus Kent*, rich crimson; and *Splendend*, which is more of a maroon-crimson, and illustrated by a coloured plate in *THE GARDEN*, Sept. 17, 1887.

SHORT NOTES.—STOVE AND GREENHOUSE.

Chinese Primula Waltham White is a beautiful flower, white, exceedingly fine, and very striking when the plants are grouped together as we saw them recently in a house in Messrs. Wm. Paul & Son's nursery at Waltham Cross. It is not a new variety, but far finer than many of the new kinds, possessing an unusual freedom, beauty, and vigour.

Carnation Mme. C. Warocque is a variety of the *Malmaison* type, and from plants of it in the nursery of Messrs. Laing and Sons, Forest Hill, it appears to be a decidedly useful variety. The plant is robust, very free, and the flowers, individually of average size, are rich scarlet, with the centre of each of the segments greyish-white. It should become popular for greenhouses.

Acacia cordata is a fine old plant now flowering in one of the greenhouses in Mr. Smee's garden. It is a slender-growing species, producing long racemes of its very pale, straw-coloured, globular flowers, which contrast well with the many yellow-flowered kinds surrounding it. It is a great pity we have lost so many species of this genus.—G.

Pepinia aphelandraeflora.—In this plant we have an example of a *Bromeliad* which has somewhat the appearance of a small *Pandanus*, rising upon a slender stem 6 inches or a foot high; leaves 6 inches or 9 inches long and rich deep green. The flowers, congregated into a dense terminal raceme, are tubular, some 2 inches or more long, bright coral-red, the stamens, which are exerted, being yellow. It is a plant which was grown largely at the Victoria Nursery at Holloway, having been a great favourite of Mr. Williams, who obtained it, I believe, from M. Linden in 1868. It comes from the Amazon valley.—G.

Grevilleas.—These plants in several kinds are now very fine in Mr. Smee's garden; they belong to the order *Proteaceae*, an order which has been put on one side by the fashionable plant world, but which contains many splendid ornamental-leaved as well as beautiful flowered varieties. It is true a few of the kinds are ugly and somewhat objectionable, but that is no reason why they should be discarded. The kinds which are conspicuous in Mr. Smee's garden have all small leaves, the most showy being *G. rosmarinifolia*, with its clusters of orange-coloured blooms, and *G. Preissi*. This last-named species is a very elegant one, the rich colours of its flowers, backed by the deep green of

its leaves, forming a beautiful contrast. In its native country, which is Western and South-western Australia, it is said to attain a height of between 4 feet and 5 feet, forming a dense shrub with a spreading habit. The flowers are yellow, red, and pink. Other free-flowering and showy species are *G. alpestris*, with flowers of a brick-red and yellow hue; *G. macrostylis*, the flowers somewhat large, red and yellow; *G. mucronata*, a small, neat-growing species, with pink flowers; *G. concinna*, with simple leaves and purple flowers; *G. fasciculata*, a somewhat erect-growing plant, with red and yellow flowers.—W. H. G.

THE WEEK'S WORK.

PLANT HOUSES.

WINTER-FLOWERING PLANTS.—The various kinds of plants that are propagated annually for winter-blooming, such as *Thysacanthus rutilans*, *Plumbago rosea*, *Sericographis Ghiesbreghtii*, the *Eranthemums*, *Salvias*, &c., cuttings of which were struck a short time back, should have attention as they require it. Free-rooting things of this description should never be allowed to stand unnecessarily long in the cutting pots, as when the roots extend much they get matted together in a way that makes it difficult to separate them without injury. Quick growers of this character may be put at once into 4-inch pots. Give them rich soil, with some leaf-mould added to it in addition to rotten manure. Attend to stopping early, and such as require it may have the tops pinched out at the time they are potted. The earliest struck batch will soon be ready for moving into larger pots. All that need it should be again stopped. When this operation is deferred too long, the loss of the bottom leaves usually takes place before the plants bloom. Keep all stock of this description well up to the light to prevent their becoming drawn, and give them sufficient warmth to keep them moving freely until there is enough sun-heat. Any further propagating that is necessary of plants of this description should be brought to a close without delay.

GLOXINIAS.—Seedlings that are large enough should be immediately put into small pots, as if allowed to stand in the seed-pans until they become crowded the leaves get drawn. Stand them, if possible, as near the glass as they can be got, as there are no plants that require more light to keep them sturdy and vigorous.

EUCCHARIS.—Like many bulbous plants, the different kinds of *Eucharis* are better if not disturbed so long as the growth does not suffer. Where the stock is healthy and in full vigour the increase is rapid, so that it becomes needful to divide or break up the specimens. It is generally best to get all the soil away, as by this means the whole can be renewed. All the largest bulbs should be put in pots by themselves, following a similar course with the smaller ones. Make the soil firm in the pots, and water very carefully for a short time after potting until the roots have begun to move. *Eucharises* will now need to be carefully shaded, and will be all the better for a position further away from the glass than most plants require. Syringe freely overhead once a day.

PANCRATIUM FRAGRANS.—This is far the best of the *Pancratiums*, and should be grown in quantity wherever bouquets are much in demand. With sufficient stock a succession of bloom may be had over a good part of the year, but the plants must be treated somewhat differently in the matter of heat. Those that are intended to flower first should now be in a warm stove temperature, where they can have plenty of light with enough shade to prevent the leaves having a yellow, sickly hue. If the plants are at all underpotted, give a little manure water occasionally. Any that need more room should be potted. They may either be grown singly or several together, and provided the bulbs do not get overcrowded the latter is quite as good a course to follow, as more flowers are obtained from the space occupied. See that the drainage is sufficient.

HYMENOCALLIS.—Most of the kinds of *Hymeno-*

callis thrive under similar treatment to that which answers for the *Pancratium*, to which they are very closely allied. Their white, elegantly-shaped flowers have a chaste appearance, especially when the plants are large and strong, and capable of producing a quantity of bloom. Two or three of the large heads cut with the whole of the stems attached and arranged in a large vase with a few suitable Ferns have a noble effect.

CRINUMS.—Plants that were kept comparatively dry at the roots through the winter and have had the soil well moistened a short time ago will now begin to move. Any that require more room should be potted. Collectively the *Crinums* are much larger growers than the *Pancratiums* and want more room. At the same time it is not well to overdo them in this matter. Good yellow loam moderately close in texture suits these plants, enough sand being added to ensure the water passing freely through it. In potting, make the material solid, and keep the bulbs well up above the surface. The long straggling leaves which most of the species make are somewhat objectionable. Give the plants a light position, and no more shade than necessary to prevent the foliage getting injured.

GREENHOUSE.—PRIMULAS, SINGLE VARIETIES.—It is now time to sow seeds of those Chinese *Primulas* that are intended to bloom about the end of the year. By making a second sowing towards the end of May there will be no difficulty in keeping up a succession of bloom through the winter and spring. Those who do not save their own seed should see that they get seed of a thoroughly good strain. In this there is now little difficulty. The first essential in raising these plants is to sow in soil that is of a free light character, so that when the time comes for pricking off the seedlings they can be moved without injury to their roots, such as is unavoidable when heavy material is used. Free loam passed through a fine sieve, with some leaf mould also sifted, and sand, is the best mixture to use. Either large seed-pans or shallow boxes will answer for sowing in. Drain and fill them with the soil, which press down so as to make the surface smooth. Give a slight watering to fill up the space so that the seed may not get too deep in the material. Sow thinly, as if the plants have not plenty of room they get drawn before they are large enough to prick off. If the seeds are pressed down slightly into the soil there will be no necessity for any over them. Cover the pans with sheets of thin white paper until the seed germinates. Immediately the little plants appear remove the paper, shade from the sun, but let them have plenty of light.

PRIMULAS, SEMI-DOUBLE VARIETIES.—The flowers of these last much longer when cut. Seed of a good strain will produce plants fairly true to their character. These semi-double sorts have the additional merit of succeeding with the same treatment that answers for the single varieties, whereas the double kinds must have more warmth.

AZALEAS.—As the plants that have been forced go out of bloom, the seed-pods should be immediately picked off. If allowed to remain for only a week or two after the flowering is over, more of the strength of the plants is wasted than is generally supposed. To do justice to them as soon as they have bloomed they should at once be put into a genial temperature of about 50° by night. See that they are free from thrips. Syringe overhead once a day and keep the soil fairly moist. Any that require potting will have their roots in right condition for carrying out the work in about a month after the flowering is over. T. B.

Potato planting is the work that takes precedence of all others on fine days, and a great deal of land has been planted. No crop that is cultivated gets more labour expended on it than the Potato. The land is ploughed two or three times, so as to get it into the requisite friable condition, and when a few fine days dry the surface the manure is spread on the ground, and planting is pushed on as quickly as possible. A deep furrow is thrown out, then men or boys follow and lay the sets at even distances apart, according to the

growth of the variety. The furrow that has been thrown out is then returned over the sets, and another in the opposite direction, making a ridge of soil over the sets. This does away with any necessity for moulding up the rows; a light wooden roller is run over the tops of the ridges, and all is complete. The crops grown in this way are very fine. In this locality early varieties, such as white and pink Beauty of Hebron, are the greatest favourites, as they can be cleared off and the ground set at liberty for midsummer cropping.—HANTS.

KITCHEN GARDEN.

SOWING ASPARAGUS SEED.—Home-raised plants are the best, for the simple reason that they can be transplanted, if need be, with much less injury than is the case when they have to be brought from a distance. The plan of sowing the seeds where the plants are to grow permanently is a good one, and might with advantage be more often tried than it is. Especially is it to be commended for somewhat heavy soils, as there is then less danger of the crowns becoming too deeply buried. Good profitable beds have in several instances I could mention been obtained by simply sowing the seed, on ground trenched and manured to a good depth, or much as quarters are sometimes prepared for Onions, but it must be added there was little or no heavy clay in the composition of the soil. Thus grown on the level the drills should be drawn about 30 inches apart, the plants being eventually thinned out to about 18 inches apart—more space being allowed if extra fine produce is wished for. Seed may also be sown on well prepared raised beds. If a stock of plants is to be raised for the purpose of transplanting elsewhere, the drills may be from 12 inches to 15 inches apart. The surface in every case ought to be well prepared for the reception of the seed, the latter being sown now and thinly.

TRANSPLANTING ASPARAGUS.—The ground being fairly light and in good condition, Asparagus may well be permanently planted now, but in wet cold positions, and there are such where it must be grown somehow, the transplanting had better be deferred to the first favourable opportunity in May. It is an important operation, and ought not to be hurried over. It is scarcely possible to lift the crowns without losing or breaking some of the roots, but if the replanting is done before the latter are dried up by wind and sunshine, even the broken roots will form fresh fibres, and from the crowns will spring other stout healthy roots. The sites for the beds ought to have been properly prepared ere this, but it is not yet too late to commence, especially if the soil is naturally free working. A finely divided surface is indispensable, even if this entails bringing the bulk of it from the frame ground. Make this fairly firm and plant or sow before it becomes saturated by rain. Three rows of plants may be put out on raised beds from 5 feet to 6 feet wide, the two outer ones being not less than 12 inches from the edge, while for narrow beds 3 feet, or rather more, in width, two rows are ample, the distance apart in the rows in each instance being from 15 inches to 18 inches. Where the method of growing on the flat is adopted the rows may be from 30 inches to 4 feet apart, a distance of 18 inches to 2 feet dividing them in the rows. Very fine produce is grown in this way, the plan also admitting of moulding up when blanched stems are preferred. The crowns should rest on small hillocks, the roots being spread out evenly all round and covered with about 2 inches of fine soil, when all ought to be smoothed over. Other crops may be grown in the alleys between raised beds and the wide spaces between the rows on level plantations.

ASPARAGUS FOR FORCING.—Asparagus that has been lifted and forced is of no further value to the grower. Turning the roots out into the open does not absolutely kill them, but they cannot be recovered so quickly, as young plants may grow into a serviceable size. The most general plan is to break up the oldest bed every season for the purpose of procuring a sufficiency of strong roots for forcing, this naturally entailing the necessity of

also planting or sowing a fresh bed every spring. Forced Asparagus is always highly appreciated by those fortunate enough to get it, but it is not always wise to break up beds which perhaps are in their prime in order to force the crowns. Nor is this possible, or at any rate often done when the Asparagus is grown on the level or French system. The easiest way out of the difficulty is to raise a number of plants every season, especially for forcing, or better still form permanent borders with brick pigeon-holed sides, as described on p. 250. The former plan is perhaps most within the reach of the majority of growers, and consists simply in properly planting several hundred young plants where they are to remain one, two, or three seasons, that is to say, till they are strong enough for forcing. An open, but not very bleak position ought to be chosen, the plants being put out 12 inches apart in rows 2 feet asunder. If duly mulched with strawy manure, given water in a dry season, and lightly staked if need be, all will grow rapidly and well repay for the trouble taken with them.

PROTECTING ASPARAGUS.—Just when the first shoots are peeping through the surface we not unfrequently experience a rather sharp frost, their loss being the consequence. Those with their crowns very near to the surface are especially liable to be caught in this way, and these ought in any case to have a mulching of very light compost, or failing this, either leaf soil, spent tan, fine peat, or old Mushroom-bed manure, a general mixture answering well. This extra covering, in addition to preserving the young shoots from frost, will also be the means of improving the length of blanched stem and its value accordingly. The least that can be done is to well mould over those clumps grown at a good distance apart, while the beds generally may with advantage receive a loose covering of strawy litter.

GLOBE ARTICHOKE.—These have been badly crippled during the winter, but most of the clumps have survived and are now growing strongly. The loss of the strongest crowns means a late and poor crop, the smaller shoots failing to push up flowering stems till they have gained considerably in strength. In most instances the clumps would have been heavily banked up with either strawy manure or ashes. These left any longer about them will do much more harm than good, but at the same time the half-blanched crowns must not be recklessly exposed to all weathers. We may yet have more severe frosts, and in anticipation of these it is advisable to have some light strawy litter in readiness to throw loosely over them. Where ashes were used these ought to be wheeled away; but not so the manure. These Artichokes are gross-feeding subjects, and should therefore be freely manured every spring. First well bare the clumps down to the surface roots, and after the crowns have been duly thinned out to about three or four in number, the roots ought to be heavily covered with manure prior to returning the soil into its original position. This dressing of manure should not hug the crowns, but out to spread out well into the spaces between the rows, this being where most of the feeding roots are located.

FORMING FRESH ARTICHOKE PLANTATIONS.—Unless the heads are large, fresh and succulent, they are of little value on the dining-table, and only vigorous young plants are calculated to produce these in abundance. Only under exceptionally favourable conditions will Artichokes remain in a profitable state more than four or five years, and the proper course to pursue is to destroy a few or many old stools, according to the extent of the stock, and replant an equal number of young ones every spring, the present time being most suitable. The Green Globe forms are the best, these, however, varying considerably in size and quality. The Purple Globe, however, is not to be despised if grown well. Being, as before stated, gross feeders, it is a very difficult matter to grow them on shallow hot ground, and what they require is a deeply dug site, with solid manure freely mixed with both top and bottom spits. They must also have good room, the stations for the group of suckers being either 3 feet apart each way, or the rows may be 4 feet

apart and the groups 2 feet apart in the rows. Divisions partially rooted and suitable for planting may be slipped off the old stools, those with the most brittle stems being the best. Plant them rather deeply, without however burying the hearts, in groups of three, not too close together, and take good care to well surround them with fine soil, bringing this from the frame ground if the ordinary ground is lumpy. In dry weather they ought to be watered and a mulching of strawy manure will also be necessary. W. I.

FRUITS UNDER GLASS.

FIGS IN POTS.—If all has gone well, the fruit, apparently stationary for the past month, will now show signs of swelling to maturity, and the sun having gained considerably in power, one of the most important points will be careful, yet abundant watering. Clarified liquid well diluted, soot, and guano water at a temperature of 70° to 80° may be given freely and alternately, and the syringe for the present must be vigorously used to ensure freedom from spider when the Figs are ripening. Rich top-dressing, too, made up some weeks ago, will play an important part, as the second crop of fruit on many of the early pinched shoots will now be making good progress. Sun and light being so essential to colour and flavour, remove all superfluous and useless spray, pinch late growths previously left to gain strength, and tie out the fruit-bearing shoots where necessary. Ventilate freely through the early part of the day, but shut up sharp with sun-heat, as the Fig revels in a temperature equal to that usually given to Muscat Grapes and Pine-apples.

SUCCESSIONS.—Where old established trees are grown upon the pinching principle, take the points out of the strongest shoots when they have made five or six leaves, and follow up this operation until July, when all second growths must be left to ripen. Mulch weak and heavily cropped trees with good materials and give the roots plenty of warm liquid, but whilst supplying an abundance of root-moisture, avoid over-stimulating all trees showing a tendency to grossness.

LATE TREES in cold houses and wall cases will now be on the move, and although it will not be wise to push them too fast, a taste of fire-heat may prove advantageous when nights are cold and frosty. Having been kept very dry through the winter, give repeated waterings with tepid water until the borders are thoroughly moistened. Admit plenty of air on mild days, but shut up with a rise from sun-heat in preference to having frequent recourse to night firing.

PLUMS AND CHERRIES.—Calendar space being limited, these fruits for the present may come under one head, as their treatment through the earlier stages is identical. Being so subject to aphids, the fumigator must be frequently used at all times when the trees are not in flower, and the syringe, as a matter of course, will play an important part in promoting healthy vigour and keeping down spider. Highly impatient of close confinement and a high temperature, the trees must have an abundance of fresh air, not only by day, but also through the night, when the temperature may range about 45° as the minimum, with a rise to 60° or 65° with full ventilation. Discontinue direct syringing when the trees are in flower, fertilise when the pollen is ripe, and warm the pipes to prevent condensation of moisture upon the delicate petals. Give trees in pots plenty of water, top-dress and feed with warm liquid when the fruit is swelling; thin the Plums with Grape scissors, but defer this operation upon Cherries, as fruits apparently well set sometimes drop when nearly ready for stoning.

PEACHES.—Follow up disbudding, pinching, and tying down in early houses, and maintain a very steady temperature ranging from 56° to 60° by night, 70° to 75° with air on fine days until the fruit has finished stoning. Syringe well and see that the roots have plenty of tepid water. When the fruit begins to swell away make the final thinning, leaving as many Peaches as there are square feet of foliage, and rather more of Nectarines. If early maturity is an object, the temperature may

touch 80° on fine afternoons, but flavour and size being the test, there should be a gradual decline to 65° at night and 60° at daylight.

MIDSEASON HOUSES in which the fruit is set must be fumigated for fly and copiously syringed to keep down spider. Follow up disbudding, heeling in and thinning, and take advantage of sun heat by closing in time to catch the temperature at 70°. Always give a chink of air along the front throughout the night, and in order to secure the finest quality, let 50° to 56° be the figures in the morning.

LATE HOUSES may have full air by day and a liberal circulation through the night, with gentle fire-heat to prevent the temperature from descending below 40°. If not already rubbed off, remove all the pendent flowers by drawing the finger down the under sides of the shoots, and fertilise those left pistil upwards. The mode of performing this operation is entirely a matter of taste, as healthy trees set a profusion of fruit, although never touched by brush or spray from the syringe.

THE ORCHARD HOUSE.—Where the very early varieties are forced the fruit upon some of the

coming into full flower, and the family being made up of Peaches, Plums, Cherries, and Pears, ventilation must be as liberal as outside conditions will allow. Draughts at the same time must be avoided by giving more air on the lee than the windward side of the house, and regulating the volume by keeping the apex ventilators partially closed. Let the trees be regularly watered, but avoid getting them too wet; also syringe the floors, walls, and stems of the trees to prevent the atmosphere from becoming too dry on bright days. Pass the brush over the flowers when pollen is ripe and plentiful, not otherwise, as the delicate organs are often injured by undue irritation from a heavy hand.

W. C.

SWEET PEAS.

THE hardy annual Sweet Pea that twines its slender shoots round many a rustic porch and fills the air with a sweet fragrance is known to all, but the common variety of the cottage garden is different to the beautiful types that have, thanks to Mr. Eckford, of Salop, sprung up

suggests, primrose in colour, distinct in its way, and certainly the nearest approach to a true and effective yellow-flowered Sweet Pea; Purple Prince, maroon and purple-blue; Empress of India, rose-purple and white; and Countess of Radnor, the standards mauve, and the wings of a paler shade of the same colour, are all good varieties, and with just the same characteristics as the old kinds. In the raising of these distinctly improved forms Mr. Eckford has not relied upon chance seedlings, but endeavoured to fertilise the best varieties with pollen from others that have some distinctive characteristic likely to produce a novel and beautiful progeny. Thus we have the varieties above-mentioned, which are quite a new departure, and if still improved upon will give us a series of choice hardy flowers for the garden.

As regards the culture of the Sweet Pea, it is unnecessary to say much. Autumn sowing was once strongly recommended, but just as good results are to be had from sowing the seed in pots or boxes in the month of February, and when the plants are about an inch in height, hardening them off, as is usual with things to be planted out, and transferring them to the open in well-prepared soil in April. The plants start away quickly into rapid growth, and are free from the ravages of slugs, which make short work of the tiny seedlings as they appear above the ground. Place the plants moderately thick, and if planted in rows, it will be necessary to put feathery sticks to them to support the growth. If the soil is well manured, incipient pods carefully picked off, and a moderate mulch given if the weather is very dry, a rich profusion of flowers will result from the little timely attention. In the autumn when the plants are giving out, it is a good plan to cut down the growth to about the level of the sticks, so as to promote strength at the bottom of the plants. The seed may, of course, be sown in the open, but the best way is to cultivate Sweet Peas as advised.

There are many positions in the garden that may be made beautiful by this lovely flower, many an untidy corner that wants hiding, and nothing better could be chosen than this hardy annual. It will clamber quickly over a hedge, or of itself make a hedge, that will produce a picture of beauty in the summer months, and supply endless posies of bloom for the house. But if the plants are simply required to cut from, it is best to have a row or more according to the demand in the kitchen garden, so as to leave those flowers that are to give beauty to the dressed parts of the garden untouched. It may seem a too familiar theme to write on, but the Sweet Pea is not used in the many charming ways its freedom of growth and flower and graceful beauty warrant. Nothing can excel the fragrance, the exquisite grace of the plant seen clambering over rustic woodwork, or hiding a hedge beneath its bower of dangling growth, and it is to these uses we should put the Sweet Pea. The annexed illustration speaks for itself. It is a simple vase filled with Sweet Pea flowers, and no one could wish for a daintier ornament for the table.



Flowering sprays of Sweet Peas in a vase.

most forward trees will now be taking the last swelling, and quality being so completely out of the question, the house may be kept warmer than would be good for Peaches intended for eating. Fruit, on the other hand, intended for the palate as well as the eye should be finished in a temperature ranging from 60° at night with air to 75° in the day with full ventilation, and possibly 80° for a short time after shutting up on bright afternoons. If bottom-heat has been applied the pots should be gradually raised to the surface of the bed, as the roots in this position will stand more feeding, whilst the warm air floating amongst them will favour the quality of the fruit. Trees less advanced must be regularly top-dressed and fed with mild stimulants, not in driblets, but in quantities that will penetrate the balls, as the neglect of a single hot day may ruin the work of a season. Syringe well when the temperature begins to rise, and again when the house is closed, and see that the under sides of the leaves are thoroughly moistened. Continue pinching strong laterals at the first or second leaf, and see that the shoots on every part of the trees are properly balanced.

GENERAL HOUSE.—Here the trees will now be

of recent years. The flowers are larger, exhibiting a greater breadth of colour, and just as sweet as the old favourites, and the result of thoughtful and successful hybridising. At several of the summer shows in recent seasons a boxful of Sweet Peas from this raiser has been a conspicuous and welcome exhibit, but, unfortunately, such fragile flowers are not seen in beauty on the exhibition table. They have lost their freshness, and therefore something of those delightful colours which are their great and enduring charm. There are many kinds, and the best known are Butterfly, Invincible Carmine, Invincible Purple, Purple Striped, and Fairy Queen; but some of Mr. Eckford's new introductions overshadow the older favourites. Captain of the Blues is the finest blue variety, the standards of a strong blue shade, the wings paler, and producing a rich contrast of two tints. Very distinct from this, but delightfully soft and delicate in colour, is Mrs. Gladstone, the standards pink and the wings bluish, very pretty. Primrose is, as its name

Acacia lophantha under the greenhouse stage.—It is frequently asked, What is the most suitable furnishing under the front stages of the greenhouse when it is a lean-to? Few plants except Ferns seem to live and thrive away from light, sun and heat, and only a limited number of Ferns and Selaginellas do so. I have tried several (as I like the eye to rest on what is green and handsome always when I go into my greenhouse), but up to the present I have found nothing to compare with *Acacia lophantha*, with its graceful Fern-like foliage. Besides, it is a vigorous grower, and if raised from seed now, previously steeped

in warm water, will give nice furnishing plants in six months. Selaginellas will carpet the ground.—W. J. MURPHY, *Clonmel*.

MARKET GARDEN NOTES.

PEAS.—Although so far the winter has been open and free from long spells of severe weather, yet it has sufficed to show to those market growers of vegetables who, in regard to Peas, sought to take time by the forelock, the folly of sowing so early in the winter as November or December. Some considerable breadths of Sangster's No. 1, the stock first early market Pea, were got in about here at the time mentioned. They came through slowly, but still fairly well, and showed evenly along the rows. The product now is by no means encouraging. Perhaps in the light sandy soils of Surrey the very early sown breadths will stand very well, but in the stiffer and more retentive soil of Middlesex the plants have become stunted. Judging by the appearance now of the February sowings, there can be no doubt but that these latter will not only be as early, but will prove to be altogether more profitable than the November sowings. Even the February sowings have been slow to move this season, but with continued open weather and occasional showers they will soon make rapid headway, and the crops will be good in due season. The latest sowings are now being got in, for very late Peas is not a profitable crop in this district. There seems to be an anticipation that the early sowings will give very simultaneous gatherings, but it is a far cry yet to picking time. Generally, there is every reason to believe that Peas will be a good crop, because the soil has worked so well for the past two months.

POTATOES are being planted in remarkably large breadths. We hear of growers who, besides planting large quantities of their own saved seed, purchase many tons from the northern stocks for a change of seed, and as from this purchased stock, if found to be true, seed is saved for next year, the process of change of seed stock is constantly going on. The favourite method of planting is by using the dibber, following the plough up every third furrow. Women put in the sets, and men, and sometimes the women, follow, chopping in the soil with hoes, and finally a liberal harrowing is given, the surface being thus left level and smooth for the tops to come through in due course. Still the favourite sorts are Beauty of Hebron and Magnum Bonum. Some who have favoured soil grow Ash-leaf Kidney for first early digging, but only on a limited scale. Imperator does not seem to have become a favoured Middlesex Potato, as its quality seems to leave much to be desired. In few vegetables is there slower change than in Potatoes, old friends, which have stood by the growers well, being firmly adhered to.

GREEN CROPS.—These are now rapidly disappearing from the fields, the chief late form being sprouting Broccoli, always largely grown because so hardy, and white Broccoli are held to be too risky for Middlesex, although they have stood very well this year, and to be too long on the ground also. The grower does not care to have any green crop standing after April, as it is of the first importance some summer crop should be taken off, and Broccoli is not only exhausting to the soil, but prevents Peas or Potatoes, the staple summer crops, following. Already large beds of Brussels Sprouts and Autumn Giant Cauliflower plants are well through, seed so far having germinated well, thanks to the admirable condition of the soil. These present the earliest of the winter green crops; indeed, both are sown and got out early that they may give produce from October onwards. Sowings of sprouting Broccoli, Scotch Kale, Cabbage, Coleworts, Savoy, &c., have followed, and there is every prospect of an abundant plant. The repetition yearly of pulse, Potatoes and greens in field culture seems to be the natural outcome of the methods adopted. Vegetables of a more select kind, such as Celery, Carrots, Beetroot, Asparagus, Seakale, &c., can only be grown well with ample manual labour. Out in the fields a great portion of the cultivation is necessarily performed by horses.

RUNNER BEANS become the standard pulse product after the Peas are over. It is largely because of the incoming of these that late Peas are not in great demand; indeed, it seems to be almost always the case that once the public have had a liberal supply of any one vegetable (Potatoes, of course, being excepted), they seem satisfied and care little for late supplies, even if ever so good. Even Runner Beans by September often became a drug, and are sold at prices which can be regarded as ruinously low. Runner Bean seed is after all not so dear as was originally anticipated, good white seed being procurable at about 12s. and scarlet at 15s. per bushel. Sowings are got in at the end of April and early in May usually in rows at 4 feet apart, and not thickly sown in the rows. Brussels Sprouts or Autumn Giant Broccoli plants are dibbled out between the rows, and so far as produce is concerned rarely are better crops seen than a huge breadth of many acres carrying both vegetables. Runner Beans have a fairly good season, but are because so tender apt to have it cut short, as last year, fully a month by exceptionally early sharp frosts, when also the tender Marrows were destroyed. The gap made in the vegetable supply for the time is great. When such is the case the demand for Brussels Sprouts and autumn Cauliflowers is enhanced, but growers would prefer a longer season for the tender vegetables.

SALADINGS do not largely figure as field products. The chief breadth is found in strong Lisbon Onions sown early in the autumn and pulled from February onward. It is not that these Lisbon Onions are so profitable a crop, as the sowing, cleaning, pulling, and bunching entail some considerable labour and cost, but the crop is produced at a time of the year when little else would be growing, and is cleared off in April in time for Potatoes or some summer crop to follow. Lettuces are not largely grown as compared with hardier crops. Plants put out in the autumn have been thinned very much by ravages of slugs and grubs. The best paying crop of Lettuce is usually from a sowing made in frames in November. The plants are strong to dibble out now, and in highly manured soil if saved from the slugs grow very rapidly and turn in well just as the hot weather sets in. Later plantings are so apt to bolt to flower before they heart in that rarely do spring-sown plants prove to be a profitable crop. A. D.

NOTES FROM HYERES.

A FEW years ago this town was one of the most frequented of the health resorts on the French Riviera. Owing, however, to the greater social attractions of Cannes and Nice, its popularity of late years has declined. It is beautifully situated at the foot of the Maurette and Oiseaux Mountains, and is separated from the northern shore of the Mediterranean by a flat plain two miles wide. There are several thriving nurseries near the town devoted chiefly to the production of early flowers and vegetables for the Paris market. There is also a good-sized and well-kept botanic garden—a branch establishment of the Acclimatisation Garden at Paris, which makes this a place of great interest to the northern gardener. The following are a few notes taken during a visit at the latter end of 1889:—

The first sight that greets one on going out of the railway station is an avenue of *Schinus molle*, commonly known as the Pepper Tree. To an English gardener accustomed to the aspect of this plant struggling more or less successfully in a pot, its dimensions and beauty as seen here were simply astonishing. The trees, which average 20 feet in height, are clothed with drooping branches of Gleichenia-like foliage and hundreds of long, pendent, crowded panicles of bright red fruits about the size of peas. Further on, and in the town itself, the streets are planted almost entirely with *Phoenix canariensis* and *P. dactylifera*. Some of these, especially those at the western end of the town, which were planted in 1836, were very fine specimens, with rugged stems and immense heads of foliage towering 50 feet or more high. The

effect of this exclusive use of *Phoenix* is striking, but not altogether pleasing. The unrelieved grey colour of the plume-like foliage is the reverse of cheerful when seen in such masses, and would be greatly improved by the intermixture of other types of vegetation.

On returning to the Acclimatisation Garden, which is near the station, the first item of interest is a collection of *Chamærops humilis*. The great variation apparent in habit, foliage, and fruit was surprising. In some forms the petioles are quite short and the leaves green; in others the petioles are slender and the foliage glaucous, whilst the always abundant fruits vary from bright yellow to brownish red. Seen in fruit this is a distinctly handsome Palm.

The most striking of all the Fan Palms grown in this region is *Washingtonia robusta*. This is really a form of *W. filifera*, a Californian species, introduced to Europe in 1875, from which, in an adult state at least, it differs but little. According to a recent writer in *Garden and Forest*, it has never been discovered growing wild, the plants in cultivation having been detected in a batch of nursery-raised *W. filifera*. The rapidity of its growth in the south of France is almost incredible. Specimens may be seen, with crowns of foliage 15 feet through and stems 2 ft. to 3 ft. in diameter at the base, not more than ten years old. It is not much known in England, although its hardy constitution should render it a useful addition to the greenhouse Palms at present in use. The general aspect in a large state is much like that of *Sabal umbraculifera*. It will not thrive in a stove, and the finest specimens in England are probably those in the temperate house at Kew.

Bamboos form a prominent and beautiful feature of the garden. Their names here, however, are confusing. Frequently plants absolutely alike and growing almost side by side bore different specific names. The yellow-stemmed Bamboo, *B. aurea*, was in very fine condition; the slender stems were 30 feet high, the upper part bearing an arching mass of elegant, light green foliage. *B. Simoni*, which is hardy in England, was 15 feet high, with dark green stems, three-quarters of an inch in diameter. *B. Quilloi* was growing in a mass several feet through; the stems are bright yellow and 25 feet high. *B. vulgaris* and *B. mitis* formed splendid masses 30 feet in height, the stems 3 inches in diameter. Bamboos are here used freely for house decoration. Plants of various species 6 feet or 8 feet high are grown in small tubs, and may be often seen at the entrances to hotels and on the balconies in front of the houses; employed thus, their slender habit and graceful foliage have a very pleasing effect.

The climate of the Riviera appears to exactly suit *Acacias*. It is scarcely possible that they can thrive better in Australia. At the time of my visit only a few flowers were to be seen, but the trees were literally covered from top to bottom with flower buds. *A. longifolia* and its varieties, the beautiful glaucous-leaved *A. cultriformis* and the graceful *A. leprosa* formed trees from 15 feet to 30 feet high. These, with the numerous other species that are grown, must make a glorious picture when in bloom.

Several kinds of *Eucalyptus* were noted, and prominent amongst them was the old *E. globulus*, under the to me unfamiliar aspect of a large timber tree. It has a perfectly smooth stem and the leaves, instead of being glaucous-white and sessile, as usually seen in our small plants, are green, stalked, and lanceolate, a form they always assume as the trees grow old.

The handsomest fruits in the garden were those of the genus *Diospyros*. *D. costata* was a handsome spreading tree, bearing scores of beautiful orange-yellow fruits about the size of Peaches. It is probably a large-fruited variety of *D. Kaki*, a species with yellow fruits about the size of walnuts. *D. Kaki* will grow out of doors in the most favoured parts of this country. *D. Mazeli* (figured in the *Revue Horticole* for 1874) had numerous orange-red fruits, which in the then unripe state have a pleasant, Pear-like flavour. The Loquat (*Erio-*

botrya japonica) was in full bloom; its flowers are small and whitish, and for yards round each plant the air was filled with their sweet, Hawthorn-like fragrance. This and the fresh warmth of the atmosphere made the November morning like one of early June in England.

Some of the plants used to make hedges are rather startling to the northerner. Thus I noticed *Rhynchospermum jasminoides*, *Citrus trifoliata* and *Melaleuca decussata* employed in this way, and they made capital hedges as well as being picturesque. *Solanum jasminoides*, with its corymbs of pure white flowers, was very pretty clambering over a wall. Growing freely on the margin of a pond was *Thalia dealbata*, a handsome leaved plant allied to the Cannas, sometimes grown in tropical aquaria in England, but capable of withstanding much cooler conditions.

Succulent plants were marvellous in number and development. *Cereuses*, *Opuntias* and *Agaves* were such as could never be rivalled even under glass in our climate. *Agave potatorum*, *A. Salmiana*, and *A. Scolymus* were superb, whilst on the sides of roads, banks, &c., *A. americana* appeared to be a troublesome weed. Perhaps the prettiest Cactaceous plant in the garden was *Opuntia microdasys*, a small Mexican species not so easily grown as most others. The flattened, almost circular branches are thickly set with cushions of bright yellow prickles. Here, planted in a rockery, it was in perfect health. *Yuccas*, *Dasyliirions* and *Beaucarneas* were represented by scores of splendid specimens. *Yucca aloifolia* and *Y. filifera* 6 feet to 10 feet high with leaves down to the ground were especially noticeable. These succulent plants must be the most convenient of all that are available for the Riviera garden. Although, like everything else, they require liberal treatment when making their growth, they will not be, in that respect, anything like so exacting as Palms and other free growing plants. Indeed, the endless supplies of water and manure which the latter require during the hot summer form the chief item of labour in these gardens.

That curious giant of the Pokeweed family, *Phytolacca dioica*, luxuriates in one part of the garden. It attains the dimensions of a tree in a very few years if under favourable conditions. The specimen here had a main stem some 6 feet or 8 feet in circumference, with the remarkable protruding swollen base which is, according to published portraits, a characteristic of the species in an adult state. A mass of bright scarlet, which caught the eye a hundred yards away, proved to be the flowers of *Tecoma capensis*. In our greenhouses at home this climbing Bignonaceous plant grows freely, but is very shy flowering as a rule, especially if planted out. Messrs. Low, of Clapton, however, have what appears to be an exceptionally free-flowering form of it. In their houses at Enfield hundreds of dwarf plants in pots may be seen in flower during the autumn. From now until midsummer it should be treated liberally, a strong, vigorous growth being the desideratum; after then the pots should be stood on an ash bed out-of-doors exposed to the full sun, this ripening process being essential for the production of bloom.

Various species of *Pittosporum* appear to occupy the same position in the gardens here as Laurels do at home, being used as screens, block plants, &c. Amongst the numerous other plants grown in greenhouses and even stoves in England, I noticed *Macadamia ternifolia*, *Araucaria excelsa*, the Pomegranate (*Punica granatum*) in fruit, various species of *Aralia*, also numerous examples of the Orange and Citron family. Thousands of Palms of the commoner class, such as *Chamærops humilis*, *C. Fortunei*, and several species of *Phoenix* were planted out in trenches, after the manner of Celery. This system, of course, is an immense advantage for watering during summer. When large enough, these Palms are taken up, established in pots, and sent to Paris and other large towns for furnishing, &c.

The gardener here, like his *confrère* in England, has insect enemies to contend against. Mealy bug appears to be perfectly at home. The stems of some of the Palms in the streets of Hyères supported

populous colonies of them, and frequently Orange trees were met with in a very filthy state. Thrips attack anything for which the climate is too warm. The Portugal Laurel and the *Laurustinus*, through the ravages of these insects, presented quite the appearance of variegated plants. It is only comparatively few species, however, that are thus attacked.

Roses are cultivated in the gardens around Hyères in vast quantities, and all of them appear to be grown on their own roots. In November the young shoots were several inches in length and astonishingly luxuriant; growths as thick as one's little finger might frequently be seen. The method of propagation here practised is somewhat peculiar. Cuttings about 1 foot long are made and laid almost horizontally in the soil, only 2 inches or so is unburied, and no part of the cutting is more than 3 inches below the surface. B.

NOTES OF THE WEEK.

Zygopetalum crinitum.—A spike of this from Mrs. E. C. Ball, Down Lodge, Fairlight, Sussex, bearing seven flowers, reminds us of a useful Orchid, quietly coloured, though interesting.

R. A. Rolfe.—Mr. Rolfe, in writing to us regarding the paragraph about himself in THE GARDEN, March 29, p. 289, says that he has only agreed to furnish the descriptions of some Orchids that are to be figured in the "Lindenia," and that he is not to be co-editor of the above publication.

London County Council and the parks.—Amongst the estimates for the present year is £65,325 for the maintenance of parks and open spaces. The recommendation of the parks and open spaces committee to allow the National Sunday League to place a band on Hampstead Heath on Sundays was carried, after strong opposition.

Thysacanthus rutilans.—This from Mr. Crook, Forde Abbey Gardens, Chard, shows the beauty of a fine old-fashioned flower. The sprays of bloom had been cut from a plant in a 6-inch pot.

—This is one of the brightest winter-blooming plants we have. Its long sprays of rich scarlet blooms, hanging from the top of the shoots down the plant and over the pot, make it quite distinct in character from most other plants. During the past winter I had plants of this in full bloom for several weeks. These were grown in 6-inch pots. The flower spikes when measured were from 3 to 3½ feet long. The plants were grown from cuttings put in the spring previous. —J. C. F.

Cyclamen repandum is a plant we do not remember to have seen for some time, although one of the most charming of all spring flowers. It is, I believe, the plant that was confounded with *C. neapolitanum* under the old name of *C. hederæfolium*, which name, however, is now dropped by botanists, though still in use in gardens exclusively for the autumn-flowering one. *C. repandum* flowers in spring instead of autumn, and another distinction is that the leaves appear before instead of after the flowers. The latter are deep rich rosy purple, larger than those of any of the hardy sorts, and are produced in abundance in March and April, a time when flowers of this class are most welcome. —K.

The Scilly Islands.—Mr. Channing, who, says the *St. James' Gazette*, it seems, is a member of Parliament, is much shocked that Mr. Dorrien-Smith, the owner of the Scilly Islands, should charge a duty upon flowers and shell-fish exported from those islands. Being a Radical, and therefore unaccustomed to making inquiries before bringing charges of extortion and oppression, Mr. Channing probably does not know that were it not for the works undertaken by Mr. Smith and his family there would be very little trade indeed with those islands. Landing-places and other facilities have been provided, and even Mr. Channing would hardly expect Mr. Smith to present out of his own pocket aids to the making of money by other people. An export duty of sixpence a hundredweight upon flowers, and of a penny each upon lobsters, crabs, and crayfish is merely a duty *pour rire*. Nobody is hurt by these imposts, while the well-being of the islands is substantially increased, since we

believe that most, if not all, of the money thus obtained is devoted to public improvements. And even if it were not it would be no business of anybody's. The squires of Tresco Abbey have done so much for the improvement of the islands, and have so largely increased their trade, that the inhabitants have always been glad enough to pay imposts which are directly for their benefit.

Orchids from Perth.—Will you kindly give me your opinion of the Cattleya *Luddemanniana* I am sending you by parcel post? It differs in the colouring of the lip from any of my others. I also enclose a spike of *Vanda suavis* to perfume the box, and a twin-flowered spike of *Cypripedium Lawrencianum*. The dorsal sepal of it is dotted with black warts similar to the petals. The other forms have no warts on the flowers. *C. ciliolare* is a chaste beauty difficult to beat. Does *C. bellatulum* frequently throw twin spikes? The *Asparagus* grows like a weed on the back wall of a vinery. —W. MACDONALD, *Woodlands House, Perth*.

. A beautiful box of Orchids. The Cattleya is very fine; the flowers unusually large, and rich rose in the sepals and petals; the lip bold and handsomely veined with the brightest rose-purple on a paler ground. We have never observed *Cypripedium bellatulum* with two spikes. The other kinds were interesting, as *ciliolare* and *Lawrencianum* are two of the best Lady's Slippers. —ED.

Primula denticulata is without a doubt one of the best of the early flowering species, and seems to stand more rough treatment than any of the others. When the seeds are ripe (if the plants are allowed to ripen seed) the old clumps should be lifted and the crowns cut up into single eyes. These planted in good rich vegetable soil will give a fine show of bloom the following spring. Such at any rate is the treatment given to a batch of plants last year, and just now they are very beautiful, the flower-heads being both numerous and large. It does not seem to make a good pot plant unless grown in pots from the previous year, as it has an abundance of thick roots that travel a long way from the crown and which suffer much from lifting. A somewhat shady spot on the lee side of a *Rhododendron* bed suits this *Primula* admirably. —K.

Alpine Primroses.—How beautiful these begin to look! The latest is *P. pubescens alba*, and we believe this is the correct one, as it has been proved both ways, i.e., a white-flowered plant resembling in every way the garden form has been raised from ordinary purple *P. pubescens*, and a purple *pubescens* was raised from seed saved from the white one. This is a fact which entirely settles the matter of name. Whatever name may be chosen, this plant will always remain a favourite with growers of alpine, as it never fails with its huge snowy bunches of flowers in spring. In pots and also in the open garden we have always succeeded with it, and never more so than since we commenced to break it up when done flowering, planting the pieces out in a somewhat shady spot, lifting them again in autumn, and either potting or replanting them in the rockery where intended to flower. This applies to all the stronger Primroses, and we believe such treatment induces to greater health and vigour. —K.

Hardy flowers at Reading.—I have in flower now *Primula obconica* (not hardy quite), *P. floribunda*, *pubescens*, *marginata*, *rosea*, *nivalis*, &c.; *Narcissus* Emperor, Empress, Ard-Righ, Golden Spur, Cath. Spurrell, Stella, Sir Watkin, maximus, Bulbocodium, tenuifolius, and triandrus, also *Fritillaria pallidiflora*, *Oranensis*, *armena*, and three forms from Asia Minor, one like *Moggridgei*, one entirely green, in other respects like *armena*, and one standing 1 foot to 1½ feet, green and brown, with a very pretty habit. Also in flower are *Sanguinaria canadensis*, *Saxifraga sancta*, *S. Malyi*, *Vandellii*, *oppositifolia* major, and *o. minor*, *Androsace carnea*, *A. eximia*, *Anemone Pulsatilla*, *stellata alba*, and a lovely variety of *hortensis*, fulgens and *græca*; *Grape Hyacinths* in variety, *Polygala Chamæbuxus purpurea*, *Hepatica angulosa* and *triloba*, double blue, Dog's-tooth Violet, *Homeria collina*, *Anigisanthus breviflorus*, *Cyrtan-*

thus Mackeni, and a few more. Iris stylosa gave me the first bloom on Oct. 30, and is to-day (April 1) crammed with flowers.—A. C. BARTHOLOMEW, *Park House, Reading.*

Erythronium Hendersoni is this season, where better established, showing up to considerable advantage. I was rather disappointed with it when it first bloomed last spring. It is quite strong in the open ground, but in a cold house it is lovely. The stems are 8 inches high; flowers pale lilac, the colour deepening on the tips, the centre being rich purple. A valuable feature of this species is the lasting nature of the flowers which have been open a fortnight and are still fresh. A curious feature is that during the first week or so the three inner divisions fold over each other during the daytime, the three outer ones standing erect. During the later stages of the flower this tendency is lost, and all the divisions stand erect.—T. SMITH.

Bossiaea linophylla.—Throughout the great natural order of Leguminosae it would be difficult to find a plant of more elegance and beauty than this. It is one of the New Holland plants which were in the hey-day of fashion two generations ago, and certainly a specimen plant in full bloom leads one to regret that these plants are now so little cultivated. The younger branches are long and slender, bearing numerous small linear leaves, in the axils of which two or three of the small pea flowers are produced. So plentiful are these on a healthy plant that it is simply a drooping mass of yellow when in full bloom. At Kew a plant several feet in height is now commencing to open its flowers. Several other species of *Bossiaea* are occasionally met with, but although pretty, we have not seen any to compare with *B. linophylla*. In a young state the branches of various species are thin and flattened, but become round with age. They all require a peaty, sandy compost, and thrive in a cool greenhouse.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

MARCH 29.

THE last early spring show of the season, held on Saturday at the Crystal Palace, was small and stale—not for the reason only that in all such events there is a conspicuous lack of variety in the classes, but from the appearance of not a few of the flowers, which seemed to have suffered considerably from their frequent exhibition in public. There were the usual classes, and perhaps the finest exhibits were the groups, of which there were two of excellent arrangement. The first prize went to Messrs. Laing and Sons, Forest Hill, who had a number of choice *Clivias* and *Orchids*, as *Dendrobium primulinum* giganteum and *Odontoglossum triumphans*; Mr. Henry James was second. The *Amaryllises* from Messrs. Paul and Son, Cheshunt, were exceedingly fine, especially the varieties *Salvator Rosa*, rich crimson, with a band of white down the centre of each segment, and *Sea Nymph*, a medium-sized flower, bright scarlet, with a broad central band of white. Mr. Ford, gardener to Sir C. Pigott, Bart., Hexham Park, Slough, had *Cinerarias* that were a credit to him; and the same remark may be made with regard to the excellent *Mignonette* from Mr. A. Carter, gardener to Alderman Evans, Ewell, the *Azaleas* from Mr. R. Wells, Longton Nursery, Sydenham, and the *Hyacinths* from Mr. H. Shoemith, gardener to Mr. Hodgson, Shirley Cottage, Croydon. Mr. Clark, gardener to Mr. W. Sopper, Herne Hill, exhibited *Tulips* well. In the class for *Hyacinths*, *Tulips*, and *Polyanthus* *Narcissus*, Messrs. Williams and Sons, Fortis Green, Finchley, were successful throughout, as at the previous show of the Royal Botanic Society. The *Persian Cyclamens*, from the St. George's Nursery Co., Hanwell, and Mr. D. Phillips were, of course, of rich beauty.

If it were not for the trade groups at such exhibitions there would be practically no show. The *Daffodils* of Messrs. Barr and Son; the delightful series of hardy flowers and *Roses* from Messrs.

Paul and Son; the *Cyclamens* from the St. George's Nursery, Hanwell; and the miscellaneous plants from Messrs. B. S. Williams and Son, Upper Holloway, and Messrs. J. Laing and Sons, Forest Hill, were in themselves of interest, and on Saturday last the mainstay of the exhibition. Mr. W. Cross, Devon, showed the new *Beaconsfield Primrose*, the flowers of the same soft colour as those of our wilding, but the stems were taller. Mr. W. H. Frettingham, Beeston, had a collection of *Primroses* and *Polyanthuses*.

THE DAFFODIL EXHIBITION AND CONFERENCE AT CHISWICK.

THE following schedule has been issued. For the better examination and comparison of the flowers, it is particularly requested that exhibitors will divide their collections into the following classes:—1, *Corbularia*; 2, *Ajax* (yellows only); 3, *Ajax* (bicolors only); 4, *Ajax* (white or pale sulphur, e.g., *albicans*, *cernuus*, *moschatus pallidus*, *præcox*, *tortuosus*, &c.); 5, *incomparabilis*, *Barri*, and *Leedsii*; 6, *Humei*, *Backhousei*, *Nelsoni*, *montanus*, *Macleai*, *Sabini*, *Bernardi*, and *tridymus*; 7, *triandrus*; 8, *Burbridgei*, *poeticus*, *odoratus*, *juncifolius*, and *Jonquilla*; 9, *gracilis*, *intermedius*, *Polyanthus*, and double *Polyanthus*; 10, double and semi-double *Daffodils* of all kinds (e.g., *Ajax*, *incomparabilis*, *odoratus*, *poeticus*, *Jonquilla*, &c.), except *Polyanthus*; 11, new or unnamed seedlings of the *Ajax* classes; 12, new or unnamed seedlings of any other class than *Ajax*. No doubles or semi-doubles may be shown in classes 1 to 8 inclusive. Various prizes are offered.

The arrangements for the conference are as follows: Tuesday, April 15. The judges and committees of selection will be engaged in examining the flowers and drawing up their reports. Fellows will be admitted to the Gardens at 1 p.m., and the public at 2 p.m. H.R.H. the Princess Mary, Duchess of Teck, has kindly consented to open the exhibition at 3 p.m.

Wednesday, April 16.—Admission to the gardens at 11 a.m. The conference will be opened at 2 p.m. by Professor Michael Foster, sec. R.S., president of the conference, who will deliver an opening address. Mr. C. R. Scrase-Dickins, secretary of Narcissus committee of the Royal Horticultural Society, will give a short *resume* of the work done by the committee since its appointment in 1886, and will present the report of the committee as to the exhibits and awards of the judges. The following papers will then be read, and discussion invited: "Historical Account of Cultivated *Narcissi*," by Mr. F. W. Burbridge, M.A., F.L.S. Mr. T. A. Dorrien-Smith has been asked to read a paper on "Daffodils in the Scilly Islands." "The *Poeticus* Group," by the Rev. G. H. Engleheart, M.A.

Thursday, April 17.—Admission to the gardens at 11. The conference will be resumed at 2 p.m., Mr. J. G. Baker, F.R.S., in the chair. Papers to be read: "On the Natural History and Cultivation of the Trumpet *Daffodil* and its Hybrids," by the Rev. C. Wolley Dod, M.A. Herr Krelage has been asked to read a paper "On *Polyanthus* *Narcissi*." "On Irish Varieties of *Daffodils* with special reference to the white forms," by Mr. John T. Bennett-Poë. "Notes on Seedlings and Seedling Raising," by the Rev. G. H. Engleheart, M.A. "Daffodils for the London Market," by Mr. James Walker.

Friday, April 18.—Admission to the gardens at 11 o'clock. The exhibition will close at 4 p.m.

Intending exhibitors are requested to communicate with Mr. Barron, superintendent, Royal Horticultural Society's Gardens, Chiswick, on or before Friday, April 11, stating the classes in which they propose exhibiting, and giving an approximate idea of the amount of space they will require.

Chiswick Gardeners' Association.—The annual dinner of this association, which finishes the course of meetings held each week through the winter months, took place on Friday, March 28, when over forty members and friends were present. The chair was taken by Mr. G. Gordon, who also

presented the prizes offered by Mrs. Lee for various essays in connection with horticulture.

THE GARDENERS' ORPHAN FUND.

A MEETING of the committee took place at the Caledonian Hotel on Friday, the 28th ult., Mr. George Deal in the chair, there being a good attendance of members. The balance at the bank in favour of the fund was reported to be £367 13s. 9d. Several special receipts were handed in as follows: from Mr. English, the proceeds of some smoking concerts at the Windsor Castle, Holborn, £5; from Mr. Lewis Castle, as part proceeds of the sale of the "Chrysanthemum Annual," £5; from Mr. W. Roupell, as the proceeds of a lecture on "Fruit Culture" at Brixton, £6, and also from Mr. Roupell the sum of £2 1s. collected as annual subscriptions; from Mr. Andrew Pears, Isleworth, a donation of £5 5s.; from Mr. J. S. Foljambe, Osberton Manor, £5; and from the recent series of performances at Covent Garden Theatre in aid of the fund, the sum of £10 19s. 6d. A very interesting discussion took place on a request put forward by Mr. Roupell, that at the next election twenty-four votes at that election, in lieu of the annual one vote exercised by a life member, should be allowed Mr. Buxton Morrish, the chairman of his lecture on "Fruit Culture." It was held that it is the practice of similar charitable institutions to permit of this being done, it being distinctly understood that the whole of the voting power of a given sum is exhausted at one election, and carries no further privilege. A reference to rule 12 shows that such an arrangement is permitted by the committee, and Mr. Roupell's request on behalf of Mr. Morrish was granted. It was announced that the local secretaryship for the Deepdene district at Dorking was vacant, owing to Mr. J. Burnett having left England. A letter was received from Mr. T. Turton, the Gardens, Maiden Erlegh, Reading, consenting to act as local secretary for Reading and district, in place of the late Mr. W. Wildsmith. A letter was received from Mr. John Trevor, formerly of Oswestry, and now of Hatley St. George, Malvern, offering to act as local secretary for Malvern and district, which was accepted. Communications were also received from Mr. J. Hughes, Birmingham, and others. A cheque was ordered to be drawn for the sum of £61 15s., the quarterly allowances to the nineteen children now upon the fund.

At a later hour a meeting of the joint committee, which comprises a number of the standholders in the wholesale flower market, was held. A letter was read from the secretary to the Lord Mayor, announcing that the Lady Mayoress had kindly consented to open the floral fête on May 21.

It was arranged that the tickets of admission be limited to 2000, and be charged 5s. each; and that each standholder should have two tickets of admission, as last year. It was further resolved that a certain sum of money should be set apart for advertising, and posters announcing the fête were also ordered. Certain details were entrusted to a sub-committee consisting of Messrs. Asbee, J. Wright, H. B. May, E. Sawyer, the chairman, and secretary. A vote of thanks to the chairman closed the proceedings.

BOOKS RECEIVED.

"Orchids: their Culture and Management." Part 10. London: Upcott Gill, 170, Strand, W.C.

"The Horticulturist's Year-Book: a Compendium of Useful Information for Fruit Growers." Completed to the close of 1889. By L. H. Bailey. New York: Garden Publishing Co.

"Our Hardy Fruits: A Practical Guide to their Cultivation for Landowners, Tenant-Farmers, Cottagers, and Allotment Holders." By Brian Wynne, editor of the *Gardening World*. London: Eyre and Spottiswoode, East Harding Street, Fetter Lane, E.C.

Names of plants.—*Constant Reader*.—1, *Retinospora squarrosa*; 2, *Forsythia Fortunei*.—J. R. D.—1, *Allium neapolitanum*; 2, *Dendrobium nobile*, good var.; 3, ordinary form of *Dendrobium Ainsworthii*.—J. C. F.—Common *Narcissus* (*N. Pseudo-Narcissus*).—*James Summons*.—*Oncidium splendendum*. The small one was too poor to name. —W. H.—*Cypripedium virens*.—*Anon*.—*Cœlogyne ocellata*; 2, send better specimen.

WOODS AND FORESTS.

TREES FOR BOG PLANTING.

THERE are several varieties of bog. Irish bog is generally divided into two classes, namely, red and black; the former consists of vegetable matter, the remains of bog plants in an imperfect state of decay, whilst the latter is in a more advanced state of decomposition, and in a better condition for supplying food for the trees. In preparing such ground for planting it should be thoroughly drained. The best trees to plant on deep rank bog are the hardy Scotch Pine and Birch, and in doing so I have found it advantageous to mix a little clay or soil with the staple at the spots where the trees were planted. In places where black bog occurs Larch should be substituted for the Birch, as I have found it give a quicker and better return from the time of the first thinning and onward till the trees reached maturity. In Ireland small farmers use considerable quantities of Larch thinnings for fencing, &c., and fair prices can be had. The common Spruce Fir may likewise be planted with success on this class of bog, as it likes moisture, makes good covert, and attains a profitable size. All of these command a ready sale for pit props. Those of the smallest size must measure 3 inches in diameter at the small end, and those of the largest size or crown props not less than 4 inches. These are generally cut into lengths of 6 feet, 12 feet, and 18 feet, and sold by the dozen of 72 lineal feet. The prices fluctuate according to supply and demand, but those of the smallest size realise about 2s. per dozen, and of the largest size from 2s. 9d. to 3s. In Ireland I have sold this class of stuff in quantity at prices ranging from 8s. to 10s. per ton, purchaser to take delivery at his own expense. There is another class of bog land which consists of peat and soil finely mixed and resting upon a clay or gravelly bottom at no great depth from the surface. When this class of ground is well drained and prepared it is very fertile, and capable of producing trees of large size. The best trees to give a quick return here are the Larch, Ash, black Italian Poplar, grey and white Poplars, Willows of sorts, and the Alder. These are all of rapid growth, and so hardy that they will grow on land liable to be occasionally flooded during winter. In cases where covert and variety are desirable, the common Spruce, Scotch Pine, Cluster Pine, Austrian Pine, and even the Silver Fir may be planted here and there to attain that end. In planting the trees here it will be unnecessary to add any fresh earth to the staple, as recommended for deep bog planting, but the pits should be made large enough to contain the roots without doubling them up. If possible the pits had better be dug and the soil excavated exposed to the influence of the atmosphere for some time before planting is commenced. In reclaiming and planting bog land I have always found the best results from draining in summer, opening the pits in winter, and planting in spring. It is also important to use stout stocky plants well furnished with roots and branches, as even should they be a little higher in price at the time, they will prove the cheapest in the end.

J. B. WEBSTER.

SHORT NOTE.—WOODS AND FORESTS.

Willows for timber.—Can you or any of your correspondents tell me the best variety of Willow to plant for growing into good timber trees on some low-lying meadows in Suffolk?—J. H. D.

THE BEECH.

(FAGUS SYLVATICA.)

THIS tree is justly admired for its stately crown and beautiful green foliage, which renders it a desirable ornament in parks and large pleasure grounds. It is found in most parts of Europe, and is one of the handsomest and most valuable of our forest trees. Its trunk is erect and massive, and its height usually from 100 feet to 130 feet. The roots spread for 10 feet or 12 feet round the tree, but none of them go deeply under the surface, except the tap-root, which penetrates perpendicularly into the earth for 3 feet or 4 feet. The branches have a more or less upward tendency, and form a symmetrical and majestic crown.

Upon young trees the bark is of a greenish grey hue, but as the tree matures it assumes an ash-grey colour. Both leaf and blossom-buds are long, cone-shaped, sharp-pointed, and consist of eighteen or twenty brown, slightly fringed scales. The leaves, when young, are soft and delicate, and of a beautiful yellowish green colour, but, as the season advances, they become deep green. In October they become yellow and dry, shrivel up, and fall to the ground. Upon young trees, however, the withered leaves often remain until they are forced off by the swelling of the fresh buds in spring. The male catkins, which are in general four to a bud, have long drooping peduncles, and consist of about twenty greenish yellow florets. The female blossoms, which appear in pairs upon the young shoots, consist of sharp-pointed catkins. The fruit, which is ripe in October, consists of rough capsules, each of which contains two or three smooth triangular brown nuts.

The highest elevation at which it is found is 5000 feet above the level of the sea, but it does not seem to thrive well at a greater altitude than 2000 feet. In Thuringia and amongst the Hartz Mountains noble Beeches, 100 feet in height, are found at an elevation of 1800 feet. The finest Beech forests in the world are situate in the island of Rügen, on the dunes of Denmark and Mecklenburg, and on the plains and low hills of Germany. It is in these regions, where Beech forests cover many thousand acres, that the tallest living Beeches are to be found. In the last century, Beeches 174 feet in height were cut down in North Germany, and at present many single trees exist there which are 136 feet high and 41 feet in circumference. Beeches thrive best in a surface-soil of poor, dry, sandy loam, with a subsoil of chalk mingled with gravel, sand, and small stones. Those trees which grow upon mountain slopes, or on low humus-covered hills, with a northern or eastern exposure, yield the best timber. Beeches are generally propagated by means of seed, and the young trees suffer much from frosts and droughts, and in damp marshy situations. Mice and mole-crickets are also very destructive to the roots of young trees. The Beech attains its full height when about 100 years old, and then lives in perfect vigour and health for 200 or 300 years. Trees of this age are generally from 10 feet to 15 feet in circumference, and contain from ten to twelve cords of timber. A cubic foot of fresh-cut wood weighs 65 lbs., but this by thorough seasoning is reduced to 41 lbs. or 39 lbs. In damp poor soils, Beech trees frequently perish from internal rot between their seventieth and ninetieth years. Of the common Beech some very ornamental varieties may be met with in cultivation—as, for example, different kinds of Weeping Beech, the variegated purple and copper-leaved kinds, and the Fern-leaved Beech, the leaves of which are cut into narrow segments, resembling the fronds of a Fern. These are almost wholly used for purposes of ornament, for which the common Beech itself is well adapted.

The products of the Beech are numerous and valuable. The timber, which is heavy, hard, firm, and durable, is extensively employed in the manufacture of numerous implements, tools, and articles of furniture. On account of its brittleness and liability to the ravages of insects, it is seldom employed for building purposes. Beech timber is especially adapted for subaqueous structures, or for positions in which it is not exposed to the action of the atmosphere. As fuel, the Beech is very valuable,

and is surpassed in heat-giving qualities only by the Hornbeam and Maple. The charcoal of the Beech is highly esteemed on account of the equable heat which it emits. The bark is useful to tanners, and from the ashes of the wood excellent potash is obtained.

In Denmark, Sweden, and some parts of America, the leaves of the Beech are carefully picked, dried, and used to stuff bed-ticks and pillows. The leaves and ashes form an excellent manure for Grass and Clover lands. The husks and nut-skins contain a very poisonous material known as fagin. The nuts themselves form a favourite food of some birds and quadrupeds, red deer being especially fond of them, and they are also in some countries boiled, dried in the open air, parched by artificial heat, and ground into meal, from which bread and soups are prepared. The nuts have a pleasant sweetish flavour, and are very oleaginous. Considerable quantities of oil, resembling Almond oil, are obtained from them by pressing. From 100 lbs. of nuts 12 lbs. of pure oil and 4 lbs. of coarser oil are obtained. The former is of as good quality as the best Olive oil, and the latter makes a useful lamp oil. The refuse furnishes a good food for pigs. The best season for felling Beeches is December. J.

RODENTS BARKING YOUNG TREES.

OWING to the fine open winter which we have experienced in many parts of the country hares and rabbits have done less damage to the stems of young trees than is usually the case during a spell of hard frost and snow. The fact of Grass and surface herbage remaining in a fresh condition has no doubt been a great means of saving the trees. Field mice, however, in some parts of the country have appeared in large numbers, and in many cases have done considerable damage to young trees by eating off the bark around the base of the stem. In cases, however, where the bark has not been removed all the way around the stem, the wound in all probability will heal up in course of time, but in all cases where the bark has been completely removed, the stem should be cut off with a sharp knife close to the surface of the ground. Hardwood trees thus dealt with will in most cases produce several young suckers from the margin of the root or stool, and in course of time the largest and best of these should be selected for the future tree and the others cut away. Some few of the Conifera tribe of trees likewise produce suckers from the stool, and may be treated in the same way as the above. The principal of these are *Sequoia sempervirens*, *Retinospora obtusa*, *Cupressus* of sorts, *Thuopsis borealis*, and *Cephalotaxus* of sorts. The species of mice that are most destructive to young trees in this way are the field mouse, meadow mouse, and rock mouse. The field mouse is generally most plentiful, and may be known by its rather short, stout body, short tail, and whitish breast and belly. Various methods have been tried to destroy these pests, and in some seasons they almost disappear, or at least are so few in number that their depredations are almost *nil*. I have never known young plantations damaged by mice to any serious extent on estates where the woods were well stocked with owls. Proprietors should instruct their gamekeepers to preserve these birds rather than destroy them, seeing they are so valuable as vermin killers. The common grey rat when pressed by hunger during winter often barks the stems of young trees, so that every means should be tried to keep this rodent down. The water rat not only occasionally barks the stems of trees, but likewise gnaws and peels the roots below ground on the banks of streams when it comes in contact with them in the course of excavating its burrows. Poison is sometimes used for killing these rodents, but when it is employed it should be used with great care. When the bark is only partly eaten away on the stem, the lips of the wound should be pared with a sharp knife, and the part dressed with coal tar to prevent the lodgment of water and facilitate healing. Trees that are peeled all the way round and that are known to be incapable of producing suckers from the collar of the stem should be dug up and fresh plants inserted.

J. B. WEBSTER.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

OUR WALLS.

OLD walls often become most interesting on account of the plants, which seem to delight in fastening themselves to the mortar in every chink and crevice where it is possible for them to grow. The hand of time, while it tends to crumble even solid masonry, clothes it at the same time with a new beauty, not only in the rich and mellowed colouring, which often bears testimony to great antiquity, but also in the numerous little Ferns and plants which have, perhaps, for ages found shelter and a home in the crevices of the old wall. The frowning walls of our ancient castles are often beautiful in themselves. Take Berkeley Castle, for instance. The visitor who stands in the inner court and looks up at the lofty keep cannot fail to be struck with the great perpendicular wall, which is singularly beautiful in the subdued red and grey tints which the lapse of hundreds of years has imparted to it. But it is so well built that scarcely any plant can find a resting-place there. Other walls, however, of that fine old castle are much more picturesque and interesting than they would otherwise be, on account of the variety of trees, Ferns, and flowers which have gradually established themselves on many parts of the building. The old Pear trees, which have for ages borne flowers in spring and fruit in autumn on the great boughs, which cling to the solid basement, seem to be a part of the castle itself, they look so old and rugged.

Then high up in remote corners the yellow Wallflowers and red or white Snapdragon give just the tone and colour which are necessary to relieve the sombre tints of the venerable structure. But it is when the red Valerian is in flower that the building puts on its brightest dress, and in my opinion looks its best, although, I am sorry to say, there is not nearly so much Valerian about the walls of that castle now as there used to be in former days. Of course, the usual Ferns abound, and the Wall Rue (*Asplenium Ruta-Muraria*) and the Ceterach may be found on the terraces, and in many nooks and corners.

One of the prettiest of the wild flowers which are fond of growing on old walls is the yellow Fumitory (*Corydalis lutea*).

In the stable-yard at Anthony House, in Cornwall, there is an old flight of steps leading up to a barn, which in themselves would only be like other steps, unworthy of notice; but the *Corydalis* has clothed them with one perfect mass of its beautiful leaves and flowers, so that it has become quite a wall garden. This Fumitory is apt to become a somewhat troublesome weed, for when once established it will force itself into every possible crevice it can find.

Another beautiful creeper which abounds on old walls in the south and west of England is the Ivy-leaved Toad-flax (*Linaria Cymbalaria*). It is fond of old garden walls, and though gardeners may protest against its intrusion in such places, because it makes a harbour for slugs and snails, yet anyone who can appreciate the beauty of our small wild flowers will beg for a sparing hand when the tresses of green leaves and purple flowers are being torn away.

It is wonderful how pertinaciously this little *Linaria* will continue to grow on after repeated attempts at clearing it away.

The common Valerian (*Centranthus ruber*) mentioned above luxuriates on rocky banks and old town walls. The deep cutting for the railway between Plymouth and Devonport is lit up with this plant in early summer. It is coarse and ungainly close to the eye, but in large quantities and fringing broken-down walls it looks extremely well.

There is a quaint, but beautiful little seaport town on the south coast of Cornwall called Fowey where this Valerian abounds, and the people have given it the name of "Fowey Glory."

Wall Ferns are always interesting, especially the beautiful Polypody (*Polypodium vulgare*), which in winter assumes such a bright colour on the back of the fronds. Ceterach is not common everywhere, and is one of those Ferns which are usually persecuted by people who cannot leave wild plants to enjoy themselves in their native haunts.

I remember finding a good deal of Ceterach on a beautiful old bridge which spanned one of those rushing brooks so often met with in South Devon, and how speedily every one of the party pulled out a knife to drag the poor little Ferns out of the wall. The Ceterach especially resents such treatment, and, as a rule, fades away in its new home in a pot, where probably it meets with but little care after all the eagerness to possess it at first.

I must not leave out of this list the Wall Pennywort (*Cotyledon umbilicus*), which is so common on damp walls near a pond. Children often call the leaves penny pies. It has no beauty in itself, and yet its quaint, round, fleshy leaves and flower-spike help to make an old wall more interesting, and certainly tend very much to make it look picturesque.

A GLOUCESTERSHIRE PARSON.

Magnolia conspicua (the Yulan).—This splendid early flowering species is now in full beauty, and one of the chief attractions in the pleasure grounds. It is flowering fully a fortnight earlier than usual in our case and the blossoms are developing in a perfect manner, but very few have thus far been injured by the frosts of the past few mornings, 7° being registered this morning (April 5). I have often wondered, and still do so, that this handsome spring-blooming *Magnolia* is not more extensively planted in our gardens, especially in the southern districts of England. There is, as a rule, more to be feared from injury caused by high winds and rainy weather when it is expanding its flowers than from slight frosts, these latter, as a

matter of course, having more effect when the flowers are still wet from previous rain. If I were selecting a spot to plant a young specimen of this kind I would choose an elevated position, yet one that was well sheltered from the east and north. Too much moisture at the root would have a tendency to induce a vigorous growth, well enough so far as it goes, but not conducive to freedom of flowering and protecting the buds when still in an embryo stage, should sharp frosts set in. Nature has provided the flower-buds with a good protection in the outer sheathing, which falls off when the flowers commence to swell. In most cases this is quite sufficient to afford proper protection if the growths of the previous autumn have been fully matured.—J. HUDSON.

RHODODENDRONS GROUPED FOR COLOUR.

How seldom one sees, even where care has been taken to secure the best kinds, that any attention has been paid to grouping Rhododendrons with a view to good colour effect. Unlike Azaleas, whose varied colourings are always harmonious, Rhododendrons want separating into at least three groupings, that is to say, if they are to do all they can for us in the way of colour beauty. It is much to be recommended that the delicate pinks be kept away from the purples, and the comparatively few that have salmon shades from the purplish reds, and all these away from each other. It may help others whose eyes are also offended by the usual colour-jumbling of these grand shrubs to give the names of a few that are found to go happily together. Of course the many beautiful white-coloured ones go well with all the groups. For a grouping of pink, white, and red the following have a good effect:—

Pinks.	Reds.
Acelandianum	Baron Schröder
Bianca	John Waterer
Blandyanum	James Marshall Brooke
Broughtoni	Paxtoni
Concessum	Pelipodas
Congestum roseum	
Cynthia	Whites.
Fair Rosamond	Album elegans
Ingrami	Album grandiflorum
Kate Waterer	Cunningham's White
Mrs. Penn	Delicatissimum
Papilionacea	Mme. Carvalho
Titian	Minnie
	The Queen

For a grouping of colours of shades approaching lilac and the violet-purples with suitable whites, purples and lilacs—

Whites.	Purples and Lilacs.
Album grandiflorum	
Baroness Schröder	
Candidum	Contortum
Fair Ellen	Cyaneum
Mme. Masson	Everestianum
Nivaticum	Fastuosum fl.-pl.
Perspicuum	Lady Normanton
Purity	Reine Hortense
Sappho	

give a grouping of very charming appearance. The old ponticum does best with this group.

Those of salmon colouring, such as Mrs. R. S. Holford, Lady Eleanor Cathcart, and Mrs. F. Hankey, should be kept by themselves with a few warm whites. The many splendid flowers of the strong crimson colourings with those approaching magenta should form a separate group.

It is easy in laying out a piece of ground

for Rhododendrons to throw the masses into such groupings that only one of such schemes of colouring is seen at the same time, and the double benefit is gained of showing the plants to their highest advantage and of gaining the impression of a much wider range of good colouring than can be obtained in the old mixed style of planting.

West Surrey.

G. J.

ROSE GARDEN.

THE ROSES AFTER THE FROST.

SINCE the first week in March the Roses have virtually stood still. This rest, if virtually for a month, has proved an almost unmixed good for Roses. February left them rushing headlong to an unprecedentedly early blossoming, or to sheer destruction. The March frosts have protected them from either alternative. In rendering the Roses this useful service the frosts have hit the more tender Roses rather hard. *Maréchal Niel*, *Niphetos*, *Boule d'Or*, *Devoniensis*, and other of the more tender Teas and Perpetuals have suffered severely. But the suffering or sacrifice of the few has proved the salvation of the many, and on the whole the majority of Roses will be found safe and sound after the frosts. After their rest or sleep of a month they look well. The frost has saved them by its rough-and-ready intervention, and at the same time has given a picturesque and emphatic object-lesson in close pruning.

The frost lines on the shoots may be said to have disposed of the question for this season. It matters little whether or not these have penetrated through the shoots or not. In all cases where the black frost marks have penetrated right through the bark on the upper section of the shoots, the shoots should be cut back to the lowest of these frost prints. These instructions will carry many long pruners farther back than usual.

And probably the Roses may be all the better, and the Rose bushes all the more healthy and vigorous in the future on this account. Cut where we will, we seldom greatly increase the number of perfect blooms on our Rose plants. And, so far as the mere bloom goes, there is less difference than many suppose between flowers produced on base buds near the root-stock than those higher up on the shoots; whereas most rosarians prefer their Rose shoots and blooms as near home as possible. Be that as it may, hard pruning has become a necessity this year, and the Rose bushes will be improved in appearance, and may get a new lease of vigour through being cut harder back than usual. As to the first, there can hardly be any doubt, for few sights are less pleasing than a few Rose shoots on the crowns and from three to six dormant buds, that can be of little or any benefit to the Roses, excepting the doubtful one of raising the flowers a little higher above the ground or stock line.

D. T. F.

SHORT NOTES.—ROSES.

Souvenir de S. A. Prince is a good Rose for forcing, as this season it has been exhibited unusually well by Messrs. Paul and Son, of Cheshunt. It is a pure white sport from *Souvenir d'un Ami*, but even finer in form of flower and finish, while it possesses the vigour and freedom of the parent. It was sent out by Mr. George Prince.

Forced Roses.—I was very much pleased by the fine display of forced Roses made by Messrs. Paul and Son, Old Nurseries, Cheshunt, at the last meeting of the Royal Horticultural Society. They were excellent examples of culture without being of unwieldy size in any single instance. The beautiful little plants of the

Polyantha varieties *Mignonette* and *Paquerette* were a pleasing sight; they are well deserving of more extended cultivation. Amongst the Tea-scented kinds was *Souvenir de S. A. Prince*, a superior variety of recent introduction. Well-grown pot Roses of medium size deserve to be encouraged in private gardens either to supply cut bloom or to decorate the conservatories.—J. H.

THE FROST AMONG THE ROSES.

"D. T. F." tells a sad story of the result of the frost among the Roses, but happily his experience is not general. Our Rose trees, though not protected, have not been injured in the least. Perhaps, however, the statement that they were without protection should be qualified, because nearly 6 inches of snow evenly covered the beds, and probably this was the best protector they could have had. But then they were not even killed down to the snow line; even very weak plants of *Marie Van Houtte* that were only struck the previous spring and whose shoots were scarcely as thick as a straw emerged unscathed from the trying ordeal and are now breaking strongly. The same may be said of nearly a thousand other Tea Roses, some of two, some of one year's standing, and of many that were planted last November and December. Our situation may be a favoured one, as we have elevation and perfect natural drainage, both of which are important factors in enabling plants to withstand the severity of frost. In this respect we may have the decided advantage of "D. T. F."

Quite late last November our Teas were still flowering and green with growth, and it seemed impossible that their strong, but watery shoots could ever become firm or sufficiently ripened to withstand severe frost. I believe that during the early part of the winter moderate frosts serve to solidify and harden these late shoots, gradually inuring them to later and greater degrees of severity of cold. To thrust Bracken around and among them serves but to keep them in a semi-dormant, half-ripened state. It may be and often is necessary to remove this protective material early, and a sharp frost in March (no uncommon thing) plays sad havoc. If "D. T. F.'s" Roses were studded with growing shoots from base to summit this would almost point to something having fostered an early growth, because comparatively our Roses upon a warmer soil and situation should be forwarder and naturally start earlier, but in no case were shoots advanced far enough to be damaged beyond an occasional precocious terminal shoot, which in any case would have been cut away later on.

The damage is greatest among worked and standard Roses, "D. T. F." tells us, and from this, one gathers a profitable lesson of what to avoid, at least so far as the standards are concerned. As regards the worked plants of dwarfs and those of two or more years' standing, many of them might be upon their own roots by this time had they been planted sufficiently deep. I was quite recently further convinced of the great advantage arising from burying at least an inch or two of the Rose shoot, for having occasion to lift some plants of *Catherine Mermet* that were planted out of pots in May, 1888, I found that the stock had in many cases almost perished, but the plants had a sufficient number of own roots to start them well in life in their new situation. In consequence the old stock was severed from the plant, an operation in this case easily performed, as I found that the plants were originally grafted, and that the junction between stock and scion had never been healthy nor perfect. I had a similar experience last autumn with some grafted plants of *Perle des Jardins*, when I came to the con-

clusion that a grafted Rose was of very doubtful merit and should be looked upon with suspicion as liable at any time to sever its connection and perhaps end its existence, as many of my plants would have done had they been planted with the point of union just visible upon the surface of the ground.

It would certainly be interesting to have a more varied and general report of how the Roses fared, to what extent they suffered, and whether they were protected or not.

Suffolk.

A. H.

Destroying mildew on Roses.—I understand that the following recipe is what is used in the French vineyards for preventing the Vines being attacked by mildew: Three lbs. sulphate of copper, with 1 lb. slaked lime in 22 gallons of water. I shall feel much obliged by your informing me whether you consider this would be of use in warding off mildew from Roses in the open ground. If so, should the shoots be washed with it at the present time, or should the leaves be sprinkled later on? Will you please also state whether you think it would cause any harm to the plants?—B.

* * In reply to the above, the mixture you speak of should be of use in destroying mildew on Roses, but I have not seen or heard of it being tried. I cannot imagine it would injure the plants. It would not be of any use applying it now, but I should wait until the mildew begins to show itself. Half an ounce of sulphide of potassium dissolved in a gallon of water has been found to be most effectual in destroying mildew, also half a pound of soft soap, and a handful or two of flowers of sulphur dissolved in five gallons of water. After Rose trees have suffered from mildew all the leaves as soon as they have fallen should be removed from under the trees and burnt.—G. S. S.

Pruning Roses.—The pruning of Roses with me is now nearly finished, and I have every reason to be satisfied with the appearance of the plants thus far. The well-ripened wood of the past season bids fair to break away freely. During the past autumn I replanted a number of standards that had stood in their positions for several years, some being as much as fourteen years old, yet possessing fine healthy heads in many instances. It was, however, necessary to re-arrange them, and, a favourable opportunity occurring, it was done in fairly good weather. The beds were well trenched three spits deep, the surface-soil being buried, and the subsoil (a stiff loam with a near approach to clay) brought up to take its place. Under the influence of the frosts this has now been well pulverised, and looks a good soil for Rose culture. Thus far not one dead plant has been observed, and but very few show any evil effects of the treatment they received. Most of them having been planted so long, many of the fibrous roots were, of course, lost, and when lifted, the plants did not look very promising, especially after all the suckers had been removed. The top-growth had a corresponding shortening, almost amounting to a medium pruning. This, no doubt, helped to save the plants from feeling the effects of the removal. I note already that there are signs of back breaks being pushed forth, and I take this as a good omen for the future. This removal having somewhat checked the growths, there was but little injury done in any instance a few weeks ago, when 20° of frost were recorded. After planting, I took the precaution to water them—not that the soil was at all dry, but in order to settle it more closely round the roots, preferring this method to any excessive treading. No manure was added in any shape or form, believing that it was not at all necessary, although readily available, the complete change of soil being better than all the manure that could be given them, especially after having been well cared for in that respect during past seasons. A few suitable plants for each bed are provided, should such be needed, in the event of any not thriving satisfactorily. These are now in 8 inch and 9-inch pots, from which they can be turned out into the beds without any risk, even when growing, should that be necessary.—J. H.

ORCHARD AND FRUIT GARDEN.

PLUM ANGELINA BURDETT.

THIS excellent purple dessert Plum, judging from some notes which appeared in *THE GARDEN*, I believe, a few months ago, cannot be well known; consequently, it is not generally grown. Pomologists who have attempted a synopsis of the 200 varieties more or less known have classed this variety as a free Nectarine, a section which includes our old favourites—Kirke's, De Montfort, the Nectarine, the Peach, the Purple, and Woolston Black Gage, all of them dessert Plums of the highest quality; whilst in the sub-section of cling Nectarines we find Belgian Purple, Late Rivers (a grand October dessert Plum), and the Sawbridgeworth seedling, now pretty well known as the Sultan. Belonging to such a respectable family, it would indeed be strange if high merit did not entitle Angelina Burdett to a prominent place in all choice selections of

grown in the orchard house or upon wall trees the fruit is greatly improved by hanging until, like Golden Drop, it shows signs of shrinking. Of its appearance upon the dessert table I need not speak, as readers of *THE GARDEN* may judge for themselves, an excellent engraving of a dish of fruit grown by Mr. Norman Blake, of Bedford, being herewith placed before them.

Viewed from a commercial point, the Plum, next to the Apple, is generally accepted as our most profitable indigenous fruit, but the varieties being so numerous, soil, situation, and use should be well considered before market culture is entered into. For private use the motto should be few varieties, these the very best, and plenty of duplicates. One might spoil many sheets of paper in writing about Plums, but in the hope that other growers will follow Mr. W. N. Blake's lead in sending photos of good representative dishes, I shall on this occasion confine myself

cultivation. The well-known freestone Prince of Wales, we learn, will soon be superseded by the Sultan, a clingstone having a formidable rival in Belgian Purple, an immense cropper and good for dessert, but as a culinary Plum one of the very best for cooking and preserving. Purple Gage or Reine Claude Violette, a familiar Plum, is considered one of the best, especially when it begins to shrivel, but although a freestone, it does not, in my opinion, come up to Late Rivers, a Sawbridgeworth seedling, ripe in October and keeping in good condition until the middle of November. The latter requires a good west wall, and deserves extensive cultivation as a companion to Coe's Golden Drop for coming in late in the orchard house. Although all the varieties of Plums fruit profusely when grown in pots, none but the very best should be selected for orchard house culture. Therefore, considering that there are six or seven sections, including the Gages, a host in themselves, to choose from, the contribution from the Nectarines may include Angelina Burdett, Kirke's, De Montfort, Purple Gage, Woolston Black, and Late Rivers. Prince of Wales, Belgian Purple, and Sultan are admirably adapted for growing as standards.

W. C.



Plum Angelina Burdett. Engraved for *THE GARDEN* from a photograph sent by Mr. W. Norman Blake, Bedford.

garden Plums, and this title—having grown it for nearly twenty-five years—I am able to say, is well deserved. The tree is very hardy, a good bearer as bush, pyramid or standard, is worthy of a good position on a wall or in the orchard house, and, having smooth shoots and leaves, it is not subject to green fly. Add to these constitutional qualities the following points—for after all, the proof of the Plum lies in the eating—and I think those who have not given it a trial will at once add one or more trees to their selections: Fruit above medium size, roundish, oval, and marked with a deep suture, especially near the stalk. Skin thick, dark reddish-purple, closely covered with small brown dots, which show through the deep purple bloom. Stalk short, firmly set, and holding the fruit long after it is ripe, sometimes until it shrivels. Flesh yellowish, rich, juicy, parting freely from the stone; fit for use early in September, but

to brief remarks on a few of the most prominent varieties known as Nectarines. Taken in alphabetical order and following Angelina Burdett, a most delicious variety for a pasteless dish when cooked as well as the dessert, we have the little-known black Plum named Belvoir, admirably adapted for a wall, as it hangs in good condition until the middle of November. Passing Corse's Nota Bene, a Canadian Plum, Damas de Mangeron and Italian Damask; good for preserving, we come upon Kirke's, if not the best, certainly the best known and most popular purple dessert Plum now met with in every good garden, and almost invariably used by exhibitors, making a most telling dish when grown against a warm wall or in the orchard house. A companion to this, but much earlier, is De Montfort, a most delicious variety of Royal Hâtive, ripe about the middle of August, and probably the best very early orchard house or wall Plum in

MANAGEMENT OF STRAWBERRIES FOR FORCING.

To the uninitiated who have not had much experience in the preparation of the plants which produce an expensive crop, any remarks upon the growth of a plant so simple and well known as the Strawberry may appear quite superfluous. This, however, is not really the case, as two men living a short distance apart may start on even lines, both as regards stock, plants, soil, labour, and accommodation, and yet one may fail and the other may be successful in producing full crops of the best quality. Further, cursorily viewed from a short distance the plants which look boldest and best, say, in October or November may cut up worst when taken in for forcing. A most disappointing instance of this kind came under my notice this season, and knowing that readers look to *THE GARDEN* for practical hints, by way of safeguarding the young practitioner, in a few words I will point out the cause of failure. Some 2000 plants apparently well potted and tended with water looked quite satisfactory in a private garden last November. I did not presume to make an examination of the crowns; indeed, judging from the great liberality of the noble owner, I knew that the gardener had ample means for the proper performance of every operation. In one very important matter, however, he had been remiss, for disbudding had been neglected *in toto*. Later on I saw the plants again, and the foliage having been nipped by exposure, from four to six buds on almost every plant were perceptible. This did not look promising, but the management having been changed, the new gardener, given to understand that fruit in plenty must be ready for a certain week in April, commenced forcing, but with strong forebodings of partial if not complete failure. Quite recently I saw the plants upon shelves in suitable forcing houses, but instead of throwing up strong flower-stems, the main buds in many instances had perished, and the four to six weak unripened side buds almost destitute of flowers bore witness to his predecessor's mismanagement. Now had these plants been properly disbudded in August and Septem-

ber, the main crowns, the size and colour of ripe Barcelona nuts, would have thrown up strong scapes, and one of our most expensive fruits would have proved highly creditable.

Having pointed out a simple mistake which has led to fatal results, a few words upon the early preparation for potting may be acceptable and useful to the young beginner, who, as a matter of course, keeps a diary, and henceforth will make a cardinal point of disbudding. Maiden plants put out for stock last August will have quarters to themselves quite away from those intended for fruiting, and having been well planted and heavily mulched, the crowns will now be bursting. The flower-stems in due course will push forth, but runners, not fruit, being the object, these must be pinched out, and the weather being dry, more mulching and a thorough soaking of water may be given to them. When the runners, strong, early, and abundant, are ready for laying, all inferior wires must be removed, whilst those retained may be pinched as pegging down is proceeded with. The whole force of the parent will then be directed to the first set of runners, and as this concentrated vigour will favour the formation of roots, the young plants will be ready for detachment by the middle or end of June at latest. So far, there are no two ways of procedure, but henceforth the management of the young runners will be varied. One grower will peg them down upon very small pots, lightly filled with rich loam, and transfer to the fruiting size when properly rooted. Another, especially if he be short of stock, will margin his rows with thin sods of strong turf, grass side downwards, and upon these he will peg all the runners. Water, as a matter of course, in either case will be given when necessary, and when fit for taking up, the strongest will be placed in the fruiting pots, the weakest will form new plantations. A third grower will fill clean 7-inch pots on wet days, carry them to the plants, peg one runner upon the centre of each pot of compost, tend with water, and in one month his stock of forcing plants will be fit for removal to their growing quarters. As local circumstances alter cases, my recommendation of one method and condemnation of another would be superfluous; therefore, I must leave each individual to follow his own course from the advent of the baby runner to its establishment in the fruiting pot, when the road to success will be marked by copious watering, frequent change of position to prevent the egress of crock roots, and to let in light and air, the removal of runners, and in due course careful disbudding. The small pot system I always think entails a great deal of labour in watering and transferring to the fruiting size, but many masters of the art think differently. Repotting, moreover, requires skill at the bench, as it is important that the small balls be just covered to prevent drying out, whilst deep potting or strangling is fatal. The turf system has been approved and condemned, but it is very simple, and, properly carried out, perfectly successful; whilst stock being scarce, young plants may be made *ad infinitum*. Last and most simple of all comes pegging upon the fruiting pots at the outset, a system I have followed for a great number of years and have found quite satisfactory. The advantages are these: The whole of the work can be performed by a handy labourer; the heaviest part, filling the pots, gives employment on wet days; the soil, in dry condition, can be rammed as hard as the pasture from which it is taken, and each plant sits on the surface—its natural position—where strangling is impossible, whilst fully exposed to sun

and air the plump crowns get thoroughly ripened. W. C.

Winter moth in orchards.—Mr. Crump (GARDEN, March 29, p. 291) appears anxious to shift his ground and to narrow the contention respecting his system of using dry lime, and mine of applying it in a liquid form, as a remedy against moth and other evils affecting Apple trees, as he now states that the chief variance between us appears to be as to whether lime brought to a liquid state by adding water does or does not lose any of its caustic and potent properties as against dry or slaked, and this question he refers and leaves to scientists, with whom I am willing it should remain for decision. This, however, was only one of the differences of opinion, as Mr. Crump endeavoured to show that dry lime could be more expeditiously applied in orchards than wet, and gave the time as two days that it took three of his men and one boy to dust over 100 trees, and against this one man here covered a greater number in sixteen hours, and this, I feel sure, much more effectually, as they are now, after all the frost, snow, and rain, as white as a sheet. I have, therefore, not the least doubt as to its efficacy, as every particle of bark on trunk, stem, and branch is under a coating of wash, in which state it will remain till the lime gradually scales off, and it naturally follows that not an egg or other parasitic germ under or touched by it can have escaped destruction, and I look forward to having clean trees, which will have been brought to this state and condition by a very small outlay in labour. It stands to reason that this must be very small when a man can go from tree to tree with a garden engine and pump up the liquid over them, instead of carrying about ladders and having to mount the same with lime in buckets to throw and scatter among the branches. Lime in a dry state cannot be made to stick like the wash or to cover the parts as effectually.—S. D.

BOOKS.

OUR HARDY FRUITS.*

ALTHOUGH a few isolated individuals have devoted many years to the education of the masses, a real awakening to the many advantages which may be derived from a greater production of first-class hardy fruits is of recent date. The cause or causes of this change undoubtedly are many, such, for instance, as refined habits in the household, temperance in eating as well as drinking, a knowledge of the absolute necessity for a fruit and vegetable diet, a rapidly increasing population pent up in large towns, and last, but not least, the powerful wave of competition which at one time, indeed at the present moment is driving the depressed agri-horticultural farmer out of his own markets. Corn does not pay; the Hop is going out of cultivation; millions of acres of land admirably adapted to the growth of hardy fruits are lying idle; and yet enormous sums of money pass annually into the pockets of colonists and foreigners for various fruits, but principally for Apples, which we might grow to perfection if our slow-moving farmers only knew how to set about the business.

Would-be teachers are plentiful enough; scientific and thoroughly practical men have delivered lectures in the great centres of our population; a Royal Horticultural Society is actually on the move, and a Fruit Growers' Association is organising right good work for the present year in the provinces. So great, indeed, is the anxiety in all quarters, that a Lord Mayor of London has thrown in his mite, and all the mayors in England, as a matter of course, will follow. These steps, no doubt, are very important, but they are not the only steps; the farmer, the cottager, and the amateur must have practice, and that practice must be strengthened by reading sensible and reliable

* "Our Hardy Fruits; a Practical Guide to their Cultivation, for Landowners, Tenant Farmers, Cottagers, and Allotment Holders." By Brian Wynne, Editor of the *Gardening World*. Eyre and Spottiswoode, East Harding Street, Fetter Lane, London.

works upon the thousand and one things pertaining to successful culture. I need not enumerate all the lectures, reports, books, and pamphlets which have come under my notice; therefore, beyond saying all of them may be read with profit, I will dive into the sixpenny book by Mr. Wynne, and published by Eyre and Spottiswoode. This book contains some sixty pages, may be read in an hour, and the editor having plenty of sound practical information to impart, his long experience on the press enables him to put it in a plain, concise form, whilst his facts and figures are free from the exaggeration which has rendered more expensive books comparatively useless. At the beginning the author is careful to put his pupils on the right course, and says a little about "teaching fruit culture in schools," apparently unmindful of the fact that Board schoolmasters are as unpractical as parsons; points out the landlord's duty, and strongly advocates estate experimental orchards combined with home fruit tree nurseries stocked and fed by the trade, who find suitable stocks for every variety and do the work cheaper and better than it can be done by private individuals. Having myself strongly advocated the purchase of trees from the gentlemen who make production their business, I can agree with this part of his statement, but I hold to the home nursery, as trees in a maiden form can be bought cheaply and in quantity for growing on until they are wanted. The author places the Apple first on his list of hardy fruits, gives preference to the Crab stock for standards and the Doucin for dwarfs, points out the way in which an orchard should be planted, and gives short lists of sorts suitable for market purposes. Speaking of Apples, he says, "The Canadian growers send us Apples almost exclusively and in immense quantities, and it is just that particular element in fruit importation which should be met by home fruits. We have ample evidence that as fine Apples, if less highly coloured, at least more solid and more highly flavoured, can be produced at home and in great abundance, and if we would counterbalance foreign importations we must plant extensively of the best sorts and in the best situations." Returning to lists of Apples, the author commences with that noble variety the Blenheim Orange, winds up with Sturmer Pippin, and proceeds to pruning, or rather thinning, fortunately avoiding that terrible blunder advocated in another book now before me, heading back immediately after planting. The Pear, as standard, bush and cordon for garden and orchard, is well handled. The Plum is placed third for market purposes. I think it should stand next to the Apple, but this is a matter of opinion. For private use the Pear may be of most value, but neither can be dispensed with; indeed, the more baskets for eggs the better the prospect for those who live by fruit culture. The Cherry, the Morello, bush fruits, Raspberries, Strawberries, Nuts, &c., receive their share of notice. The lists of each are good, lengthy enough, but not too long considering that this cheap sixpennyworth is intended for all sorts and conditions of men in all parts of the country.

The second part, if I may venture to divide this cheap book into two parts, is, I think, especially valuable, so valuable that the intending planter or owner of old orchards should read carefully before he turns sod or wields axe for the increase or decrease of his property. The principal chapters are "Preparation of the soil and planting," "Root pruning," "Renovating," "Regrafting," "The use of sewage," "Poultry runs," lists of insect enemies of the different fruits well up to date, and, as a matter of course, the best remedies for the prevention of injury. I have read the book with great pleasure, and whilst strongly recommending it to landlords, clergymen, and others for distribution amongst tenants and cottagers, I may venture to inform my brethren of the craft that it is well worthy of their perusal. It contains a few illustrations, is well printed in good type, and, coming from the hand of a clever horticultural editor of long standing, is free from errors. W. COLEMAN.

Bulbous flowers failing.—This spring, beds of Iris reticulata, which here in late years often had

fifty blooms open at once, seldom had more than three or four. Of Narcissus Emperor and Empress, maximum, cernuus, and bicolor, scarcely one bulb in six has bloomed. Stella is full of bloom, and Sir E. Watkin is out fairly. Scarcely any Dog's-tooth Violets are blooming, and now the wild Hyacinths (Scillas) seem nothing but leaves. Presumably the damp autumn has prevented ripening of bulbs. Is this experience general on heavy soils? I have never known it so universal for many years.—J. R. D.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

POT VINES.—Where the berries are taking the last swelling the scissors may be passed over them for the last time to ensure full development by the removal of a few of the smallest before they begin to colour. Steady root action being so essential to a good finish, feeding with warm clarified liquid must be continued for the present. If laterals are still growing they must be pinched where the trellis is well covered, but otherwise tie them in, as every new leaf fully exposed to sun and light will assist in the swelling and colouring of the fruit. Ply the syringe freely upon the surface of the bed and walls and on the lower sides of the leaves where this can be performed without spraying the fruit, also watch for spider and sponge with tobacco water before it has time to spread. Let the temperature range from 65° to 70° at night, with a little air from 8 p.m. to 7 a.m., then shut it off and commence the day ventilation when the temperature touches 75°. Gradually increase this to 80° or 85°, and close early with sun heat and atmospheric moisture, not only to swell the berries, but to economise fire-heat.

EARLY HOUSES will require similar treatment, but being less forward and the roots in colder compost, the night heat should not exceed 65° with a chink of air, as rapid progress can be made by closing early on bright afternoons. Regulate the laterals and foliage to secure an even spread over every part of the trellis. Pinch the strongest to prevent waste of force, but allow the laterals and leaders to run freely down the back walls. Follow up the final thinning, and if the Vines are heavily cropped mulch the inside borders with fresh, but well worked short stable manure. Water copiously with weak liquid or guano water and damp down with the first, but avoid keeping small houses too close and moist through the night.

EARLY MUSCATS will now be in flower and the inside roots being satisfactory, there will be little danger of missing a good set of fruit, but, mindful of the fact that nothing succeeds like success, fertilise with Hamburg pollen, and whilst maintaining a high, yet airy temperature see that the delicate organs do not suffer through the atmosphere becoming too dry. A night heat ranging about 70° is quite high enough, but other conditions being favourable, Muscats on cold nights may be allowed to sink a few degrees lower, that is always provided this rest is compensated by a brisk sun temperature through the day.

MAIN CROP MUSCATS now breaking must be well syringed at least twice a day until the bunches become prominent, but when this stage is reached this operation may be relaxed. Disbud gradually, and in due course keep the shoots tied down clear of the glass; also remove superfluous bunches to prevent exhaustion when they are in flower. Healthy Muscats always show such a profusion of clusters, and the variety being considered somewhat fickle, we are apt to do more harm than good by handicapping the Vines before the outside roots begin to move. If the inside borders have not been watered since the Vines were started, they should have a second supply when coming into leaf and a third when the Grapes are set. Gradually raise the temperature until it touches 70° at night, and a mean of 80° on fine days by the time the Grapes are in flower, but of two evils avoid keeping them too hot and close through the night. If Hamburgs are in flower, collect pollen for Muscats, Lady Downe's and Mrs. Pince's Muscat, by shaking the

bunches over a close-lidded box, which must be kept in a dry place.

Late houses containing bottling varieties must now be pushed on by copious syringing with warm water and early closing with sun-heat. If the summer prove hot and favourable, so much the better; if wet and cold, the full benefit of this treatment will become apparent when the Grapes are colouring and nights are damp and cold. If the renovation of inside borders is contemplated, the operation should be brief and brisk when the buds are fairly on the move. Late Vines so managed hardly feel the check, especially if the new compost be warm and the unoccupied part of the border area filled up with hot leaves. I have removed the inside borders as late as the end of April, and although the bunches have suffered in size, the berries have been fine and perfect in colour. The latest Hamburgs may still be retarded, but when fairly on the move they must be kept going, otherwise the bunches will be small—no great loss, as medium clusters and plenty of them keep best and are of most use.

STRAWBERRIES IN POTS.—As the early batches of plants are cleared away, President, Paxton and other main crop varieties should be rearranged upon the shelves, care being taken that the latter are quite clean and free from insects. Light and air being so important, a thorough turn over about this time, whilst changing the position of the flowers and foliage, will facilitate the setting of the fruit, no difficult matter now the pits can be freely ventilated. As fly may now be troublesome, each batch of plants should be moderately fumigated before the flowers open; the syringe, too, must be very freely plied, and root-watering with tepid water decidedly liberal. Many growers place the pots in saucers for the twofold purpose of feeding the roots and economising labour, but all is not gold that glitters, as an accumulation of stagnant sediment, by choking the apertures and crocks, often proves pernicious. I do not condemn saucers *in toto*, but wherever they are used and filled to overflowing on fine mornings, they should be emptied occasionally, especially during dull weather. If the trusses are strong and flowers abundant it is a good plan to tie them to small sticks, and thin off the weakest before they open, eight or ten fine fruits being quite sufficient for each plant to swell to maturity. Where British Queen, Doctor Hogg, and other choice large varieties are grown for giving full crops of fruit in May this method of sticking and thinning should always be followed, and if wanted to lead up to early sorts from the open air, the lights may be drawn off in the middle of the day when the weather is bright, mild, and favourable. These varieties do well on shelves in light airy houses with just a taste of fire-heat to prevent condensation of moisture upon the petals, but the best of all structures are shallow pits in which they can be plunged in loose leaves or old tan, pushed forward or retarded at pleasure. Each plant should have room for the full development of its foliage, and if not already done, each ball after being rammed may be top-dressed with rich compost, but crock roots having taken to the plunging bed, this operation should be performed as they stand in preference to disturbing them. If spider or mildew are suspected, an occasional syringing with sulphur water will prevent their spreading. W. C.

PLANT HOUSES.

DAPHNE INDICA.—This is usually treated as a greenhouse plant, but where large specimens are wanted it is much better to give the plants an intermediate temperature, especially during the early stages of growth. Managed in this way they will take more water, and will bear liquid stimulants or top-dressings of Standen's manure, so that in three years from the time of propagation the plants will attain a larger size than they ever would grow to without greenhouse warmth. Under the more liberal conditions stated, the growth is so much stronger that the flowers may be cut with a portion of wood attached without the plants being injured in the way that often happens when they are weak and grown slowly. When grown warmer this

Daphne will do with a larger pot, but at best it is a spare-rooting subject, and must not be overdone with root-room. Where the stock, either small or medium-sized, has been kept cool during the winter the flowering will have been proportionately later. As soon as the plants are out of bloom those that require potting should have a shift. Peat that contains plenty of fibre in the proportion of four parts to one of rotten manure and a liberal addition of sand answers in every way. In potting, use the lath freely, so as to make the material solid, as without this precaution it holds more water than the roots like. In the case of plants that have more than an ordinary quantity of active roots, pots two sizes larger than those they have already had may be given; in other cases a size larger will be sufficient. Drain well, and give no water for a week or ten days after potting. The plants should have a temperature of about 50° in the night with a proportionate increase by day. Syringe slightly overhead when the air is taken off early in the afternoon, and let the plants have plenty of light with more air as the season's growth approaches completion.

DAPHNES PLANTED OUT.—Both the white-flowered and the red-tinted varieties of this plant do well when planted out, making growth much more freely than they do under the ordinary slow pot culture. An end wall in a low house or pit where the plants can get plenty of light without being in any way shaded by other things is a suitable position for them. The border should be limited in extent, well drained, and made up of soil such as is recommended for those grown in pots. Strong plants that have been grown in pots for two years should be used; if small ones of the ordinary trade size are planted they have not enough roots to occupy the soil within a reasonable time, and the tops are too far from the glass. Now is a good time for planting out, as both the root and the top growth is moving. When Daphnes are grown in this way it is necessary to use the water-pot carefully, particularly during the first summer, as the soil naturally dries up more slowly than it does in pots. In winter water is only required at long intervals.

FUCHSIAS.—Old plants that were cut in and started into growth some weeks ago should now be turned out of the pots and have most of the soil removed. If they are in pots that are large enough, give them a similar size. Much may be done to keep large specimens in full vigour by the use of liquid manure. Old examples are the best for using in large conservatories when they are required to be in bloom early, for if young ones are allowed to flower early in the season they make little growth afterwards. In the case of old plants all that is requisite after potting is to stop them once, so as to get them fairly furnished with young wood, and then to let them flower.

FUCHSIAS, SUMMER-STRUCK PLANTS.—Plants that were struck from cuttings last summer and that have been growing slowly during the autumn and winter will now require moving into the pots in which they are intended to bloom. To support them through the lengthened season that they should continue flowering, 12-inch pots will not be too large. Turfy loam of medium texture, with some rotten manure, a little leaf mould and sand, forms a suitable compost. If the plants have had due attention in stopping nothing more will be required in this way, as they will have made enough branches to furnish the specimens. Plants that were struck from cuttings in February and were then put into small pots should have more room as they want it, as once the growth gets checked through the roots not having enough support, the plants will push forward for flowering and grow very little. The syringe should be used freely to Fuchsias, both large and small, once every day, being careful that the water reaches the whole of the leaves. Without this they are sure to be attacked by red spider, which soon affects the leaves. Shade in the daytime during bright weather is now necessary; in the absence of this they make little growth.

EPIPHYLLUMS.—Plants that, having been kept

dry at the roots during the winter, have had the soil moistened a few weeks ago will, when last season's growth was well matured, at once show flower. As soon as the flower-buds appear it is necessary to look over the plants to see that they are free from aphides, which if present on any plants in the house where *Epiphyllums* have been wintered are sure to attack the buds, and if allowed to remain will cause deformed flowers. Dusting freely with tobacco powder or fumigating with tobacco paper is the best remedy. Water carefully, for little root-action will take place until the growth commences after the blooming is over, and the plants are more impatient of any excess of moisture in the soil than most things, especially if in a greenhouse temperature.

EPIPHYLLUM TRUNCATUM.—Plants that were forced early will now be making growth. Let them have plenty of light with, if possible, a somewhat drier atmosphere than is given to ordinary greenhouse subjects that make their growth in heat. Under this treatment the shoots get hardened as they advance, a condition which does more to ensure *Epiphyllums* of all kinds blooming well than any amount of drying and exposure to the sun that it is possible to submit them to after the growth is made. The different varieties of *Epiphyllum truncatum*, whether on their own roots or grafted on the *Pereskia*, require less root-room than most plants, yet it is possible to stint them too much in this direction. Any that need larger pots should have a shift whilst the roots are moving freely. Potting is not necessary every year; so make sure that the drainage is efficient.

ASPARAGUS PLUMOSUS.—This and the allied kinds do better with less warmth than is often given them. When grown comparatively cool the leaves last longer when cut than those of any other plant which I am acquainted with that is used amongst cut flowers. A warm greenhouse with a temperature of something like 45° in the night, and a proportionate rise in the day in accordance with the weather and the time of the year, is hot enough. When the plants are strong they require a good deal of root-room. Any that need larger pots should now be moved, so that the coming summer's growth may have the benefit of it. The plants are not over-particular in the matter of soil, but where peat of fair quality can be had, it may be used. For large specimens use the peat in a lumpy state with enough sand mixed with it, and some broken charcoal or potsherds. In potting, do not cover the creeping stems deeply, or it will injure the plants. The different kinds of this section of *Asparagus* are best raised from seed, which the plants when strong and not overdone with heat produce. Stock raised in this way last year and that are now in small pots should be moved to others a size or two larger. T. B.

KITCHEN GARDEN.

SEAKALE.—When the blanched growths have been cut it is very unwise to long delay uncovering the clumps that may have been enclosed by boxes, pots, or any other contrivance for excluding light and forwarding the produce. If a little good manure is forked in round established roots, a light dressing of salt also being given, Seakale will thrive in the same position for several years, fine strong clumps and numerous good crowns being formed. In the course of a few days it will be necessary to thin out the growths freely, a few large crowns being preferable to numerous small ones. It is a mistake to permit the old stems to run up 6 inches or more from the ground, the wiser plan being to cut them now if necessary well down to the soil. There is no risk to be run in the matter, as it is hardly possible to kill Seakale by hard cutting, and the stems will break again freely, however much they may be shortened back.

FORMING FRESH SEAKALE BEDS.—The present is a good time to form permanent Seakale beds, and also to commence the preparation of the requisite number of crowns for lifting and forcing next season. Those contemplating growing Seakale for the first time this year may rest assured that it is very easy of culture, and that it is the usual prac-

tice to force and cut good produce in much less than twelve months from the time it is planted. It ought to be determined now whether the bulk of the crop shall be lifted and forced next season in Mushroom or other heated houses, or merely forced and blanched where it is permanently established. If it is to be lifted, then the cuttings, roots, or previously forced plants, all being suitable, should be put out 12 inches apart in rows 18 inches asunder. Those to be blanched where established ought to be arranged in flat beds so as to admit of batches being covered with pots or boxes and heating material. Supposing several beds are formed, these may consist of two rows of plants with 3-foot spaces between. Groups of three rather than single roots should be put out, these being arranged triangularly and 6 inches apart, the groups being about 18 inches asunder. It is not yet too late to procure the requisite stock of either the Lily White or ordinary form of Seakale from nurserymen, and as these are usually sent just as lifted, it will be necessary to cleanly cut off the crowns in order to prevent flowering, two or three strong young shoots being eventually reserved on each. Seakale generally delights in freely-worked, well-manured ground, and well repays for any trouble taken with it.

SEAKALE FROM SEED.—Seakale can be readily raised from seed, but this is far from being the best method of propagating it. Only by extra good culture can seedlings be grown to a serviceable size in one season, the majority more often than not being nearer the size of pipe-stems. Seedlings, however, can be raised in heat and early transplanted to rich, open ground, in which case they attain a larger size; while, if the seed is sown now in a fairly warm position, thinly, in shallow drills 12 inches apart, and eventually thinned to about 6 inches apart, a useful lot of roots for planting next season will be obtained. Slugs are apt to be destructive among quite young seedlings, and the Turnip flea is also troublesome. Frequent dustings of soot and lime will usually keep off both pests.

SEEDLING RHUBARB.—Much that has just been advanced with regard to raising Seakale from seed also applies to Rhubarb. By sowing in heat at once in a box of fine soil, and pricking out the seedlings when large enough into other boxes, strong plants will be available for the open ground in June; but seeing that no dependence can be placed upon seedling-raised plants coming true to name, it is very doubtful if they ever pay for the trouble taken with them. By sowing now on a moderately warm border in shallow drills 18 inches apart, thinning out the seedlings where necessary, a number of moderately strong plants will result, and from these may be selected a fairly good percentage of well-coloured useful forms. The earliest and best-coloured varieties are *Linneus*, also known as *Johnston's St. Martin's*, and *Early Red*, this also being catalogued under the synonyms of *Early Albert*, *Royal Albert*, and *Crimson Perfection*.

TREATMENT OF YOUNG RHUBARB BEDS.—When newly planted Rhubarb is growing strongly, those owning it are tempted to draw some of the stalks for use, but this is decidedly an unwise proceeding, as it is certain to check and much weaken the plants. They ought rather to be favoured not only this season, but, unless extra strong, to a certain extent next year, as the fewer early stalks there are removed the greater the likelihood of extra strong clumps being formed in a comparatively short time. When the planting is done in showery weather, or when the ground is at all wet, it not unfrequently happens that the work is not properly done. Advantage should be taken of a dry time to well press the soil against the roots with the heel, as, unless properly fixed, they are slow in taking to fresh quarters. Loosen the surface and mulch.

RAISING ASPARAGUS IN HEAT.—By sowing *Asparagus* in heat fully one season will be gained, an object worth trying for wherever strong plants are needed either for forcing or for the purpose of permanently planting. A few hundreds might be reared in ordinary flat boxes, such as are frequently wasted on so many summer bedding plants, or if a

smaller number only are needed or sufficient for a good sized bed or plantation, then ought the preference to be given to 3-inch or slightly larger sized pots, one, or at the most two, sound seeds being placed in each. The seed being sown somewhat thinly in boxes, subsequent pricking out of the seedlings can be dispensed with. In either case the temperature of a vinery, Peach house, or some other moderately warm structure will expedite germination, and the plants should be kept under glass till two or three shoots have pushed up. When duly hardened off and carefully planted out without greatly disturbing the roots, all will continue to grow strongly, and probably equal one-year-old plants raised in the open last season.

W. I.

FLOWER GARDEN.

ANNUALS IN THE FLOWER GARDEN.

ANNUALS play an important part in the decoration of the garden, and their extensive use combined with good hardy perennials will do much towards reducing the enormous expense attendant upon annual autumn propagation and winter-housing and preserving of an extensive and little varied stock of plants annually required for the flower garden. It would be quite possible to have a varied and beautiful summer flower garden without the aid of any stock of plants if one made a careful selection of the good things that can be annually raised from seed, starting early in the year with those that require early raising in heat to have them in a forward state for planting out, and following on with those that require little or no heat, and later with those that might be sown in the open air where they were intended to flower. Although we have long since regarded some choice annuals as altogether indispensable, as, for example, Stocks, yet as a class annuals have been unfairly tried. Whilst readily admitting that some things belonging to this class are very fleeting, yet the majority if grown in a proper way are quite as long-lasting and some are far more useful than the average summer bedding plants. Grown as annuals often are upon poor hungry soil, and the contents of a packet of seed sown upon a little spot that would only suffice for one fully developed plant, they can never be satisfactory nor have a chance to show their value. The overcrowding results in a stunted growth, premature flowering, and early death. But with proper culture we may strongly rely upon seed and seedling plants for all purposes and uses, from the noble and portly *Castor-oil* plant down to the brilliant little *Portulaca*, which upon suitable soil spreads out and covers the ground with a gorgeous carpet. If we would have plants of noble port and great stature we can easily raise from seed such things as *Castor-oil* plants, *Wigandias*, *Solanums*, *Hemp*, *Maize*, *Lavatera*, *Melanthus*, *Tobacco*, *Acacia lophantha*, and others. These sown in heat early in the year can be had quite large enough for planting out when the season comes round. Moreover, they associate well with the lowlier types of flowering plants, many of which are our best annuals. Of these none are sweeter nor more valuable than Stocks, and so greatly have they been improved and so varied are the strains, that one is almost bewildered in attempting to choose from such variety. They start with the German Ten-week and follow on with the Intermediate and East Lothian forms, which, though considered biennials, can be treated as annuals, as if raised early in the year they follow on flowering after the Ten-week kinds, and thus keep up an unbroken succession. Certainly we have not yet fully realised all that the

Stocks are capable of, for although we find them in most gardens during a few weeks of each summer, it is rare to see them, though quite and easily possible to have them in perfection and succession for six months of the year. Asters, too, are pretty, but perhaps not quite so useful as Stocks, as they do not flower so continuously; still, in certain positions, a bed of good Asters (such as that shown in the illustration) forms a charming feature. Zinnias are at a discount in gardens generally, although why this should be so it is difficult to say. There are tall and dwarf, single and double kinds embracing a wide range of brilliant colours. They flower successionally, are long lasting, and last, yet not least, are very effective and enduring in a cut state. To have Zinnias in perfection they need good cultivation. The Sweet Scabious, too, is a most desirable thing to grow in quantity, not only for its rich and varied coloured flowers, but also for its value for cutting. The same applies to the Sweet Sultan and the Cornflower, but of this last the old blue form is as yet far superior to most of the so-called

lutely true, but good selections give a large percentage. In the case of Verbenas, it is possible to obtain seed in separate colours, such as the red, white, and purple. These come very true, and they have a vigour almost unknown in the old type of over-propagated and often diseased bedding Verbenas. Phlox Drummondii, both the type and the grandiflora or improved and large forms are annuals of exceeding beauty, and amenable to such uses as the Verbenas; in fact, with many they have taken the place of Verbenas, although in large gardens there is room enough for both. Petunias, too, are valuable, and are easily raised from seed in the ordinary way. Then our fences and bare walls may be covered with a variety of climbing and free-flowering plants that are easily raised from seed and mostly only of annual duration. Of these there are the climbing species and varieties of *Tropeolum*, especially beautiful being the Canary Creeper. The *Ipomæas*, too, are brilliant with their large and delicate or deep and richly-coloured flowers, clustering among ample foliage. *Mina lobata*, too, is interesting

very old subject under a new name. One reason assigned for granting the plant an award of merit was that the blotched foliage was a new development, but that is the character of the foliage of *T. sessile*. It is a plant evidently not easy to grow, and the form in which it was presented by Messrs. Veitch and Sons did them great credit.—R. D.

Anemone apennina.—This is a charming subject for growing in pots. There are many persons who are prevented from growing many plants planted out from considerations of position and soil, but who can manage some things in pots. Grown in a cold frame, one of the subjects well deserving of culture by such is the Apennine Windflower. Two years ago I broke up a large clump and put a few pieces in pots. I keep the pots plunged in cocoa fibre winter and summer, and the roots flower freely at this season of the year, and present to view a mass of pretty pale blue flowers. It is a very accommodating plant in the open, but evidently likes a moist soil and some shade, though if planted in a good deep holding loam it can be planted quite in the open away from shade. The shade, however, not only brings out a deeper tone of blue on the petals, but also prolongs the beauty of the flowers. One of the finest clumps I have ever seen was growing in a rather open spot in a shrubbery, but surrounded by tall trees, and it was a grand sight when in full flower. Every lover of hardy spring flowers should grow *A. apennina*.—R. D.



A bed of China Asters.

Alyssum maritimum variegatum.—This little plant (also known as *Koenigia maritima variegata*) is very useful for covering groups or lines of bulbs after the foliage of the latter dies down. It requires very little root-room, and the growth being so light and slender, though it spreads and covers the ground well it does not hinder the proper ripening of the bulbs or rob the ground to an injurious extent, differing in this way from most other plants used for this purpose. Unfortunately, it is not hardy, and must be propagated in the same way as most other tender bedding plants, but a few stock plants kept through the winter will now give a large number of cuttings that will strike very readily on a hotbed, provided they are not hard and woody. Unlike many variegated plants, the effect of this as a foil to other things is good. The type is also good, and both are capital bee plants.—J. C. T.

improved forms, many of which are dull and dirty in colour.

The annual kinds of *Chrysanthemum*, especially those of the tricolor section, are very beautiful if well grown, and are also most useful for cutting. Sweet Peas, too, should be found in every garden both for cutting and for ornament. Where a dividing line or a temporary screen is needed, nothing is better suited. There is exceeding variety among them, but for cutting, one of the most valuable is a pure white form, seed of which can be obtained separately. Where there is a reserve garden, an autumn and spring sowing should be made of Sweet Peas for cutting.

We are now able to obtain seed of many plants which we formerly used to preserve through the winter, such things as *Lobelias*, *Ageratums*, *Verbenas*, &c., and the advantage of this is great, if only for the sake of the cleaner and healthier growth which characterises a stock of plants from seed. Of course, special varieties cannot be relied upon to come abso-

lutely pretty in both foliage and flower, whilst *Lophospermum scandens*, *Eccremocarpus scaber*, and, for foliage, the Japan Hop swell the long list of rapid-growing climbing plants that will quickly cover a large space and beautify it for the summer months.

A. H.

Trillium discolor atratum—If the figure of *T. sessile* which appears in volume ii. (tab. 40) of the *Botanical Magazine* can be accepted as accurate, then I think it was *T. sessile* which was exhibited by Messrs. Veitch and Sons at the Drill Hall on the 25th ult. under the above name. I observe that on p. 308 of THE GARDEN you consider the flowers of Messrs. Veitch's plant to be larger than those of *T. sessile*, but an examination of the coloured illustration in the *Botanical Magazine* scarcely bears this out. *T. sessile* appeared to be unknown to the large majority of the committee. I expressed the opinion that it was *T. sessile*, and objected to the name under which the plant was shown in consequence, and voted against the award of merit, not on the ground that the plant was unworthy of it, but because it seemed to me to be a

Auricula seeds.—Circumstances prevented me from sowing as soon as possible after being harvested last summer some seeds of a fine strain of alpine Auriculas, and I had to defer doing so until early in the present year. Two shallow wooden boxes were supplied with suitable drainage. Over this was placed some rough soil, and then a fine compost, which was pressed down level; on this the seeds were thinly sown, and then covered with a slight layer of fine Cocoa-nut fibre and silver sand, and again gently pressed smooth. The boxes were then placed on a shelf, a piece of glass put over each, and shading supplied in sunny weather. The seeds have germinated well, and the tiny plants are making rapid headway. The soil is carefully sprinkled when at all dry, and care is taken that in administering water the plants are not loosened from the soil. As soon as they are large enough, they will be pricked off into store pots, and, when sufficiently strong, placed in other pots to flower. I hope to see some of them flower at the end of the spring of 1891. In pricking off into store pots I find the rooting of the young plant is greatly helped by placing some fine Cocoa-nut fibre in the soil, and adding a gentle sprinkling of silver sand. I do not mean to inti-

mate there is any manurial property in the Cocoa fibre, but Auriculas root readily into it, and it is well to give the young plants something in which their roots will run freely. A batch of seedling Auriculas will flower successionally according to their strength, and almost at all seasons of the year. Plants that bloom in autumn sometimes disappoint when they flower in the spring, when they take on a more reliable character. A promising seedling should always be subjected to a second or third trial in order to test its character to the utmost.—R. D.

Lifting and storing *Gladiolus gandavensis* hybrids.—Permit me a line to say in continuation of the correspondence between myself and "Delta" (pp. 155, 226, and 303) that, except the reference to the abnormal weather he has had in Kent (p. 303), he passes the other points on which we seemed to differ, especially how he would mature Gladioli with green stems when the time for lifting came (*vide* page 226, &c.) . . . Now as to the weather. I am perfectly astonished to hear of 35° of frost registered at Mr. Mount's, Canterbury, in the middle of March. Does this mean 3° Fahr. below zero? If so, I am not aware we had at least during my lifetime—say the last thirty years—any such low temperature in Ireland. The lowest I ever registered—and in winter I kept three thermometers as a check—was 10° Fahr., or 22° of frost. I am surprised more harm has not been done.—W. J. MURPHY, *Clonmel*.

The Day Lily of the Desert (*Hesperocallis undulata*).—This is one of the most beautiful and characteristic plants of the desert region of California. Its flower-stems rise from 1 foot to 2 feet above the sand, and bear from a few to thirty or more fragrant flowers, in colour, I should judge, of a pearly or greenish white, with greenish stripes. I have seen only one in blossom, and that was too far gone to show the genuine tint. This interesting species is one of the most promising novelties of the present season, not only for its promise of furnishing us with another lovely garden flower, but also for its probable economic value in the arid regions of the west. It produces a large edible bulb, varying from 1 inch to 4 inches in diameter, nearly round, with firm flesh. The bulb has a pleasant taste, eaten either raw or cooked like Onions. Our party of seven have had them cooked at nearly every meal since we first tested their qualities, and in the lack of other vegetables find them acceptable. The bulb is found from 6 inches to 18 inches below the surface of the sand or fine gravelly soil, in which the plant thrives best, and is usually found resting on moist gravel or a clay subsoil. It is common on the Colorado and Mohave Deserts, and usually blossoms on the Mohave in the month of May. Near the boundary line it bloomed in 1889 as early as February, and was in seed in April. This year only a few plants are found showing as yet any signs of a flower-stem, but a few weeks of warm weather will doubtless bring them forward. The Indians are said to obtain both food and drink from this plant when crossing the plains. For eighty or a hundred miles along our southern border one may travel at certain seasons without finding water. The traveller is safe, however, if he knows how to search successfully for this important vegetable, and once found he need not fear either hunger or thirst. Should it prove susceptible of easy cultivation in the arid regions of the west, it will form a valuable addition to our list of vegetables. It will certainly be a welcome addition to the garden, if not an acquisition to the farm.—C. R. ORCUTT, *San Diego, Cal., in Garden and Forest*.

Tulipa Greigi forced.—A Berlin correspondent writing to *Garden and Forest* says:—

The beautiful Tulipa Greigi from Turkestan is another flower which had been forced for exhibition. It began to bloom about the 20th of January and lasted for a long time. It was remarked, however, that the colours of the flower were not so brilliant, nor the marking of the leaves so decided as when the bulbs were grown in the open air. It was stated that this Tulip, unlike most others, does not thrive well in a sandy soil, but needs a strong one, which does not thoroughly dry out in the summer-time. Deep plant-

ing is also necessary for its best development. It has been stated that Tulips and Lilies give the best seed when the scapes are cut and put in water to ripen. Under these circumstances the reserved nutrition is used for the development of seeds, while in the other case, where the scape remains on the plant, the reserved nutrition is carried downward to be stored in the bulb. The question is one of sufficient interest to demand investigation, as is another to the effect that in England some growers of Chrysanthemum seed cut off the flowers and place them in water, thinking that in this way they get better seed.

VIOLETS.

THE exceedingly brilliant weather at the present moment (March 29) has had the effect of driving in Violet flowers with unwonted rapidity. A week or ten days of this forcing weather and all will be over, the market will have been made for the year, and the grower must look in other directions for his returns. It would seem as if after all no newly introduced flower could displace the Violet in popular estimation. It has colour which suits the popular taste, and it has the most delicious perfume, which charms all. It is possible that Violets would find more difficulty in keeping up their undoubted popularity in the market did they compete with Carnations and Roses, but happily they bloom so early and when flowers from the open ground generally are scarce, that they have few competitors. Violets are essentially street flowers, although such is the enterprise exhibited by our flower sellers of the streets, that they exhibit when the flower trade really opens a wondrously varied stock-in-trade. For that variety they have largely to thank Continental importations, as our gardens are bare indeed of flowers except for Violets, Wallflowers, Primroses, and some few things, which are not grown in bulk. We have no flowers indeed which are cultivated so widely in certain market garden districts as are Violets, because, on the whole, the crop is assured at some time, let the weather be what it may, and the cultivation is not expensive. Probably the most costly item in the culture of Violets is found in the rental, from £4 to £6 per acre being frequently paid for the land on which they grow. The soil answers admirably if it has grown vegetable crops always well manured for a few years, and having been deeply ploughed in the spring, the plants, broken up into handfuls of the youngest growth from the old stock, are set out in rows about 2 feet apart. If the work be carefully performed, each of these pieces will have developed into plants 9 inches across by the next spring, and double that width by the second year. The cultivation, therefore, is trifling beyond using the hoe freely, so that once a breadth is laid down the cost of after-cultivation is comparatively moderate. To obtain robust crowns which will produce bloom freely, the best site for the plants is an open field. To secure plenty of leafage, which also is an indispensable element in market Violet sale, the best place for the plants is beneath orchard trees. Ordinarily it might be said that few crops pay better to plant beneath old orchard trees than Violets, but they receive much injury when the fruit is gathered from treading by the fruit pickers.

How seriously the prevailing epidemic, if it be such, amongst Violets is affecting the market growers' interests is evidenced from the statement made to me by one of the largest cultivators in Middlesex, to the effect that he feared the large-blooming sorts, notably The Czar, would soon be exterminated. A belief that the constitution of the variety is so weakened, that to such weakness is due the destruction of leafage which now is found yearly to be the case, has led him to order seed of German strains of

the variety with a view to determining how far the introduction of fresh blood into the Violet could counteract the now too evident tendency of the large-leaved strains to become defoliated. Loss of leafage early in the winter is productive of comparative death to the plants later. So long as it was believed that the defoliation was due to the destructive nature of London fogs, no one worried much about it, but the past winter has been more free from fogs than has any winter for many years, and not only is the Violet still suffering, but it has suffered miles beyond the range of the metropolitan fog; hence the conclusion seems to be justified that the plants are the victims not of some temporary affection, but of some constitutional disease. It is true the large-leaved varieties, such as The Czar, Victoria Regina, &c., suffer much more than do the smaller leaved Russian Violet, which is presumably more hardy; but still, the latter fails entirely to produce those big masses of foliage and bloom so prevalent at this time of the year some twenty seasons since. The double Violets are exceedingly tender in leafage, the foliage, which may be both plentiful and strong, collapsing utterly under the influence of two or three sharp hoar-frosts, and especially with fog prevalent. It does seem probable that hot seasons would help to create leafage of a hardier description, as the more recent summers have been rather cool. Still it is generally believed that a constitutional disease prevails. It would seem as if, following the admirable example set by Hollyhock growers, the raising of seedling plants might eventually overcome the difficulty. It is true the Hollyhock fungus has not been destroyed, but at least it is far less injurious with seedling plants than it is with older ones or those propagated by cuttings. It is worthy of remark, however, that our best or stoutest seedlings seem to have come from German stocks, and it is presumed from clean strains. In the same way seed obtained from at once robust and clean stocks of single Violets, whether from Germany or elsewhere, may help us eventually to overcome the present trouble and restore our Violets to their former usefulness. Violets when they do well enable growers to make fair profits, and give good, well paid employment to hundreds of women for a season. They also are creative of occupation to myriads of poor persons in London and large towns who find some little profit in retailing them to the public. It is, therefore, for these as for numerous other reasons most desirable that through some agency our old robust strains of Violets should be restored to us in perfect health.

A. D.

MIDDLESEX PLANTS.

A RECENT leader in one of the London journals, referring to the rapid extinction of rare plants in Great Britain, especially instanced Middlesex as having lost fifty-eight species within a comparatively recent period. This number is obviously obtained from Trimen & Dyer's "Flora," and although the actual loss is great enough to be deplored, it is happily not so great as these figures indicate, for it is certain that several species thus included have since been re-found, at least a fifth of them by myself alone. Amongst this list of losses the Orchids were conspicuous; indeed, all the less common species found a place there. It may therefore be some satisfaction to learn that nearly all the species hitherto recorded for the county were gathered last summer during an hour's evening stroll upon the hills of our very limited chalk district. Thus *Orchis mascula*, *O. pyramidalis*, *O. maculata* (in one case with all the flowers inverted), *Ophrys apifera*, *O. muscifer*, *Neottia Nidus-avis*, and *Gymnadenia conopsea* were all gathered within the space of 100 yards. This was the first appearance of *Gymnadenia* above ground;

at all events it had hitherto eluded every search for it during many years, and probably it has not been gathered since Collinson's last record about 1790; only a single plant was seen, however. On another hill *Ophrys apifera* was abundant, and *Orchis pyramidalis* in such profusion that in one spot I counted seven plants growing in a circle of a few inches diameter. In the copse skirting the hill was *Habenaria chloroleuca*; in the valley beneath, *O. incarnata*; and further to the south, *O. latifolia*. I must confess that, seeing these Orchids growing in such unusual abundance around me, it seemed an unaccountable mystery how they managed to get relegated to the limbo of "extincts"! Taking it for granted that *Orchis purpurea* was absolutely an error, *O. ustulata* is now the only species wanting to complete Blackstone's records. In his time (about 1737) he found it only "sparingly." Collinson (about 1790) owns that he could "never find this sort," so that it would appear to be irrecoverably lost. It is a curious fact that all the records of the old collectors are from the great "chalk-pit," where after many years' search I have never happened upon an Orchid of any kind. Yet, as showing how tenaciously this and certain other species cling to a habitat without spreading beyond, in the woods intersected by the county boundary more than one Orchid, *Dentaria bulbifera* and *Hordeum sylvaticum* grow on the Middlesex, and not on the Herts side, whilst *Cephalanthera grandiflora* and other plants are found in the Herts division only, notwithstanding that soil and other conditions are exactly similar, and that the plants in many instances grow at the very edge of the almost imaginary line which divides the wood—little more than a copse—into two artificial districts. With *Habenaria bifolia* secure near Edgware, and *Orchis militaris* elsewhere, we may hope that our Orchids are safe for some time to come. It would indeed be matter for congratulation if as much could be said for sundry other plants which still linger on, but which we know too well are doomed in the near future.—J. BENBOW, in *Journal of Botany*.

CHRYSANTHEMUMS.

NEW CONTINENTAL CHRYSANTHEMUMS OF 1890.

WITH the closing days of March comes a cessation of the French Chrysanthemum raisers' catalogues. They have been for some years past pretty lengthy, and the eloquent language employed to describe all the beauties of the new flowers thus announced would do credit to a far nobler cause, for the new French Chrysanthemums that have made a name for themselves of late have been few and far between. Simon Délaux perhaps still continues to lead the way, but there has been a great falling off in the quality of his flowers during the last three or four years. Taking first-class certificates as a test of merit, he has had a smaller number of his productions honoured than usual, and out of all the varieties distributed from his nursery last year, only one, a charming little pompon called *Lune Fleuri*, of a pleasing shade of orange-buff and perfectly spherical in form, can really claim to have captivated the eye of the Chrysanthemum admirer.

M. Rozain-Boucharlat appears to be studying the question from the exhibitor's point of view, and his *Etoile de Lyon* and *Condor* will not readily be forgotten by the earnest devotee of big bloom cultivation. We understand that the former has thrown a pure white sport, so that we may soon expect to see a monstrous companion to a flower that already promises to be grown and shown to a large extent for some little time to come.

Among the numerous Chrysanthemum seedling growers of the Midi we miss productions this spring from Dr. Audiguier, M. Pertuzès, M. Baco, M. Macary, but this will appear to be no calamity when we count up the total number of those distributed by the more regular contributors to our collections, such as M. Délaux, M. Rozain-Boucharlat, M. Lacroix, M. de Reydellet and M. Hoste. Ninety new Chrysanthemums in all from these sources appear to be the total, which, considering the present is to be

celebrated as the centenary year of the introduction into England, is surprisingly small, and not equalled in that respect by any year since 1881.

In the following list the descriptions have been materially abridged from those given by the raisers. It has been considered sufficient to supply the reader with just a brief indication of colour, form, and season. With this object in view, all the Japanese varieties are catalogued together, no separate list being deemed necessary in the case of those varieties reported to be early. A simple mention of the fact terminates the description in such cases. Pompons and Anemone-flowered Chrysanthemums of the various sections will be found to be scarce this year, and as regards the incurved section, those varieties described as such must be somewhat suspiciously regarded. The French idea of an incurved flower and ours do not agree in many instances, and it will be prudent on that account for the lover of incurved blooms to allow sufficient time to pass to enable him to learn their merits before embarking upon a purchase, otherwise he will probably be sadly disappointed.

So far as we are aware, only one of these novelties has been illustrated in the foreign horticultural press. It is the one called *Rose Laing*, and a capital coloured figure of it was published in the *Revue de l'Horticulture Belge* for Feb. 1 last.

It is a matter of profound regret, so far as nomenclature is concerned, that some attempt is not made to ensure the giving of entirely new names to the flowers in every case. *Circe*, *Lakmé*, *Mme. Mézard*, *Marginatum*, *Eugène Giat*, *Tricolor* have all been used before to identify other flowers, and, in addition to this, many of the other names are so nearly like some already in use, that unless great efforts be made constantly to maintain a distinction consisting often only of M., Mme., Mlle. or an initial letter, the varieties will be thrown into utter confusion, and the buyer will be the sufferer, for he will not be able to depend upon obtaining what he has ordered or meant to order. Fortunately, there is one factor in the case that relieves our anxiety not a little, and it is the thought that possibly in two or even three years at most three parts of the flowers now enumerated will have found a place where hundreds have gone before—the rubbish heap.

JAPANESE.

Albéric Lunden (Délaux).—Colour bright dark carmine, shaded crimson, speckled white.
Arthur (Crépey) (Rozain).—Broad petals, canary-yellow and chrome; semi-early.
Aurore (Lacroix).—Colour of burnt sienna, striped golden yellow in centre.
Caméleon (Rozain).—Sulphur-yellow, edged with light purple, striped chrome-yellow.
Cesare Costa (Hoste).—Bright poppy-red; broad petals.
Cirré (Lacroix).—Buff, shaded light rose.
Charles Molin (Rozain).—Golden-buff, mixed with rose; broad petals; early.
Cléopâtre (Lacroix).—Thin petals; pure white.
Diadème (Rozain).—Bright purple, tipped gold.
Edouard Lafont (Délaux).—Broad drooping petals; amaranth, speckled white, with a few Anemone petals in the centre of bright yellow.
Esclarmonde (Lacroix).—Salmon-rose, shaded creamy-white.
Fulminant (Rozain).—Bright fiery red.
Galathée (Lacroix).—White, tinted salmon.
Giovanni Mazzi (Hoste).—Bright rose, white reverse.
H. de Vilmorin (Lacroix).—Brick-red, golden-yellow reverse.
J. Pernet fils (Lacroix).—Soft rose, lightened with white.
Jean Du Lut (Rozain).—Broad petals; snow-white; imported from Japan.
Joseph Bernard (Lacroix).—Fine rose, passing to white at tips.
Jules Toussaint (Délaux).—Broad petals, bright carmine, silver reverse.
Lakmé (Lacroix).—Rose, passing to creamy-white in centre.
La Perle (Rozain).—Broad incurving petals, pearly white.
Le Farfadet (Lacroix).—Bright chestnut-red, light reverse.
Lumière Electrique (Rozain).—Tubulated petals, open at tips; pure white.

Mme. Anaïs de Reydellet (Reydellet).—Long petals, carmine-rose, white at base, centre nearly white.
Mme. Antoine Ricotte (Rozain).—Pearly white covered satin-rose, reverse slightly tinted sulphur.
Mme. Arthur Morcen (Reydellet).—Long broad petals, magenta-rose.
Mme. Bréant (Reydellet).—Long flat petals, bright rose at base and pure white at tip.
Mme. Charles Rofard (Délaux).—Broad petals, with dark claret-coloured cerise stripe in the middle; bright old gold edges.
Mme. Ch. Vanderlinden (Reydellet).—Long petals; magenta dark rose slightly tipped white.
Mme. Ernest Bergman (Délaux).—Drooping petals, silvery white striped violet-rose, creamy centre.
Mme. Eugène Mulson (Lacroix).—Pure white.
Mme. Eugène Puvrez (Reydellet).—Dark vermillion, tubular petals.
Mme. Ferdinand Bergman (Délaux).—Broad petals, dull white, centre cream; early.
Mme. Gaston Menier (Délaux).—Buff, shaded golden rose, darker centre; long lacinated drooping petals.
Mme. Léon Collin (Délaux).—Long drooping petals, bright orange-yellow, slightly shaded red; early.
Mme. Léon Grosjean (Reydellet).—Stiff tubular petals, light amber end of tubes garnet-red.
Mme. Mézard (Lacroix).—Pure white, striped soft rose.
Mlle. Marie Hoste (Lacroix).—Creamy white, striped and edged with amaranth.
Mlle. Marie Mauret (Délaux).—Globular Japanese, orange old gold, shaded rust-red, dark yellow centre.
Marie Azam (Lacroix).—Pure white.
Marie Tindel (Lacroix).—Soft rose, striped white.
Marginatum (Rozain).—Dark violet, striped and edged white.
Marguerite Decazis (Lacroix).—Soft rose, darker reverse.
Marguerite Delobel (Reydellet).—Bright violet-rose, tipped white; early.
Minerve (Lacroix).—Resembles *La Frisure*, but broader petals and colour darker.
M. Baqué (Lacroix).—Coppery-rose, shaded salmon, golden reverse.
M. B. Comte (Reydellet).—Broad petals blood-red, golden-yellow reverse.
M. C. Petit (Reydellet).—Old violet, tubular petals.
M. Cuvelier (Reydellet).—Stiff purple-rose petals, lighter at base.
M. de Chavagnat (Reydellet).—Long flat petals; light carmine; centre straw-yellow.
M. de Reydellet (Reydellet).—Long semi-tubulated petals; light magenta, tipped white.
M. Dufossé (Délaux).—Violet-rose, striped silvery-white.
M. Ernest Bergman (Délaux).—Petals old gold at base, tips bright velvety crimson-brown, gold centre; early.
M. E. Davrillon (Hoste).—Dark purple-violet, rose reverse.
M. Fougat (Reydellet).—Broad flat petals, dark carmine-red, bronze reverse; rather early.
M. Harry Laing (Délaux).—Base of petals silvery white, tips rose, edged carmine-rose, striped with white, golden centre; early.
M. H. de Fortanier (Hoste).—Garnet-red, shaded poppy colour, broad petals.
M. Leo Delibes (Lacroix).—Violet-amaranth-rose, speckled white in centre.
M. Léon Say (Lacroix).—Dark violet-amaranth, reverse striped gold.
M. Mézard fils (Lacroix).—Soft rose, light reverse.
M. Robert Heen (Délaux).—Pure white, slightly striped with rose.
M. Ulrich Brunner (Hoste).—Carmine, shaded violet, tubular petals.
M. Van Imschoot (Reydellet).—Broad flat petals, bright carmine, deepening towards the tips, silvery rose reverse.
M. Victor Patallier (Hoste).—Fine bright yellow, broad petals.
N. Faisant Lamott (Rozain).—Long broad petals, carmine-rose, salmon reverse.
P. Radaelli (Rozain).—White, centre canary; early.
Portalis (Lacroix).—Colour of burnt sienna, lightened orange-red and gold, reverse old gold.
Renée (Rozain).—Long broad incurved petals, blood red, spotted golden yellow, reverse old gold. Imported from Japan.
Rose Laing (Délaux).—Claret-coloured crimson, turning to old silver, shaded violet-crimson, centre vinous crimson, tipped gold; early.
Secrétaire Général Cassagneau (Délaux).—Silvery white ground, shaded rose.
Stanley (Reydellet).—Poppy-red, tubular petals of light bronzy chrome-yellow.

Souvenir de M. Menier (Delaux).—Broad petals, bright crimson-red, shaded velvety dark brown, reverse old gold; early.

Sulphide (Lacroix).—Light chrome-yellow, striped chestnut.

Vice-President Audiquier (Lacroix).—Light rose, passing to white.

Vivand Morel (Lacroix).—Soft rose, striped white.

INCURVED.

Eugène Giat (Delaux).—Bright violet-amaranth, shaded brilliant velvet brown, silvery reverse, old gold centre.

Mme. Delchot (Delaux).—Globular blooms, bright orange-red, well incurved, golden centre.

Mme. Deraet (Reydellet).—Creamy white, reverse rose, tipped and edged rose, rather early.

M. Hilliet (Hoste).—Reddish-brown.

M. R. Bahuaud (Hoste).—Carmine-rose, shaded cerise, globular flower.

M. R. Sautel (Hoste).—Silvery rose, white reverse.

Sabine Mea (Reydellet).—Globular flower, fine golden yellow.

JAPANESE ANEMONE.

Emin (Reydellet).—Long petals, light rose, centre light citron-yellow passing to white.

POMPON.

Striatum elegans (Rozain).—Garnet-red, striped chrome-yellow.

SINGLE.

Fleur Promise (Delaux).—Long curly petals, colour rose slightly shaded carmine, white ring round the disc.

Mme. Albéric Lunden (Delaux).—Pure snow-white centre, edges lined rose on white ground.

Mme. John Lawson (Delaux).—Broad petals, bright scarlet-red, old gold at base.

Mme. P. Jung (Delaux).—Long thin twisted petals, rose glazed white.

M. L. A. Dufour (Delaux).—Broad petals, carmine-violet-rose shaded purple-scarlet, silver reverse.

Tricolor (Delaux).—Carmine-rose, spotted and striped silver white, yellow disc with white ring.

ANNUALS AND TREES AT BALMORAL.

THE following notes were found among the late Mr. Marnock's papers, and have been kindly forwarded to us by Miss Marnock. They were written in the autumn of 1888, and were the last thing he wrote on gardening:—

Summer in the Highlands has this year proved an exceptional one, and has not been so favourable for botanical enterprise and mountain climbing as past years. April, May, and June are said to have been bitterly cold, and during July, August, and September we have had but very few thoroughly bright sunny days, and dry throughout; this atmospheric condition has been frequently accompanied by a very low temperature.

In the pleasure grounds (close by) surrounding Balmoral Castle, situated some 10 feet or 15 feet above the river bed, the thermometer on Sunday morning, August 19, registered 30°, in other words 2° of frost. Surrounded with such atmospheric conditions, to discuss the question of flower beds or the cultivation of bedding and tender plants would seem altogether a hopeless topic. It is not so, however; the kindly law of compensation is ever waiting on the thoughtful, and if beds of Geraniums cannot be grown here, there are from nearly every quarter of the globe innumerable varieties of very beautiful annual and herbaceous plants which not only live and grow, but luxuriate here, as if Nature had provided the exact climate and soil adapted to their special requirements. Having spent several summers in the very heart of the mountains close to Balmoral, and favoured

with access to the grounds, I have enjoyed watching the mode of meeting the difficulties of climate, and with special interest the very successful treatment of the flower garden with its usually brilliant and gorgeous display of annuals, forming as they do satisfactory substitutes for the usual bedding plants of more southern localities. Mr. Paterson, the gardener, whose management of annuals and herbaceous plants is admirable, has mainly to think of the question of autumn display, and that should be at its best about the end of August.

The effect of the brilliant and distinctive colouring produced by masses of these annual plants would, I venture to think, please the most ardent bedding advocate.

I have said soil and climate may have much to do with the favourable result in question. In this mountainous district the soil is naturally peaty, sandy, and very light. The climate in ordinary seasons during July, August, September in this locality at least is reckoned generally dry, with a fair amount of sunshine, but less fierce and scorching than in the more southern and lower altitudes. The effect of this modified sunlight together with the waning period of the year produces in the case of both annuals and perennials a delicacy and brightness in the bloom analogous to the effects which a gardener will understand are produced by shading plants when in flower from bright sunshine.

Bright sunshine is, however, sorely needed in this highland region to cheer the anxious hearts of the farmers and cottars eagerly waiting and longing to see the ripening process commence, the emerald green of many of the small outlying cornfields up on the higher misty hillsides changing into the golden tints of the late and lingering harvest. The all but incessant wet of the past summer has been productive of some interesting and suggestive effects on many forms of vegetable life. It has resulted in a greatly increased fertility of the very restricted agricultural products of the surrounding locality. The highland farmer mostly stakes his all on corn, cattle, and Turnips; if the first of these this year be safely gathered in, this harvest will be to him a most satisfactory and successful one. The extra growth of about double the quantity of straw this season will at any rate afford an opportunity to the small farmers and cottars of supporting a larger number of store cattle throughout the long and hard winter.

Not less striking have been the effects of the past cold, wet, and cloudy summer on the growth of trees and shrubs. In discussing this matter with Mr. John Michie, Her Majesty's forester in charge at Balmoral, he thinks that owing to the large amount of rainfall during the summer, there is an average excess of about one-third extra growth throughout the Balmoral forests. It will naturally occur that this increase of growth will not be restricted to the extra length of the annual shoots of either trees or shrubs.

On one of my visits to the Ballochbuie

Forest, near the Falls of the Garawalt, I came upon a ponderous log—a windfall—torn up by the occasional fierce gales which every now and then visit this mountain district, uprooting some of the mightiest monarchs of the forest. I found on trying to count the rings, showing the annual growth, that, of course, they differed greatly in size; but, not only this, at a particular period of fourteen or fifteen years, I found a single ring was almost double the average size of the annual growth. It would be very interesting to ascertain what the result of the past wet season has been in this respect; whether any unusual increase on the growth of past summers has taken place, and hence whether the two large rings I found on the huge log, divided by an intervening period of fourteen years, was a result produced by a specially wet summer, such as the past of 1888.

Craithic, by Balmoral.

GARDEN FLORA.

PLATE 748.

THE GENUS CYRTANTHUS.

(WITH A COLOURED PLATE OF C. SANGUINEUS.*)

THIS is a genus of South African bulbs of which twenty species have been described. Its characters are exceptionally heterogeneous, as will be evident to anyone on comparing *C. McKeni*, *C. obliquus* and *C. sanguineus* with each other. The first has small bulbs, linear leaves, a slender scape, bearing a small umbel of flowers with a narrow tube 2 inches in length. There are twelve species with characters approximating to this one, differing mainly in the length and form of the tube and in colour, ten of them being red or scarlet, one white (*C. McKeni*), and one yellow (*C. lutescens*). Another group of four species is typified by *C. obliquus*, which has a bulb as large as a man's fist, leathery strap-shaped leaves, each 2 inches wide, and a stout scape bearing a drooping umbel of broad-tubed orange and green flowers, as in *Clivia nobilis* or *Blandfordia*. The third group is represented by *C. sanguineus*, which has lanceolate-stalked leaves, each $\frac{3}{4}$ inch broad, and a scape bearing from one to three large campanulate flowers, with broad reflexed segments, as in *Vallota*. Five species are included in this group which until recently formed a separate genus, under the name of *Gastronema*. A new species lately discovered in the Transvaal by Mr. Galpin, after whom it is named, is said to have flowers similar in size and colour to those of *C. sanguineus*, and ought, therefore, to be a good garden plant.

Although almost every one of the species described is pretty when in flower, yet scarcely one can be called a popular garden plant, and this notwithstanding the fact that nearly all of them have been cultivated here within the last fifty years. They have never become es-

* Drawn for THE GARDEN by H. G. Moon in Messrs. Veitch's nursery, September 27, 1889. Lithographed and printed by Guillaume Severeys.



CYRTANTHUS SANGUINEUS

established garden plants in the same way as have *Vallota*, *Belladonna*, and *Nerine*. This is explained by the behaviour of the *Cyrtanthi* when under cultivation. Herbert said of them, "They are altogether plants of difficult culture, the bulbs being more disposed to dwindle and rot than to increase in bulk." Certainly if they were as easily managed in the garden as *Nerine* and some other Cape genera of *Amaryllidaceæ*, they would long ago have become great favourites with bulb cultivators. So far as my experience goes, the bulk of the species require conditions of too special a character. On the other hand, there are a few which are easily accommodated, these being the only species known in English gardens. It is probable that with the revival of a taste for the cultivation of plants such as *Cyrtanthus*, we shall yet succeed in hitting upon the right kind of treatment for the majority of the species. Meanwhile we may note here what is known of those kinds which are in cultivation now, viz., *C. McKeni*, *C. lutescens*, *C. Macowani*, *C. obliquus*, and *C. sanguineus*.

C. OBLIQUUS.—Dean Herbert appears to have cultivated only three species of *Cyrtanthus*, and for this one he recommended stove treatment. But at Kew this species is represented by a large specimen, which has flowered every year since 1887, and is now developing five stout flower scapes. Here it is grown out of doors in full sunlight against a south wall from June till September, then placed in a greenhouse and kept dry until February, when it is put in an intermediate house and well watered until it flowers. It is potted in sandy loam and fed with liquid manure during active growth.

C. MCKENI AND *C. LUTESCENS* are easily managed. They are evergreen, require no rest, and they flower freely and continuously all the summer through. The first named has been amongst the African plants in the great Palm stove for many years; it is, however, perfectly happy in an ordinary greenhouse.

C. SANGUINEUS was introduced from Caffraria by Messrs. Backhouse, of York, in 1845. It was shortly afterwards described and figured by Dr. Lindley, who called it a very handsome bulb, deserving of general cultivation even in the most select collections. Since then it has been noted here and there in cultivation, but it was almost an unknown plant when Messrs. Veitch exhibited it last year at a meeting of the Royal Horticultural Society, when it was awarded a certificate. A few years ago Sir Trevor Lawrence obtained a hybrid from this species and the closely allied *Vallota purpurea*, and which was named *C. hybridus*. When well grown *C. sanguineus* produces leaves each a foot long, a scape 9 inches high bearing two or three flowers, each fully 4 inches across, and shaped as in *Vallota*. It requires the same treatment as *Vallota*, with the addition of a degree or two more heat in winter.

Other species cultivated at Kew and in a few other gardens are *C. Macowani*, *C. angustifolius* with its variety *ventricosus*, and *C. Tucki*. These have narrow leaves, slender scapes, with an umbel of from six to ten narrow-tubed flowers, their colour being bright scarlet or scarlet and yellow. Mr. Gumbleton grew *C. Tucki* in 1885 with a scape 15 inches long bearing an umbel of sixteen flowers, each 2 inches long, and coloured yellow and crimson.

It is a remarkable fact that, except *C. obliquus*, all the *Cyrtanthi* and indeed all bulbous plants of whatever kind at the Cape

have their bulbs buried from 6 inches to a foot in the ground. *C. angustifolius* flowers under very peculiar circumstances. When at the Cape three years ago I was informed by Mr. Galpin, who knows the wild plants of the Grahamstown districts very well, that he had never found this species in flower except after the "veldt" had been fired by the farmers to render the land more fertile, when the *Cyrtanthus* is almost certain to push up its flower-spikes a few weeks afterwards. I was taken one afternoon to where a fire had been, and there sure enough were hundreds of the beautiful scarlet flowers standing out clearly amongst the charred surroundings. It was suggested that certain conditions favourable to the flowering of these plants were afforded only after the Grass had been burnt, the fire-heat itself being probably one.

Miss Bowker, of Natal, records the same circumstance in relation to this species, stating also that by burning straw over cultivated plants she has often induced them to flower.

I found *C. sanguineus* in a wood skirting the Buffalo River, near East London, where it appeared to prefer slight shade and moisture. W. W.

STOVE AND GREENHOUSE.

ANOPOPHYTUMS.

THESE small-growing plants require to be grown suspended upon a block of wood, or, what is better, in shallow earthenware pans, similar to those which are now so largely used for *Orchids*. They should have but little soil, and that should be peat fibre and *Sphagnum Moss*, made firm. The drainage must be kept in the most open condition and the plants taken down and dipped as occasion may require—in fact, treated the same as *orchidaceous* plants. When growing, *Anoplophytums* require a liberal supply of water to their roots, and this is why I am so particular about the drainage being of the first importance. The more water a plant requires, the more reason is there to be particular about the drainage being kept in thorough working order, so that nothing becomes sour or stagnant about the roots. In plants like these now under consideration, which do not make a great quantity of roots, extra attention is necessary. I see the genus *Anoplophytum* of Beer is made a sub-genus of *Tillandsia* by Baker.

A. GARDNERI.—This plant was named by Lindley many years ago in honour of the collector Gardner, who found it in South Brazil. It was first introduced to cultivation by the Messrs. Rollisson and Sons, of Tooting, in the year 1876, from Trinidad, and believing it to be new and unnamed, it was named in honour of the firm; in 1881 it was figured in the *Belgique Horticole* as *A. incanum* (E. Morren). It found a ready sale among the French and Belgium plant growers, and I believe nearly every plant crossed the water. This, I hope, will not occur again, but at the present time I cannot name a place in England where it can be obtained. It forms a beautiful, full, and dense rosette, the leaves being some 6 inches or 8 inches in length, broad at the base, gradually tapering upward to a fine point, slightly recurved, the whole plant densely clothed with silvery-white and shining scales, which give it a hoary and unique appearance, being quite soft to the touch. The spike of bloom is about as long as the leaves, slightly decumbent, clothed with a dense coat of hoary scales like the leaves, the flowers being small and bright red. This plant must not be syringed

heavily; the water lies in its foliage too long, and brings on decay. It should be taken down and dipped without wetting the leaves. It comes from Brazil, both the southern and central parts, and also from Trinidad.

A. GEMINIFLORUM, another pretty species, is a native of Brazil, but not by any means a new plant, as it has been in cultivation nearly fifty years. It forms a dense rosette of erect leaves, which are some 6 inches long and taper upwards into a fine point, plain green, the upper surface and the edges slightly scaly; the peduncle is longer than the leaves and furnished with sharp-pointed bracts, which are faintly tinged with red; the tube is long and much exserted, and of a reddish-purple hue; two or three of these spikes make a fine show, as the spike is very dense.

A. STRICTUM.—This is of about the same size as the preceding, but the leaves, deep green and flaked all over with a sparse covering of scurfy white scales, are not so broad at the base; the inflorescence is usually shorter than the leaves. The bracts, which are thin and dry in texture, are rosy red. The flowers vary from lilac to deep blue, and open during the winter months. It is found in Brazil and British Guiana.

A. PULCHRUM, sometimes called *pulchellum*, is another very pretty species; the leaves, some 4 inches or 6 inches long, are deep green, clothed with scurfy white scales, and form a dense rosette. The flower-spike, slender and longer than the leaves, is furnished with numerous bright red bracts, from which the flowers protrude. The flowers are white or deep blue. It blooms during the dull days of winter, and a well-grown specimen when in flower is very showy. It is a native of Southern Brazil and Trinidad.

A. AMENUM.—This is by some only considered a variety of the previously named kind. The slender falcate leaves are nearly destitute of the lepidote covering so conspicuous a feature in *pulchrum*. The spike is longer than the leaves, the peduncle and bracts being bright red, and the flowers large and rich deep violet. It comes from Brazil.

The above are a few of the best species in the sub-genus *Anoplophytum*, and all are exceedingly beautiful if treated in the manner described, and they are worthy of everyone's care and attention. These beautiful plants if moderate care be given them return it a hundredfold, but they are too frequently neglected, and then I must acknowledge they present a withered, dry, and wretched appearance. No one neglects a Pine when he has it, his aim being to get its fruits to the greatest size and ripeness; and why not the flowers of its relatives, which do not produce edible fruits?

W. H. G.

Fuchsia Roderick Dhu.—This being a good time for putting in cuttings of *Fuchsias* to make useful little plants for the autumn, it may be of some service to call attention to the merits of an old and seemingly almost forgotten kind. Twenty years ago the variety *Roderick Dhu* was thought a great deal of, and I think even now it is quite equal to most of the newer ones; while as a *Fuchsia* for room decoration, it beats all the others I have ever tried. It is a small and compact grower, making well-shaped little plants which flower very freely in 6-inch pots; while perhaps the greatest claim it has to usefulness is the very long time, for a *Fuchsia*, that it will carry its flowers in a room. The flowers, which are single, are very distinct in form, the corolla being of the type known as "crinoline" and of a pleasing purple colour, while the sepals are bright red.—J. C. TALLACK.

Azalea mollis and the double Ghent varieties for forcing.—The former of these has given me more satisfaction than ever before during this spring in a forced state for cutting. The plants were extra good ones when potted up after coming fresh from the nursery. In potting them I took especial pains, having good soil, intending that they should remain a few years in the same pots, firm

potting, of course, being strictly followed. They have thus far developed very fine trusses with a very small percentage of the flowers dropping prematurely, to which at times this Azalea is predisposed. The great variety of colour, in most pleasing shades from straw-white to pale yellow and onwards into darker shades, but always of soft colours, causes them to be most attractive and quite distinct from anything else even at this season of the year. It is a good plan to remove them when the flowers are expanding to a rather cooler house; thus when cut they will last in a better condition when used for decoration. Their own foliage associates well with them in a cut state, sufficient of which can generally be had by cutting the stray shoots. The double Ghent varieties take rather longer to bring into flower than the preceding, but they are excellent when once expanded. For cutting to send away packed I should prefer them to *A. mollis*, as I consider they travel better and last rather longer, although they do not make quite so good a show. *A. narcissiflora* is a beautiful double yellow kind; *A. Graf von Meran*, white, with a rosy shade, a fine kind; *A. Rosette*, rose-carmine, shaded white; *Van Houtte fl.-pl.*, bright salmon-red with yellow spots. Both of these types of hardy Azaleas when forced should have as much attention bestowed upon them after they have flowered as if they were greenhouse kinds. The growth should be well hardened after it has been all made before there is any attempt at turning them out of doors. Thus treated I have flowered them well for several years in succession, although not so profusely as the first year after receiving them from the nursery, but quite sufficiently to render them valuable.—J. H.

PRIMROSES UNDER GLASS.

VIOLETS are grown in frames and in pots in cool houses, and there is no reason why Primroses that are very similar in their nature should not be made use of in the same way. Some of the modern strains of Primrose exhibit a great inclination to bloom during the winter, and we should get quite a nice show of blooms from November onwards in the open if frost did not come now and then to kill off the expanded flowers. If the early part of the winter should be mild there is sure to be a number of expanded blooms at Christmas, and a plant in a 4½-inch pot bearing half-a-dozen good blooms is really a treasure at that time and during the first two months of the year, or even indeed during March, the early part of which is frequently so inclement that the Primrose season does not set in till quite the beginning of April. This year is no guide, for March has been as kind to hardy flowers as April is generally, and Primroses have been blooming beautifully from the beginning of the month. Still, even with an abnormally fine March the wetness of the weather is shown on the flowers. Rainy days with very damp nights are sure to tarnish the blooms, which, moreover, are sure to come larger under glass where the atmospheric conditions are more equable. For windows I do not know of anything more charming than a few pots of Primroses in early spring, but the plants must not be put where fire is frequently made or they will become too weak to bloom well. In the beginning of the winter I chanced to give a friend who is very fond of flowers, but who has no greenhouse, a few coloured Primrose roots, and he had the sense to pot them up, and for the last two months they have been making a fine show, to the great envy of neighbours. In connection with this way of employing Primroses, it is worth noting that yearling plants naturally bloom somewhat earlier than older ones, and that the individual flowers they produce are finer in form, colour, and size. If seed is sown as soon as ripe and the young plants put into good ground in a shady situation and kept well watered, they will make fine specimens by autumn, commencing to bloom in October. If taken up, put into 5-inch pots, and placed in a cold frame or in the window of a cool room, giving them plenty of air in fine weather, they come on slowly, one advantage of this protection being that the foliage is preserved in a perfectly fresh condition.

Plants of this description are preferable in all respects to old stools that have been divided. It is not only the single varieties, but also the fine double kinds that can be utilised in this way. Nothing can be finer in the way of hardy spring flowers than the old crimson Pampadour, Cloth of Gold, Ruby, and others when the blooms develop without check. Many do grow them in this way very satisfactorily, keeping them in pots all the year through, but I think it better to plant them out, after blooming, in good soil, as the extra root-run causes the crowns to come much larger.

J. C. B.

PANCRATIUMS.

In my early days *Pancratiums* were largely grown and much valued. The introduction of new plants then was not so rapid as it is now, and these fine bulbous plants remained long a source of ornament to our stoves, their pure white fragrant flowers giving unusual delight; but the time came when new plants became the rage, and many fine old plants were gradually ousted, and amongst them *Pancratiums*, to make room for the newly arrived favourites. A decade or two back, however, many of the old plants again became favourites, including the *Pancratiums*. Several of our nurserymen have lately introduced some new kinds, and many of the old ones would be invaluable if reintroduced. There are not a great many species of *Pancratium* to be found either in nurseries or in private gardens; but it is to be hoped the kinds have been carefully preserved in the botanic gardens, and through these the general plant growers may hope to have them at command. I know that many kinds are to be found in the gardens at Kew, so that those having an opportunity of visiting these public gardens can see them in full beauty in the season. These plants are for the most part evergreen bulbs, and the great majority of them have pure white flowers, yielding a most grateful perfume. They have long slender tubes, and one or two flowers arranged with Fern in a small glass afford a chaste and graceful adjunct to a sitting room, the fragrance yielded by them being strong, but at the same time very agreeable. *Pancratium* and *Hymenocallis* are two genera so very nearly allied that they are for the most part mixed together in what few gardens they are to be found. They are mostly natives of tropical countries and require stove heat, although some few species are sufficiently hardy to thrive in the greenhouse, whilst in our southern and western counties a few will stand in the open air, but these require to have properly selected sites and to be mulched well in winter, for the hardy kinds are not evergreen. The *Pancratiums*, like many other kinds of bulbous-rooted things, do not like to be frequently disturbed, and I well remember years ago some of the best plants I ever saw had not been repotted for years, but they were supplied with nutriment by frequent applications of liquid manure. The soil best suited for them is a mixture of good loam and leaf-mould, with the addition of a fair share of well decomposed manure, the whole well mixed, and made fairly sandy. They enjoy an abundant supply of moisture; therefore drain well, and maintain this in thorough working order. Water, during the summer months, may be given very freely, both to the roots and overhead, with the syringe, and the atmosphere also may be kept well charged with moisture, but during the winter months very little should be given. Some cultivators dry them quite up, but this is not necessary to produce flowers, and by shrivelling the foliage the plant becomes disfigured. When the flowers open, they lack the beautiful green leaves, which add to the dis-

play. Therefore, my advice is, during winter keep the plants fairly dry, but do not allow the leaves to suffer to any extent, and then in the winter and summer some of the specimens will produce their welcome flowers. The finest specimen of *Pancratium amœnum* I have ever seen had twenty spikes, containing 212 flowers. The following are the names of a few of the best kinds, all the flowers being white. All those not marked are stove kinds:—

<i>adnatum</i>	<i>mexicanum</i>
<i>amœnum</i>	<i>macrostaphanum</i>
<i>carolinianum</i> (hardy)	<i>occidentale</i>
<i>caribæum</i>	<i>ovatum</i>
<i>collinum</i>	<i>parviflorum</i> (half-hardy)
<i>fragrans</i>	<i>plicatum</i>
<i>guianense</i>	<i>Reginæ</i>
<i>illyricum</i> (the hardiest of all)	<i>rotatum</i> (half-hardy)
<i>littorale</i> (half-hardy)	<i>speciosum</i>
<i>maritimum</i> (half-hardy)	

G.

PLEROMA ELEGANS.

AMONGST the old plants now so seldom seen, this, I think, is one of the best. It used to be exhibited at the July shows of the Royal Botanic Society, Regent's Park, and I have grown and staged it at shows in Aug. and Sept. Thus it cannot be urged against it that the flowering period is a short one; indeed, under good conditions it is the reverse. If I were about to commence growing it, no better time than the present could be chosen, as it will now be growing more freely. In the case of a small plant some care is necessary in its treatment. If left to itself it will grow away too tall, and hence the plant soon becomes undesirably leggy. This can be easily remedied by frequent pinching of all the stronger shoots, which should be continued all the first season, when the plant has made two joints after each break. This will soon equalise the vigour of the plant, and by another year a good compact bush will have been formed. Continue the following season to pinch the points of all strong shoots, so as to keep the plant well within bounds; those shoots not stopped will probably flower if grown in a light well-ventilated greenhouse. The next year a good crop of bloom may be had, and I venture to say that when it is in its full beauty, no plant will be more admired than this, with its rich blue flowers and the foliage of a bright shining green. When the plant gets too large it should be cut down, after having been well dried off at the roots to guard against excessive bleeding. It should be kept dry until a fresh break is visible, then, if grown in gentle heat, an excellent bush will soon be formed by continuing the pinching process as recommended, afterwards gradually hardening off till it will stand in the usual greenhouse temperature.

This *Pleroma*, like other *Melastomaceous* plants, does not like sharp currents of air, especially in rather cold weather. It thrives best in good firm fibrous peat and silver sand. I would not use loam unless the peat was inclined to be spongy. Potting, which should be done in the spring, so that the plant may be well rooted by the autumn, is necessary. When a full-sized flowering specimen has been obtained, the plant will be all the better for being allowed to be pot-bound. After a cut-back plant has re-started into growth, it should be reduced at the roots and repotted into a smaller pot, so as to permit of another shift when needful. The young shoots will probably be produced in good numbers. These should not be allowed to grow up too closely, but be gradually drawn outwards.

It is always a good plan to have a few young plants growing on for future use. These are best obtained by cuttings of the half-ripened wood, which will strike freely enough. About equal parts of rather fine peat and silver sand will do for this purpose. The cuttings should be inserted around the edges of the pots, which should be plunged into those of a larger size in such a way that bell-glasses may be used to cover the pot in which the cuttings are placed. These cuttings

when rooted should be potted off before much growth is made, and kept in a little heat until the following spring. If well managed from the outset nice compact plants may be obtained by frequent pinching. A moderately dry atmosphere is at all times preferable to any excess of moisture. I remember on one occasion having a plant in a close moist atmosphere, when an excrescence was soon formed upon the leaves, which eventually caused them to fall prematurely. When growth is active, water at the roots should be given freely, but neither liquid manure nor any artificial stimulant is necessary to the successful cultivation of this *Pleroma*. J. H.

PELARGONIUMS SELDOM SEEN.

SOME classes of Pelargoniums, such as the zonal, Ivy-leaved, and various forms of the large-flowered, are now grown to such an extent that the merits of others are completely overlooked, yet there are several very beautiful kinds among the original species, and the earlier hybrids raised therefrom, many of which have almost dropped out of cultivation. At one time those with scented foliage might have been met with in all gardens, often in the shape of large specimens. These Pelargoniums were greatly in request when gathering an old-fashioned nosegay (its agreeable fragrance being a necessary feature), but in the formal arrangements of the present day they seldom find a place. Still even now a handful of flowers intermixed with a few sprays of scented-leaved Pelargoniums is valued by all, and in many cases far more than the regulation bouquet would be. Some of the best of this class are crispum, forming a slender upright growing plant with small purple blossoms. The leaves are fan-shaped, rough in texture, and most agreeably scented. The large woolly-leaved tomentosum smells much like Peppermint. The Nutmeg-scented, sometimes known as Lady Mary is another of the best, and during the summer its little pinkish flowers are borne in great profusion. In some the foliage is very prettily cut, among them being that known as the Oak-leaved. This last-mentioned name is applied to several, all of which are well worth cultivation. Those with divided foliage include Fair Ellen, denticulatum, quercifolium, radula, radula majus, Little Gem, and viscosum. The pronounced smell of this last is not generally admired, but some may prefer it, and the foliage is very finely divided. No notice of these Oak-leaved Pelargoniums would be complete without mentioning the variegated Lady Plymouth, whose foliage is very clearly marked, and therefore stands out quite distinct from all the others. The list of scented-leaved kinds is by no means exhausted, for to the above may well be added Lady Scarborough, Prince of Orange, and Pretty Polly, this last having very large leaves most agreeably scented, and besides this it bears its flowers in great profusion if planted out during the summer. The blooms are salmon-pink with large maroon blotches on the two upper petals. Many others of the above flower very freely when grown in pots, but planted out they grow so strongly, that comparatively few blossoms are produced. The foliage borne by these very succulent plants is also not so well adapted for cutting as in the case of those that are confined in pots, as it flags so quickly after being separated from the parent.

Very different from any of the other scented-leaved varieties are those included under the head Unique, and which in all probability claim parentage from *P. capitatum*. The best known of these is Rollisson's Unique, which is of a rather loose, rambling habit, and on that account is generally grown secured to a trellis, which if of moderate size it will soon cover with beautifully scented foliage. It is also very free-flowering, so much so, indeed, that where a few large plants exist they are (if favourably situated) rarely without blooms, which from their bright colouring are very showy. The flowers are borne in compact trusses and on a long stout stem, so that they are extremely useful in a cut state. Their colour is a rich crimson-purple, but there are others whose only point of

difference is the hue of the flowers. Thus we have the red and lilac Unique as well as Rollisson's variety. In a structure whose minimum temperature throughout the winter is 50°, these Pelargoniums will flower during the greater part of that time, their bright-coloured blossoms being then very acceptable. Their rambling habit fits them for training on the roof, or, better still, the end of a glass structure, and for hanging baskets they are also very useful.

Totally unlike the last are the members of another little group, including the original species echinatum and varieties raised therefrom. They are usually spoken of under the vague term of Cape Pelargoniums, which might with equal correctness be applied to all our garden forms. The typical pectinatum has stout spiny stems of a woody texture, and forms an upright sparsely branched specimen. The flowers are borne in clusters well above the foliage, and are very bright and cheerful at all seasons, but especially so during the autumn, as if grown on for the purpose during the summer they will bloom well on into the winter months. The flowers of pectinatum are of the purest white, with a feathering of maroon on the upper petals, while others of this class are Ariel, with rosy crimson coloured blossoms; and Pixie, in which they are pink, both of them having the upper petals blotched.

A variety said to be the result of a cross between *P. fulgidum* and *P. lobatum* is one of the oldest hybrid Pelargoniums, but now, unfortunately, very scarce. This is Ardens, a variety with rich crimson flowers, shaded with scarlet. True, the individual blooms are not large, but they are wonderfully rich in colour, as also are those of another old favourite, *P. Schottii*, whose blooms are a velvety crimson-purple, shaded on the upper petals with blackish maroon. This flowers well during the autumn and winter. The typical *P. tricolor* is a pretty little plant, forming a short branching specimen that flowers freely. The blossoms have the two upper petals crimson and the lower white, thus contrasting markedly with each other. The large strong-growing *P. cucullatum* is represented in our gardens by a double-flowered form, but the blooms are very small in comparison with the strong, bold-looking plant on which they are borne. The colour of the flowers is purple with blackish veins. I have seen this variety used as a foliage plant in Battersea Park during the summer, but it flowers little so treated.

H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Eucholirion corallinum.—This makes an elegant specimen when not in flower, forming a dense rosette of leaves, which are each from 18 inches to 3 feet long, bright green above, brownish-purple beneath; the raceme is erect, bearing numerous flowers, which are arranged in a distichous manner. The flowers are large with a bright yellow calyx, the inner side of the mouth tipped with emerald green, thus forming a very pleasing combination of colours. It comes from Central Brazil.

Abutilon vexillarium.—This pretty trailing Abutilon, so well figured in THE GARDEN for March 22, deserves to be more grown in the open air and on the roofs of cold houses, conservatories, &c. It stood uninjured in the open air as an edging to a shrub bed for two winters in North Hants. As a roof plant in a cold house it is most useful. We have a plant of it in this garden growing under a rafter in a greenhouse. It grows very freely, its long shoots, hanging down for yards, being covered with flowers which are very useful for filling tall vases. It is planted out here in a small narrow border, and the stem is thicker than a man's wrist. The plant is cut in hard every winter. —J. C., West Dorset.

Eucholirion Saundersi.—This is also a plant from Brazil, which although not so striking when in flower, yet as an ornamental foliage plant is most desirable. It forms a very dense rosette, the leaves being short and broad at the base and recurved, silvery-grey on the upper side, profusely speckled beneath with brown. The spike is erect and bears a somewhat lax panicle, the flowers and the bracts being both bright yellow. This plant was, I believe, introduced by W.

Wilson Saunders, of Reigate; and although kindly distributed by him it never became common, and at the present time I fancy it is very rare in this country. —W. H. G.

Agathosma rugosa.—The genus *Agathosma* numbers nearly half a hundred species, but very few are now in cultivation, though they are certainly quite as ornamental as many things more commonly grown. They are near allies of the *Diosmas*, and, like them, are natives of South Africa. *A. rugosa* and a variety with coloured blossoms form a very attractive feature in No. 4 greenhouse at Kew at the present time, several well-flowered specimens of each being now at their best. The plant in question forms an upright growing, much-branched bush, whose slender twigs are clothed with small neat foliage, and invariably terminated by a closely-packed cluster of blossoms, which in *A. rugosa* are white, and in the variety *oblonga* lavender. These plants require very similar treatment to many of the other small shrubs from the same region, that is to say, a soil consisting principally of sandy peat, with especial care in watering at all seasons, and during the winter a stagnant atmosphere must be guarded against. —H. P.

THE HIPPEASTRUM.

It is very interesting to trace the efforts that have been made to popularise this or any other genus of plants by the production of good and distinct garden varieties from seeds. It is stated at p. 260 that the elder De Graaff, of Leyden, and the late Louis Van Houtte, of Ghent, took their cue in the matter of the raising of seedling Hippeastrums from Dean Herbert; and it is also implied there that Herbert was the first to raise Johnsoni. This is not quite correct, as Johnsoni, or *Regio-vittatum*, was raised and first flowered by a Lancashire shoemaker named Johnson in the year 1810, but Herbert flowered it in 1811 from his own hybridising. It is a cross between *H. regium* or *H. Reginae* of the *Botanical Magazine*, 453, and *H. vittatum*. Johnson's cross was supposed by him to be between *H. vittatum* and *Sprekelia formosissima*. Herbert raised it again from the same cross at Highclere some years later. Of course this Lancashire shoemaker, whose name is known to us only by the single plant of Hippeastrum, may not be compared with Herbert, who made the whole family a special study and raised many interesting varieties of this genus, as we know from his descriptive notes of hybrid or mixed crosses in his "*Amaryllidaceae*," p. 142. His system of naming his hybrids may have been correct, but it was very cumbersome, the specific name being obtained by uniting the seed and pollen parents. He further complicated the matter by giving the same plant a latinised name of individuals he wished to honour. The following are specimens: *H. Carnarvonii*, or *solandrifloro-Johnsoni*. He says this is "a magnificent cross raised at Highclere, and Spofforth named from my lamented brother." Another was named Haylocki, or *solandrifloro-bulbosum*, &c. Herbert was not only a good gardener, but a trusted authority. It is but justice to the memory of the elder De Graaff to say that he did not take his cue from Herbert, but from his uncle, who grew Hippeastrums at Leyden and raised seedlings from them so long ago as the year 1790. He could not have had very rich material to deal with; but *H. Reginae* had been introduced in 1728, and flowered for the first time on the birthday of Queen Caroline, consort of George II., in honour of whom it was named. *H. striatifolium* had flowered in the nursery of Messrs. Lee, of Hammersmith, in 1781, while *H. vittatum* was introduced into Europe in 1769. The father of the present Herr S. A. de

Graaff took charge of the work handed down to him by his uncle in 1830, and M. De Graaff in a letter before me says, "My father was always working for rich and decided colours, and used the following species or seedlings from them, viz., vittatum, croceum, fulgidum, and Johnsoni." *Sprekelia formosissima* was also tried, but there is no evidence that seeds were obtained from it, or that its pollen was effective on any other varieties. No journal of work seems to have been kept, and they were simply crossed over and over amongst themselves. M. S. A. de Graaff took over the work from his father in 1862, and he says, "I was looking out for large flowers, and used for that purpose *H. psittacinum* and *brasilense*. These were crossed with the fine varieties already raised in the establishment," and M. De Graaff adds, "from these we obtained large, well-formed flowers as well as the deep rich colours." Empress of India was obtained here by crossing a dark seedling of *H. psittacinum* with a seedling raised by the elder De Graaff named *Graveanum*. There are two varieties of this name, one having been raised in France, so there may be a little confusion if the one should happen to be substituted for the other. I obtained all the information that I thought would be useful when preparing my paper for the Royal Horticultural Society, and the evidence in my possession proves conclusively that the De Graaffs were cultivating and improving the *Hippeastrum* quite independently of Herbert. Unfortunately, Herbert's work was lost after his death for want of someone to carry it on. The work of the De Graaffs was handed down from uncle to nephew, from father to son, and the result may be seen in the historical city of Leyden to-day. When Dean Herbert's establishment was broken up, his gardener, Mr. Carton, went to Syon House Gardens, Isleworth, and from there he wrote an excellent article on the *Hippeastrum* in the first volume of the now defunct *Florist and Pomologist*. The cultural directions are excellent, and are much the same as are now adopted in Messrs. Veitch's nursery, where such excellent results have been obtained. He gives the names of the principal species and varieties that formed the basis of Herbert's work. They were "*H. Reginae*, equestre, solandriiflorum, striatum, miniatum, rutilum, fulgidum, vittatum superbum, crocatum, psittacinum, calyptatum, stylosum, striatifolium, pulverulentum, and alicum platypetalum." Mr. Carton adds that "*H. vittatum superbum*, crossed by *Reginae*, produces beautiful varieties of Johnsoni; this, again, fertilised by Johnsoni produces splendid flowers. Seedlings from Johnsoni, by rutilum, are of a most brilliant colour, well deserving the name of splendens, given to it by the late Dean of Manchester; they flower very freely. Seedlings from Johnsoni by psittacinum are truly beautiful, and psittacinum, or any of those seedling varieties, crossed with striatifolium produce lovely delicate flowers, traced like net-work." It would, probably, be very difficult to obtain the above selection of varieties, but there is yet a wide and fair field for the hybridist if he would be willing to hark back to first principles. It is well known how Messrs. Veitch came in with their beautiful original introductions, *H. Leopoldi* and *H. pardinum*, and revolutionised the entire genus; their work is now before the public, and can be seen in their Chelsea nurseries. Not much has been said or written at any time of the good work done in the nurseries of Messrs. Kelway at Langport, Somerset. They have boldly struck out a course of their own, and have made excellent progress in cultivating them on

the half-hardy system. They have now a stock of 20,000 named varieties and seedlings treated in the following manner: The bulbs are planted out in the ordinary soil of their nursery in an open situation, the ground being first well enriched with old hotbed or cow manure, using a liberal proportion of yellow sand. Span-roofed frames, 9 feet wide, with wooden sides and ends, are placed on the ground, and the bulbs are planted out from 2 inches to 4 inches deep, according to their size. Drills are made for them from 6 inches to 9 inches apart, and the bulbs are from 3 inches to 6 inches asunder in the drills. It requires about two or three years for the bulbs to grow into a flowering size. When they have grown to that size they are potted, and the pots are plunged out in frames much in the same way as Hyacinths and other bulbs are treated. They produce the general display of bloom in May, but flower-scapes are occasionally produced all through the summer. These bulbs receive no artificial heat, but are protected during winter by a covering of hay inside the frames and ordinary mats over the glass outside. Doubtless a hardy strain has been obtained by selection, and as an assortment of them has been exhibited in London, and may be again, the public have had sufficient opportunity to judge what they are like. There are rich and decided colours amongst them, but the corolla of the flowers is narrower and the petals more pointed than in the best strains of the hothouse varieties; nevertheless, they are very elegant, and being so easily cultivated, they must be excellent subjects for those who would like to possess such flowers, but are not able to afford the luxury of a hothouse.

J. DOUGLAS.

The double white greenhouse Rhododendron.—The beautiful double white *R. balsamiflorum* album is a flower which should commend itself to those who want a neat bloom for making button-hole bouquets. It opens with a greenish tint, but changes to a clear ivory white. The history of this variety is interesting. Mr. Heal, the raiser, discovered on a truss of bloom one flower which showed a tendency to doubling, and forthwith removed all the blooms except this, fertilising it with its own pollen. Seed was produced, and from that pod resulted not only the pure white, perfectly double variety, but also double flesh-coloured, rose and yellow. Plants of it are in bloom now in Messrs. Veitch's nursery at Chelsea.

Violets dying off.—Employers are none too ready to listen to excuses gardeners may have to offer against any failures that take place, and they would appear to be especially sceptical with regard to any break down in the case of Violets under glass. I can fully appreciate their disappointment and annoyance in this particular instance, having this season especially met with several very bad failures, but I am not prepared to admit that the respective gardeners are wholly to blame in the matter, or even that they could have checked the disease. This subject I have before alluded to, but am returning to it in order to comment on the remarks by T. Arnold on p. 304. The disease he has had to contend with is quite an old, if most objectionable acquaintance, and altogether different to that with which "W. B.," "H. E. G.," and others have had to contend for the first time, on a large scale at any rate, this season. As T. Arnold pointed out, the older disease, most probably a *Peronospora*, is much the same as affects Lettuces, is communicated from the surface of the soil, and destroys the whole plant. For this T. Arnold gives a very good remedy, but much the same method of procedure has been tried in two different gardens in this neighbourhood in the case of the other disease without checking it in any way. With the newer and more destructive disease, as far as foliage and flowers are concerned, failure is scarcely the fault of the grower, any more than a

man can be blamed for not being able to prevent Potato disease. Nor is frost responsible for the apparently partially burnt foliage.—I. M. H.

Lilium Harrisii.—Several thousands of this variety are imported every year principally from America, and it is probable the numbers will greatly increase, for it is a most beautiful Lily for flowering early in the year, that is in the case of imported bulbs, as when grown in this country they have more the character of the typical *Lilium longiflorum* and bloom later in the season. This is in all probability to be accounted for by the imported bulbs being ripened so much earlier, as they reach this country while *L. Harrisii* in the open border is still fresh and green. In purchasing this Lily one practice so often followed is that of obtaining the bulbs too late in the season, as nearly the whole of them reach here during the latter part of August or in September, and consequently if dormant bulbs are obtained after Christmas they will, of course, have remained on the shelves of a warehouse or in some similar position, and will consequently be greatly weakened. When there is a still further delay in potting them, the bulbs, as a matter of course, still lose power, and to such an extent that small bulbs potted in September will flower quite as well as those double the size that are not potted until February. Even if a succession of blooms is required the bulbs should be all potted without delay, as the after-treatment may be so regulated as to vary greatly the time of flowering.—H. P.

Double-leaved Sundew (*Drosera dichotoma*).—This is one of the best known of the Australian Sundews, and it is also one of the easiest to cultivate successfully, for, given the treatment accorded to the general run of greenhouse plants, it will grow well. It is a species that attains a height of 6 inches or more, the erect footstalks, which support the curiously forked leaves, that are thickly covered with hairs, being each terminated by a drop of glutinous substance, which secures all the small flies and other minute insects that alight thereon. It is of free growth, and forms quite a cluster of leaves when in a flourishing condition. This Sundew will do well in a mixture of peat and Sphagnum, while ample drainage is also necessary. It is most at home if the atmosphere of the house in which it is growing is somewhat moist, and in a dry airy greenhouse a good plan is to plunge the pot in which the plant is growing within another, and fill up the intervening space with live Sphagnum. This species is perennial, and can be readily increased by suckers. If desired to obtain a quantity this can be readily done, provided a few old plants are available, as they may be shaken out of their pots, all the soil removed, and the larger roots cut up into lengths of an inch or two and laid in pans of sandy peat, or peat and Sphagnum. These pans should be placed in a fairly moist spot till the young plants make their appearance, when they must be potted off, and will then grow away quickly. In the case of established plants, if shaded a good deal, the leaves remain quite green, but where fully exposed to the sun they acquire a reddish tinge.—H. P.

St. Helena Ebony.—Mr. Morris, at a late meeting of the scientific committee, alluded to the peculiar vegetation of St. Helena, now confined, for the most part, to a small area in the central and higher part of the island. Many of the trees formerly native to the island are now all but, or quite, extinct. Among them is a species of *Trochetia*, or *Melbania*. The trunks of this tree are embedded in the cliffs of the island, and are dug out by the inhabitants for the sake of manufacturing ornaments. The following quotations from Melliss' exhaustive work on St. Helena refers to this plant: "The native Ebony of St. Helena.—This plant I believe to be now extinct. It formerly grew on the outer portions of the island, near the coast, at altitudes of 2 to 4, where the weather-beaten stems are still found deeply imbedded in the surface soil. The last plant I saw was a small one growing in the garden at Oakbank, about twenty-five years ago, but it is not there now, and I have searched the whole island over for another, but in vain. The

leaves were dark green and the flowers white; the wood is very hard, heavy, black in colour, and extremely brittle. It is still collected and turned into ornaments, which are much prized on account of their rarity. That this tree once formed a considerable portion of the vegetation clothing the island on those parts that are now quite barren, is strongly evidenced by the many references to it in the local records. Pl. 29. It is the *Dombeya erythroxylon* of Andr., *Bot. Repos.*, vi., t. 389, not of Willdenow." It is interesting to know that the plant is still in existence under cultivation at Kew (and perhaps elsewhere) under the name of *Dombeya erythroxylon*. At the present time the plant, which was obtained from the gardens at Herrenhausen, is in flower at Kew. Mr. MacLachlan called attention to the interesting remark on the rare plants of St. Helena, contained in Mr. Wollaston's book on the "Coleoptera of the Atlantic Islands."

KITCHEN GARDEN.

CELERY.

LIKE almost all other vegetables, Celery affords an example of the modifications which are produced in typical plants by cultivation, the effects of which are analogous to those of domestication in the case of animals. In order to have a correct estimate of the subject, from seeing the progress which has been made, it is necessary to consider the two extremes of the starting-point and the terminus, that is, the wild type of the



Apple-shaped Celery (one-sixth natural size).

plant and that form of it which is now regarded as the most highly developed one. The wild Celery (*Apium graveolens*) is an umbelliferous plant belonging to the genus *Apium* (established by Hoffmann), and is nearly related to the Parsley (*Apium Petroselinum*, L., *Petroselinum sativum*, Hoffmann).

The following description of it was furnished by an examination of specimens collected in Lower Brittany and sent to us by M. Blanchard, head gardener at the Naval Hospital, Brest:—

A perennial plant with a caespitose root-stock which runs underground and forms a dense spreading tuft or sheet by sending up numerous shoots; the roots also are stoloniferous, and bear slender rootlets, which are not tuberous in any way. The leaves are numerous, all radical; limb of the leaf irregularly and deeply pinnatifid, and unequally toothed. Leaf-stalk angular, channelled, hollow, and, like all other parts of the plant, having a slight, but distinctly perceptible odour of Celery.

When we consider the characteristics of the plant thus described and compare it with the varieties or forms of it which have been obtained by cultivation, we are surprised at the great degree of importance which botanists attach to the frequently insignificant characteristics of their species, and especially do we

wonder at the distinction which they are so eager to make in favour of the superiority of a species or type over any varieties which may be raised from it. In this they are certainly wrong, from an economical point of view, at least.

In the case of the Celery plant, we do not know when, how, or by whom the first improvements were made, but we do know that the



Common Celery or Turnip-rooted Celery (one-sixth natural size).

leaf-stalks are the part of the plant which was first improved by cultivation, under which they gradually became larger and more solid. At some time or other later on, a small enlargement of the root was observed in some plant or plants, and this new feature was carefully encouraged until the enlargement gradually developed into the great size now seen in the root of the Celery or Turnip-rooted Celery (see illustration), the increase in the size of the root



Curled solid white Celery (one-sixth natural size).

being accompanied with a corresponding diminution in the size of the leaves and leaf-stalks.

In the meantime, while these improvements were in progress, certain changes were, in some cases, observed in the colouring of the leaves, while the stalks assumed a purplish tinge, as in the *Céleri Violet de Tours* (known in England as the London Market Red, or Ivory's Nonesuch Celery). A similar modification of colour occurred also amongst the Turnip-rooted kinds, in some of which the leaf-stalks took on a pur-

plish hue, as in the Apple-shaped Celery (see illustration). This purplish tinge is not accompanied with any modification in the edible qualities of the leaf-stalk, and all varieties, green-stalked and purple-stalked, require to be blanched before they are fit to send to table. A variety in which the stalks are naturally white and comparatively tender was raised some time ago by M. Chemin, a nurseryman, near Paris. This variety does not require to be blanched to improve its appearance, but it is more tender when earthed up in the usual way.

In conclusion, we shall mention a few varieties which form a sort of classification in each of the two groups. Leaf-stalk group: Soup Celery (*Céleri à couper*) (see illustration), Solid White (see illustration), Curled Solid White, Dwarf Solid White, Chemin, or Golden Yellow Celery. Turnip-rooted group: Common Celery, or Turnip-rooted Celery, Prague Celery, Apple-shaped Celery.

These few varieties taken from each group are not the only ones. The varieties of Celery, which are already very numerous, are daily becoming more so. In the first group the diffe-



Soup Celery (one-sixth natural size).

rences reside in the colour, size, and vigour of the leaf-stalks. In the second group, to these differences are added the form and size of the tuberous root and its greater or less tendency to grow up to the surface of the soil or even to protrude from it. It is to be noted that the solidity of the stem and the enlargement of the root are essentially the results of cultivation, and that these two characteristics are never met with in Celery plants growing in the wild state. If we add that all these forms reproduce themselves exactly from seed, often in a much better manner than many of the so-called "good species," where is the botanist's lauded difference in favour of the latter? We have shown that the differences which exist are all in favour of the varieties, as anyone must see who compares the wild Celery plant with the Turnip-rooted Celery. If some scientists would seriously reflect on this they would not treat practical horticulturists so disdainfully as they are in the habit of doing, and if they could only bring themselves into harmony with the matter-of-fact workers, "science" would be all the better for it, and the scientists themselves would certainly be nothing the worse.—*Revue Horticole*.

Planting Potatoes.—The weather and state of the ground have been unusually favourable to gardening operations generally this season, and on

all sides good progress has been made with Potato planting in particular. The late and midseason varieties ought to be first got in, leaving the Ash-leafs and other quick-growing sorts till the last. Any time in April will be soon enough for the latter, and this season we shall be content to plant a good breadth of ground with Myatt's Ashleaf early in May. The fact that an unlimited number of varieties is altogether a mistake, and especially as regards keeping up an unbroken supply of reliable tubers of the best table quality, is fast becoming apparent to enthusiasts as well as practical gardeners, and the sooner the weeding-out process becomes general, the better for all parties concerned.—M.

ASPARAGUS ON HEAVY LAND.

IN the district where I practise gardening the natural soil varies surprisingly, though perhaps not more so than is frequently the case in hilly localities. Variability of soils has a more marked effect upon Asparagus than on any other vegetable grown, but this fact is not sufficiently realised by those who fail to produce it satisfactorily. It may succeed admirably in one garden without any special treatment and yet fail completely in a neighbouring place, simply because the natural conditions, more especially as regards the constitution of the subsoil, are against it. The less clay there is in either the surface or subsoils the more easily Asparagus may be cultivated, and those who are not in a position to completely alter the character of the soil must not be blamed for failures, at any rate not so much so as many employers seem to think. It is very annoying, I admit, to owners of gardens to have little or no Asparagus after repeated attempts at cultivating it, but they ought to be reasonable all the same. In many instances the gardener's reasons or explanations are not believed in, but if an outsider is consulted his advice is usually taken. Quite recently a gentleman solicited my opinion on the matter of Asparagus culture, he being much vexed at the failure attending repeated and rather expensive attempts at Asparagus culture. It had been tried on the raised bed system and also on the level, or French method of culture. The former or older plan gave the best, though by no means satisfactory results, and this to me proved the subsoil was partly or wholly to blame for the failures. On visiting the garden owned by the gentleman in question I found the Asparagus bed covered with fully 9 inches of rich solid manure, and was informed that when this was removed early in April a dressing of salt would be applied. If this was not enough to ruin beds of Asparagus on heavy land I should like to know what more could have been done towards completing the destruction of the roots. When I commented adversely on this practice it was pointed out that it answered admirably in another garden previously owned by the same gentleman, and why not in this case also? It transpired that where the heavy mulching and salting were followed by such good results the soil was naturally a light, free-working loam resting on a gravelly subsoil; whereas, when I looked into the state of failing plantations I found the surface sodden and cold and the subsoil a retentive clay. The latter had been well broken up and manure freely mixed with it, but the effect of the latter is fleeting, and eventually tends to greater retentiveness of moisture. Asparagus will not long survive in soil which when squeezed in the hand proves to be of the consistency of puddling clay, and if planted in heavy ground very careful indeed must the subsequent treatment be. On no account should salt come near it, nothing more quickly causing clay to run and the soil become pasty. Salt is by no means the best

manure that can be given Asparagus even on light land, and it ought never to come into contact with clayey soils.

Every cultivator should study the character of his own particular soil, and also pay good attention to the drainage. If the latter is perfect, that is to say sufficient to carry away all surplus moisture without absolutely drawing away what lighter soils may need, and the soil to a depth of from 18 inches to 2 feet of a light sandy character, clay in particular being absent, then may Asparagus be simply grown anyhow. When, however, the conditions vary considerably from this happy state of affairs, then must the treatment also vary, both with regard to the formation of the beds and their subsequent management. The plan of planting on the level answers admirably on heavily manured, deeply-dug light sandy land, and fairly well on medium soils, but fails conspicuously in many cases where the position is low or badly drained and the soil of a heavy character. I repeat "many cases," as instances could be given where success rather than failure has attended the adoption of a modification of the French system on somewhat heavy soils, but the autumn mulchings of manure and spring dressings of salt were discarded in favour of spring surfacings of leaf soil and other light compost, with a liberal addition of guano. It may strike some of my readers as being a doubtful theory, but I believe I am strictly correct in affirming that land lightly forked over and heavily mulched with solid manure in the autumn, during the winter becomes several degrees colder, and very much moister than would have been the case if left untouched and uncovered till the spring. What is there in the constitution of Asparagus to warrant the application of such large quantities of rich manure and the retention of so much moisture in the soil? In reality more often than not warmth is most needed till the summer months, and I am not sure but that even a hot dry summer is better calculated to benefit Asparagus than a dull showery season. It has recently been suggested that an occasional dressing of lime would, in many instances, be more beneficial to the beds than either rich manure or salt, and I have no doubt of the truth of this, especially where heavy land has been repeatedly given rich dressings.

A well-formed Asparagus bed will remain in a profitable state for twenty-five years or even longer, and this being so, owners of gardens ought not to begrudge a little extra labour and expense at the outset; in fact, as I have proved, it is absolutely necessary in all cases where much clay abounds anywhere near the surface. In many instances the time probably could have been better spared in the autumn or during the winter, and the ground would have had a chance to settle down more evenly, but a dry time in the early part of April not unfrequently might be chosen for the work with greater advantage in other respects. Three large beds are at the present time being prepared under my direction in the garden already alluded to, and the method of procedure briefly detailed may prove interesting. It is generally admitted that Asparagus is produced earliest on raised beds 3 feet wide, but in other respects the preference may well be given to those somewhat wider. There will therefore be, when completed, one bed 3 feet wide to hold two rows of plants, and two 5 feet wide for three rows with alleys 2 feet wide between them. Each bed was marked with stout permanent stakes at the corners and duly lined out. The top spit being only moderately heavy, having been in cultivation for the past sixty years, was

thrown out into the alleys (only one bed was made at the time), and on this from 6 inches to 9 inches of the best of the subsoil were deposited, the clay being bared underneath. Fully 9 inches of the latter were dug out and wheeled clean out of the garden, the bottom being hollowed so as to be slightly the lowest in the centre, and along which a single 3-inch common pipe drain was laid. The next proceeding was to wheel in a good layer of brick ends, stones, coarse mortar rubbish, and clinkers, the smallest being on the top, a covering of strawy litter also being given with the aim of keeping the fresh soil from washing down to and clogging the drainage. About 12 inches of the subsoil and a portion of the surface soil were then evenly thrown in, and with this were freely mixed stable manure, mortar rubbish, and other coarse materials, imperishable or otherwise, that would serve to keep it porous and otherwise congenial to the Asparagus roots. The remainder of the surface soil having been next disposed on the bed, with this was mixed leaf soil, thoroughly decayed manure, fine mortar rubbish, sandy soil, and the contents of a garden "smother" or slow fire. All having been thoroughly mixed, a light compost most suitable for Asparagus was the result, the bed being from 12 inches to 15 inches above the ordinary garden level, this eventually sinking probably about 6 inches. Beds formed in this manner and properly managed afterwards ought not to fail, and as Asparagus may be planted at any time during April or even early in May, it is not yet too late for one or more beds to be made somewhat on the lines laid down. In many instances there is no need to remove the subsoil, especially if it has been previously improved by trenching, and the addition of various imperishable or slowly soluble substances, and only in extreme cases are single drains and drainage material required, that is to say, if the site is already well drained. Sea sand freely mixed with the ordinary somewhat heavy garden soil will improve it considerably, but so also would river or other sand, and I should advise that whichever can be most cheaply procured should be used. I. M. H.

CUCUMBERS FAILING.

I SHALL feel greatly obliged if any writer in THE GARDEN could tell me the cause of Cucumbers dying off like the one I enclose. Quite half of the little fruits turn yellow. The plants were planted out in a span house in January, the temperature during the day 75° to 80°, 65° to 70° by night; bottom heat 75° to 80°. I top-dress them once a week with warm soil and a little bone dust. A chink of air is given when the weather is suitable.—E. J.

* * In all probability "E. J." has been over-zealous in the matter of high temperatures and frequent top-dressings, an excess of either alone being calculated to impair the general productiveness of Cucumber plants, at any rate during the early part of the year. A very similar case came under my notice nearly two months ago, a number of comparatively vigorous plants failing to swell off any fruit at all. I could only suggest that lowering the temperature should be tried, and in a very short time I received an intimation from the grower that plenty of fruit were swelling off, the remedy being most satisfactory. To maintain a day temperature of from 75° to 80° by day, 65° to 70° by night, and a bottom heat from hot-water pipes of 75° to 80°, the pipes must be made very hot indeed at times, and far from congenial to the Cucumbers, which delight in a moist rather than a parched atmosphere. Better by far lower the temperature 10° all round in cold frosty weather, a slight increase being permitted when the external atmosphere is milder. When the days get longer and warmer, then may higher temperatures, or those given by "E. J.," be kept up with

advantage. Weekly top-dressings of "soil," whatever that may be composed of, and bone meal are scarcely necessary when Cucumbers are in full bearing, and are certainly uncalled for during the early part of the season, high feeding being opposed to productiveness in all cases where the plants are young and naturally full of vigour. "E. J." ought to cease top-dressing till the plants are cropping freely, and subsequently renew it only sufficiently often to keep the roots active near the surface, or say at not less than fortnightly intervals. A close, heavy, and rich compost is not suitable for top-dressing Cucumbers, little else but rough fibrous loam being needed, some kind of clear liquid manure being given frequently when the plants are cropping heavily. Light fibreless loam not being available, then ought old Mushroom bed manure, charred garden refuse, or charcoal to be freely added in order to make it sufficiently porous and otherwise congenial to the plants. A very little bone meal suffices. Those who are anxious to learn the cause of failures ought in all cases to give the fullest particulars of their treatment, not omitting to describe the compost used, and also to state the name of the variety grown, as there are some sorts more liable to fail than others.—W. I.

SALADINGS.

It presented an odd commentary upon our powers of production that M. Henri Vilmorin's admirable paper on saladings, read at the recent meeting of the Royal Horticultural Society, should have been so poorly illustrated by salad specimens. Oddly enough, also, what was present was sent by Mr. Webber, of Covent Garden, and was presumably more of foreign than of home growth. Were we a salad-growing as well as a salad-eating people, we might have seen present a really extensive and thoroughly representative collection of salads. But for Mr. Webber's kind consideration, the sole representatives of British salads would have been a few Cucumbers and bunches of Watercress. And yet, in spite of the fact that we are not all, like the French, salad consumers, we do get through a good deal of salad during the year, but it is not in a systematic fashion. We get gluts of Lettuces, of Celery, of Cucumbers, of Tomatoes, although these last are little partaken of by us in salad fashion. We have, too, sometimes plenty of Endive, a good quantity of Mustard and Cress, nearly always plenty of Beet-root, and Watercress all the year round; but still our supplies of these and kindred subjects are of a somewhat spasmodic character, and it cannot at all be said that we are a salad-consuming people. Now it is hard to say whether this comparative lack of appreciation for salad is due to climate or to our peculiar tastes in diet. The consumption so largely of hot foods, especially of meat, is doubtless induced by the generally cold nature of the weather, as *per contra* hot weather seems at once to promote a demand for cool saladings and drinks that are cool and refreshing. But it too often happens that just when hot weather sets in, we are worse off for salads than at almost any other period of the year. We may have an abundance of Lettuce, perhaps, but every gardener knows too well how soon heat and drought induce bolting, and, perhaps, fearing there may be no demand, little provision has been made by timely sowings for a succession. It is hard to excel in the whole range of salads a deliciously blanched, quickly grown Lettuce, and if we would be more careful to select those stocks of the White Cos and White Cabbage, which stand fairly well through drought, our markets would fare better. These long standing strains seem to be very little known, and are seldom grown. We cannot well have Celery in good form for eating in the summer, and Endive is not a hot weather salad, however pleasant and crisp it may be in the winter when properly blanched. Watercress is too often just then hot and tasting of stagnant water, so that some of the most popular and acceptable of salads are denied to us in hot weather. Of Cucumbers we can have enough, and fresh too, but then the Cucumber is perhaps the least digestible of all salads. Few indeed are the

persons who can serve up a refined mixed salad or other than a compound in which oil, vinegar, and coarse Lettuce leaves do not predominate. So far as could be gathered from M. Vilmorin's most imperfectly heard paper, that gentleman mentioned many vegetables which, common enough in France, are hardly known in this country, much less grown as salads. It would seem that blanched tops of various roots which we have never dreamt of using are employed as salads, and yet they may be very pleasant eating indeed in the majority of cases so far as salads are concerned.

All the difference is found in blanching or otherwise as to fitness for consumption or abstention, and many are the plants which offensive in a green state are almost delicious eating when well and cleanly blanched. So far as a supply of salads to the market is concerned, poor as it relatively may be now, it is certain that if a real demand be created, our home growers will be only too pleased to meet it. It is with them a question of profit, but it is also the case that a supply of winter salading can only be furnished where there is an abundance of glass at command. But just as hundreds of houses have been erected in the country almost solely to furnish a supply of Tomatoes, so also would acres of ground be covered with frames for salad production if a large demand for salads were created. Is it not possible to set up for salads some real merit of a healthful or medicinal kind? and failing a real merit, it would not be difficult to find a fictitious merit, which because fictitious would probably be all the more readily credited. Thousands of persons took to eating Tomatoes because they were told the fruits were good for the liver, and now partake of them with exceeding zest because a strong liking for the fruits has been acquired. We have not yet got within measurable distance of the ultimate demand for Tomatoes, for they will yet become articles of common consumption. Just what has been done for Tomatoes we want done for salads. They need popularising. Create a large demand, and a large supply will soon follow. The vegetarians who pose as food reformers might do more to popularise salads, indeed vegetables generally, but their efforts seem to be chiefly directed to the popularising of fruit. There is so much to be said with reference to salads, that a good discussion on the subject would be welcome. A. D.

TEMPERATURE FOR MUSHROOM HOUSE.

For years this may be said to have been stereotyped at 55° Fahr., and it is certain that many Mushrooms have been grown in that temperature. But not a few cultivators have begun to doubt whether 55° is really the best degree of heat in which to produce the most and finest Mushrooms in the least space in the shortest time. This is the problem set before most cultivators in this pushing commercial age, the most and best with the least expenditure of time and money. Applying this severe test to the profitable production of Mushrooms, the first thing cultivators are tempted to is to advance the speed of production by raising the temperature. Experience proves that this may safely be done up to a rise of 10° or 15°. Mushrooms will come in a week or a fortnight less time from the spawn in a temperature of 65° than in one of 55°. This is a marvellous gain at the start. On the other hand, it is often affirmed that the "more haste the less speed." The phrase, however, is applied to Mushroom growing in the special sense, the shorter time the Mushroom bed will last in bearing. This is of small moment, as manure and soil are plentiful and spawn is cheap. Many may demur to the latter statement, as they are always asserting that spawn is at once costly and of little worth. Such growers should learn to make their own, or, cheaper still and often equally effective, to spawn their new beds from the rich finds of unexhausted mycelium discovered

in the old ones. This flaky spawn is more like what commands such uniform success on the Continent than the hard bricks used in England. As a rule, it is not only specially productive, but exceptionally precocious. The latter is only what may be expected, as the spawn has never gone to rest. Taken in an active state from the semi-cold and exhausted bed and placed in a higher temperature of from 5° to 15°, it starts into growth and develops into Mushrooms at once. Some cultivators and consumers have challenged the quality of Mushrooms produced in higher temperatures than 55°. There seems no solid basis for such challenges, for most of our open-air Mushrooms are produced in a temperature of 60° or more than in one of 55°, and besides, many Mushrooms are grown under artificial conditions in temperatures higher than 55°. The disparagement of quality also mostly comes from those who deprecate a high temperature in Mushroom growing.

It may also be admitted that the form and quality of Mushrooms are considerably modified through the temperature in which they are grown. But this by no means proves that Mushrooms grown in low temperatures are necessarily the most perfect either in form, substance, or flavour. I have known not a few French chefs of eminence who have preferred the more tender and sweeter button and other Mushrooms grown in temperatures of 60° to 65°. Of course, buttons develop faster into Mushrooms in these higher temperatures. But what of that? Only this: Gather the buttons earlier, and their successors will tread the faster on their heels. Those left will also grow the faster into edible Mushrooms.

Possibly there may be some loss of individual size, though such a loss is a real gain. Big Toadstool-like Mushrooms are a real nuisance and a dead loss in artificial Mushroom growing. Medium-sized Mushrooms are not only the best, but most profitable—if, indeed, those of any size beyond buttons are really profitable. And more of these last, best, and sweetest morsels of Mushroom kind may be produced from a given area in a temperature of 60° to 65° than in one of 55°. Probably some French grower will favour us with the temperature of the Paris caves, in which such enormous quantities of buttons are produced. But, whatever the temperature of these caves, it can hardly be said to definitely settle the matter for us, as no one denies that Mushrooms can be successfully grown in a temperature of 55° or less. But having built and heated Mushroom houses in this country at great expense, the practical question is whether more and better Mushrooms may not be gathered out of them in less time heated to a temperature of 65° than 55°. After many years' experience, I advocate the higher temperature. CALEDONICUS.

Potatoes and double cropping.—Potatoes, notably the short-topped early forms, lend themselves most readily to various systems of double and successional cropping, and it is these, therefore, that ought to be most extensively planted in all gardens where the most has to be made of every inch of space. I am aware that the later sorts are frequently recommended to be planted from 3 feet to 4 feet apart, in order that room may be found for a row of Broccoli, Brussels Sprouts, or Borecole between them, but very rarely, indeed, are instances to be met with where they are thus arranged a second time. On good garden ground the strong growers make far too much haulm to give anything between them a chance, as very few care to plant the rows of Potatoes 4 feet and upwards apart, which must be done if the intermediate crops are properly studied. In the southern

counties all the Ashleaves and various other quick-growing forms can usually be cleared off in time for late crops of Broccoli, Cauliflowers, Savoys, and Borecole to be planted, and other quick-growing crops to be sown in close succession. Large quantities also might be put in rows 3 feet, or if somewhat vigorous, 42 inches apart, and between these be planted early Brussels Sprouts, early Broccoli, and Cauliflowers.—W.

Early Potatoes and frost.—It is a little vexatious to go to some trouble starting early Potatoes indoors, carefully planting out the end of February, and at the end of March or first week in April to have those through the ground burned black as a cinder. I had a most promising crop of Myatt's Ashleaf and Seven Weeks about 3 inches over the beds on the 3rd inst., and on the 4th they were ruined by an unexpected frost. No doubt a season may now and then come and early Potatoes may escape.—W. J. MURPHY, Clonmel.

TREES AND SHRUBS.

WINTER NOTES ON TREES AND SHRUBS.

THE general appearance of the stems and branches of deciduous trees and shrubs in our woods and gardens in winter is often of a very varied character and sometimes strikingly beautiful. The many pendulous, pyramidal, and other so-called varieties of trees which have been diligently propagated by nurserymen are not more interesting than the diversity of forms to be met with in the fields, or more rarely in our open native woods. But when we regard the beautiful harmonies and contrasts of colour of trunks and branches, occasionally produced in Nature in what seems a haphazard way, the wonder is that effects of this kind have not been more extensively attempted in ornamental planting. The form of the trunk and the position and angle assumed by the bare branches of trees do not appeal to the eye of most people as do the colours of the bark, which in many cases cannot fail to attract the attention of even the least observing. This is shown by the prominence given in many small gardens to the white-stemmed Birches, which Coleridge, referring to the European species, called the

— most beautiful

Of forest trees, the lady of the woods.

In a great proportion of the species of our large growing trees, such as the Oaks, Ashes, Elms, and Maples, the old and dead bark usually has a more or less brown or sombre grey appearance, except where vitality and colour are given by Mosses, Lichens, or other low forms of vegetable life upon it. The older parts of some species of Poplar are light in colour; other trees, like some of the Beeches, have uniformly smooth trunks, and still others have the curiously blotched appearance of our Buttonwood Tree. A very few trees have stems whose bark retains some striking peculiarity of colour after it has become inert and apparently of no vital use to the tree, but nearly all show green or some brighter colour in the younger branches.

Of the white Birches, already referred to, a common one in New England gardens is the native *Betula populifolia*, which never becomes a wide-spreading tree or more than 30 feet or 40 feet high. In the poor soils in which it is most often found it usually occurs in thickets and shrub-like clumps. Planted against a dark or evergreen background it is certainly conspicuous, with its white stems and dark green, slender branchlets. Of weeping and other forms of white Beeches propagated by nurserymen, those of the European species (*B. alba*) are the most common, and, it may be added, generally the most interesting and graceful.

A much more beautiful tree in every respect is the canoe Birch (*B. papyrifera*), and it is perhaps never so strikingly attractive as when its large, shining, pure white trunk is seen mixed with the dark hued stems of other trees in its native woods. Where it has room to develop it sometimes becomes a beautiful, broad-spreading tree, whose coppery-bronze coloured branchlets form a curious contrast with the dazzling whiteness of the older bark. Few deciduous trees have a greater charm than this when leafless, but, like its other white-stemmed congeners, its beauty is best shown by contrast. One other species is conspicuous in the woods in winter, the yellow Birch (*B. lutea*) having its trunk covered with loose, thin, curling flakes of silvery or yellow bark. The charm of this is lost when the tree is growing in exposed situations, as the bark then becomes dull-coloured or weather-beaten.

Next to the Birches some of the Willows attract attention by the yellow, red, or bright green of their branches, the colours of which deepen with the coming of mild days in late winter and early spring. A few shrubby species are particularly showy, both by the colour of their bark and the half developed catkins which they bear. One of the most pleasing, as well as one of the rarest, native species is *Salix balsamifera*, of the White Mountains and further northward. This has clean, glossy russet, yellowish-brown branches and reddish buds.

Among all our hardy trees, there are none which in colour possess more delicately pretty stems and branches than the small striped Maple (*Acer pennsylvanicum*) of our northern woods. Without having the glaring prominence of the white Birch, the beautiful striated bluish white and green or brown marking of the smooth bark of this tree at all seasons makes it a desirable one for any lawn. Good specimens are rarely seen in cultivation, but when well grown they are trim and ornamental little trees. Some other Maples may have more brightly coloured branchlets than this species, but they lack the peculiar charm of its stem. The same observation applies to the Lindens, some of the propagated varieties or forms of which are noted for the golden yellow, bright red, or other colours of their twigs, while the bark of all the older parts becomes grey. The showy colours of the twigs of tall, upright-growing trees, however, do not usually attract the eye as do those of dwarf and spreading habit, or shrubs.

Of the latter, a few species of Dogwood are certainly among the most conspicuous, and are usually planted for the colour of their stems, and, in popular esteem, they occupy a place among the shrubs equal to that of the White Birch among the trees. The white-fruited Dogwood (*Cornus alba*), of Siberia, is the most conspicuous as well as the most generally cultivated both in this country and Europe. The deep, blood-red colour of its stems and branches, which becomes richer as spring approaches, makes a brilliant and striking show at any time, but is naturally most prominent when the ground is covered with snow. There are several horticultural forms known to nurserymen under the names of *sibirica*, *astrosanguinea*, &c., having stems of varying shades of scarlet or red, besides those with peculiarities of foliage; and, unfortunately, in many catalogues the species is given as *Cornus sanguinea*, a name properly belonging to a larger growing European species, having little of interest in the colour of its bark, which becomes grey when old. Next to the Siberian species our native *Cornus stolonifera* possesses the

bright scarlet twiggled quality in a high degree; and the branches of the Silky Cornel (*C. sericea*) have a more or less purplish hue. When judiciously planted, a selection of these and some of the dwarf Willows, besides several other shrubs with peculiar colour of bark, would do much to brighten our winter landscapes.—J. G. J., in *Garden and Forest*.

Corylopsis spicata.—Among the more uncommon shrubs now in flower may be mentioned this *Corylopsis*, which forms a pretty and interesting little bush. It is by no means densely branched, while the leaves, which resemble a good deal those of some form of Hazel, are rather pale green. The flowers, which are borne in drooping racemes, make their appearance before the leaves. The individual blooms are small and of a pale yellow colour, but they are almost hidden by the comparatively large greenish-yellow bracts. When the flowers are first expanded, the bright red anthers are then very conspicuous. This shrub was introduced from Japan about a quarter of a century ago, and is quite hardy in this country. It is not, however, of a very vigorous constitution, and must not be planted with strong-growing things.—T.

Eurya latifolia variegata.—A small specimen of this charming variegated evergreen Japanese shrub makes an excellent table plant when well grown and coloured, though some may take exception to it on the ground that it is too densely foliated to be effective. But that is a subject upon which tastes may, and do, differ. The variegated *Eurya* belongs to the same family as the Camellia, and when nicely-grown specimens are arrayed in their best dress of variegation, which consists of yellow, white, bright pink, and green, they are very attractive. It can be raised from cuttings made of the points of the half-ripened wood, the best time to take them being in July. When placed under propagating glasses in a temperature of about 70°, they are found to strike in about two months. When potted off into a sandy, peaty compost, kept close for a time, and finally placed in an intermediate house, the young plants grow freely under proper management, and when they have made fair-sized specimens they may have ordinary greenhouse treatment. I have seen good specimens in a warm conservatory. In some parts of the country large specimens are met with shown among ornamental-foliaged plants, and though a plant may not carry great weight for exhibition purposes, it yet has an individuality of character peculiarly its own. It is a plant that will bear cutting when a straggling-grown specimen needs to be got into a better shape.—R. D.

Transplanting Evergreens.—Now that April has set in, the genial showers and soft atmosphere peculiar to the month may be expected. These conditions are eminently favourable to the transplanting of Evergreens, several of which can only be moved safely in spring, just before growth commences. Among these *Berberis* and *Hollies* may be mentioned, which, if lifted with care, seldom fail at this season. If the plants happen to be large, they should have a trench opened round them well away from the stems, so as to admit of forking the soil out from the roots, and lifting with as large a ball and as many fibres as possible. The holes to receive the plants should be dug out previous to the removal of the trees. To ensure success, it is important that the roots be kept out of the ground as short a time as possible. In filling in it is necessary to be very particular that no cavities exist in or under the old ball, and to prevent this it is a good plan, as soon as the roots are partly covered, to throw in with some force a quantity of water, which will carry any fine soil with it, and thus fill what vacant spaces there may have been, when all will settle regularly and subside as before. To prevent cracking of the ground and evaporation, which is sure to take place unless means be adopted to keep the drying air off, a heavy mulching should be given; this will keep an equal amount of moisture about the roots as well as regular warmth, and thus conduce to the plant's needs, and enable

it to hold its own and make a quick start. One thing that militates against this is the movement of the tops, which, if swayed by the winds, pulls and strains the roots, and chafes or breaks away any young ones that are forming. This being so, the plants should be securely staked, and the heads thus kept rigid. In the event of dry winds setting in, or continuous sunshine prevailing during the day, it may be advisable to syringe or sprinkle the foliage each night. This attention is, however, only required in cases where the plants are large and have been moved to exposed positions.

ORCHIDS.

EPIDENDRUM FREDERICI GUILIELMI.

THIS is one of the tall species with stem-like growths, and is found in the forests of Northern Peru, at considerable elevations, in an atmosphere of continual rains and fogs, and, therefore, requires the cool house. I believe the plant was first found by Warszewicz, but he never imported it in a living state. About nineteen or twenty years ago, however, the plant flowered in the nursery of M. Linden, of Brussels, but whether he succeeded in keeping it alive or not, I do not know. I recently noted, however, that the Messrs. Charlesworth and Shuttleworth, of Clapham Park, had succeeded in introducing this rare species in a living state, and I hope now to see the plant established and flower. I should imagine it will find a congenial home in the houses with *Masdevallias* of the Harryana and Veitchiana section, that is to say, in the coolest of our Orchid houses, with shade and moisture, and with a fair amount of air. *E. Frederici Guiljelmi* is an erect, bold-growing plant, with stems at their base as thick as one's thumb and large leaves. The flower-spike is terminal and erect, bearing twenty or more blooms, which have very long footstalks. The flowers are of a lively crimson or violet-purple hue, the sepals and petals nearly equal, spreading, and of the same beautiful bright crimson shaded with violet; lip three-lobed, the middle lobe being of the same lovely colour as the sepals and petals; the base of the lip white, having a fleshy crest of the same hue. It is one of the most beautiful species in the section to which it belongs, and should be well looked after by growers of cool house plants. The following are a few species well deserving attention as companions to it:—

E. PANICULATUM.—This grows from 2 feet to 4 feet high, and has a much-branched and many-flowered panicle of bloom a foot or more long. These flowers are fragrant, with rosy red pedicels and rosy lilac segments. They each measure about an inch across, but their quantity amply makes amends for size. In spite of its beauty I have never seen this plant but once in flower, and that was some twenty-two years ago in the nursery of Messrs. Veitch and Sons, of Chelsea. It comes from Bolivia, Peru, and New Granada.

E. CNEMIDOPHORUM is another very beautiful variety from the highlands of Guatemala. It is said, however, to be a somewhat slow grower. It attains a height of from 4 feet to 6 feet, and the stems are each as thick as one's little finger and leafy for about half their length, the leaves being long and narrow, sharp-pointed, and of a rich deep green. The raceme is terminal, bearing many flowers; the outside of the blooms is china white, the front portion pale yellow, blotched with bright chestnut-brown. The lip is three-lobed, the centre lobe deeply cleft in front, creamy white, tinged with rose.

E. SYRINGOTHYRSIS.—This is another beautiful species which grows some 4 feet high. It is of more slender growth than the last named species, and bears a terminal panicle of rich deep lilac flowers, which contrast beautifully with the broad

deep green leaves. This species is one of the plants introduced from Bolivia by the Messrs. Veitch through my old friend, the late Mr. Pearce. This plant, like most of the species, flowers in the spring months.

E. MYRIANTHUM.—This is, perhaps, one of the most beautiful of the paniculate section, and one that requires to be kept very cool, coming as it does from the highlands of Guatemala. These *Epidendrums* are mostly well done in Sir Trevor Lawrence's garden at Burford Lodge, and one plant in the collection I am particularly anxious to see is a pure white-flowered variety of this species. It grows from 3 feet to 4 feet in height; the slender stems are clothed with long slender leaves for nearly the whole distance. The panicle is terminal, erect, much-branched, and dense, the flowers being rosy-lilac. The front lobe of the lip is deeply divided, and at the base are two fleshy plates of a deep yellow.

All these plants will thrive in the same house with the *Odontoglossums*, and although it may be said that the plants are too tall for those having only a low house, they may even be grown here by fastening the shoots to the rafters, where they will thrive, and when in flower their panicles will have a fine effect. These plants, too, like full exposure to the light in a north house. They should be well drained and be potted in peat and Sphagnum Moss, amongst which should be mixed some fair-sized nodules of charcoal. *Epidendrums* require to be kept moist all the year, and during the summer months a copious supply will be necessary both to the roots and in the atmosphere. W. H. G.

SHORT NOTES.—ORCHIDS.

Cattleya Trianae Ernesti.—This is one of the finest forms of *C. Trianae* I have yet seen. It is a bold and handsome flower, with large and broad sepals and petals, the latter having a rich feathery spray of crimson-lake running through them; the front lobe of the lip is very rich maroon-purple, the base being rich deep yellow. It is only by seeing such a fine form amongst others that the superiority can be properly seen. It is amongst the best in the fine assortment of this species in the Cambridge Lodge collection at Camberwell.—G.

Cypripedium spectabile.—Whilst suggesting the removal of old roots from *Cypripedium spectabile* (p. 320), Mr. John Wood says: "The rhizome should not be cut away in the least." It is questionable whether the part of the rhizome without roots would be of any service to the plant, but at any rate I have cut off the older portion with its blackened roots without doing apparent injury, and not only so; the pieces cut off, potted, and kept in a cold frame have started into fresh life from dormant buds, and in time formed independent plants. The process was a slow one, as no growth was visible in the first season, but I hope this year to flower a plant so produced about three years ago.—JAMES SNOW WHALL, *Workshop*.

Ada aurantiaca.—I recently noted a very distinct and beautiful variety of this plant in the Duke of Marlborough's collection, and Mr. Whillans, the gardener, very kindly gave me a spike of bloom. The sepals and petals are heavily spotted along the centre with medium-sized dots of blackish-purple. I have grown this plant ever since its introduction, but I have never before seen such a variety as this. —W. H. G.

Cattleya Lawrenciana.—A very handsome form of this species comes from Mr. Cypher, gardener to Mrs. Studd, of the Royal Crescent, Bath, and is the first flower of this species which I have seen this season. It is a very handsome form with broad sepals and petals of the deepest rosy-purple, the lip prettily fringed round the edge, the mouth of the throat being stained with a deep maroon blotch. The flower measures nearly 6 inches across, and I am of opinion that when the plants become thoroughly established this will prove a very grand species.—W. H. G.

Cattleya Trianae (G. Wheatley).—I have just received a flower of this species. It is a very pretty

flower, but it cannot be reckoned more than a good ordinary variety. With it also comes a very good form of *Cattleya intermedia*. It is one of the plants which used to be prized in my younger days, and it is still considered amongst the good kinds of its class. The flower sent as *Dendrobium primulinum giganteum*, although the colour is very good for *D. primulinum*, is yet by no means the *giganteum* variety, which takes its name, not from the size of its growths, but from the size of the lip.—W. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

APRIL 8.

THE meeting of this society on Tuesday last in the Drill Hall, Victoria Street, was small, but several interesting plants were exhibited.

An award of merit was given to each of the following:—

PRIMROSE OAKWOOD BLUE.—This is still bluer than any *Primrose* yet raised, and besides a richness of decided violet-blue colour—scarcely true blue—the flower is large, well shaped, and with a fine central yellow eye that brings out the depth of the deep body shade. A plant was shown by Mr. G. F. Wilson, of Weybridge, who obtained it as a seedling from the variety *Scott Wilson*, also a flower of a blue tint, and it had been grown in a border, not under glass, as we too often find the *Primroses*, for the purpose of preserving the purity of the colours. It is utterly foreign to the *Primrose* to shelter it with glass. *Oakwood Blue* is undoubtedly the finest *Primrose* of its colour yet obtained.

POLYANTHUS TERRA-COTTA.—There may be some who would like the pale brick-red colour of this flower, but to us it has no beauty. Some of the other varieties shown by Mr. R. Dean, of Ealing, the exhibitor of *Terra-cotta*, were far more beautiful and certainly more deserving of an award.

HIPPEASTRUM GRAND MONARCH.—This is the finest variety we have seen from the Chelsea nursery of Messrs. Veitch and Sons, and that is saying much in this age of *Hippeastrums*. The flower is absolutely self, a pure rich crimson, with the lower half of each segment shining as if varnished, a pellucid satiny shade, inexpressibly beautiful, especially in the sunlight. This is another step forward, and one of a number of distinct kinds of similar character that have bloomed at Chelsea this season. We cannot have too many of such types as *Grand Monarch*. Though the flower is not large, if we take *The Champion* as a representative of size in the *Hippeastrum*, it is finely shaped and stands up boldly.

PYXIDANTHERA BARBULATA.—This is the pretty little *Pine Barren Beauty*, a minute creeping herb, that does well in a sunny situation on the rockery in sandy soil, and is delightful when spangled with its small white flowers. All those who love hardy mountain flowers know this little gem, as it was as far back as the 1st of May, 1851, that tufts of it were sent to England from the *Pine barrens* of New Jersey by Mr. Evans, of Radnor, Delaware. Some may know it better as *Diapensia barbulata*, but whatever its name, it is a charming thing for the rock garden. A large panful of it exhibited by Messrs. Paul and Son, Cheshunt, showed its beauty.

Hardy flowers, as we might expect, were more numerous than usual. A large and varied group came from Messrs. Paul and Son, Cheshunt, comprising a panful of the small double yellow-flowered and exceptionally fragrant *Wallflower* *Harpur Crewe* and a rich variety of *Tulipa Greigi*, showing the bright variations this charming flower undergoes. Several kinds were named. During the past few years this *Turkestan Tulip* has advanced to the first rank of bulbous garden flowers, and with the splendid kinds now to be obtained its culture will increase still more rapidly. *Erythronium*, a fine panful of the variegated *Bellis auctaeifolia*, a pretty, but unsatisfactory *Daisy*, the double *Caltha monstrosa plena*, *Ornithogalum nutans*, *Primula rosea*, *Doronicum plantagineum excelsum*, *Tulipa*

syvestris, *Adonis vernalis*, and the deep blue *Tecophylæa cyanocrocus* were exhibited in such a way as to show well the individual beauty of each. A few small potfuls of the blue Apennine Windflower do not, however, convey any idea of its true charm when seen nestling at the foot of a tree or opening its flowers to the sun in the Grass. The same firm also showed several flowering shrubs. *Aucuba japonica splendens* has large rich scarlet berries, and a hybrid *Berberis*, the result of a cross between the common *Aquifolium* and *fascicularis*, has large flowers produced in handsome bunches. (silver medal). Daffodils, of course, made gay masses of bright yellow colour; both Mr. Walker, of Ham, and Messrs. Barr and Son, Covent Garden, showed a rich variety of sorts. It is scarcely necessary to describe the Ham Daffodils, as the attention of those interested in the flower has been often drawn to them. In the fields of Ham the growth made is vigorous and the flowers of corresponding substance, showing not only that Ham is a home for the bulb, but that England can be made to produce its own *Narcissi*. Horsfield, which is one of the best grown by Mr. Walker and the finest Daffodil in cultivation, was finely shown, also Golden Spur, *maximus*, C. J. Backhouse, Sir Watkin, Lady Watkin, Henry Irving, Emperor, Maurice Vilmoren, a beautiful incomparabilis variety, the flower pale yellow, but brightened by an orange-scarlet rim to the cup; Hume's Giant, *cernuus*, Beatrice, Queen Bess, a lovely incomparabilis Daffodil; Mary Anderson, creamy white, except the brick orange-scarlet cup; princeps, and *Astrea*, creamy white, or nearly so, the cup pale primrose colour (silver medal). Messrs. Barr and Son had also a splendid group of many varieties, not a few of which we have mentioned previously. Horsfield was again good, and Golden Spur, *maximus*, Dr. Matthews, remarkable for its rich yellow trumpet, and the kinds mentioned above. The same firm had also *Anemone fulgens*, the spring Starflower (*Triteleia uniflora*) in abundance, *Ornithogalum nutans*, *Muscari neglectum*, M. Szovitzianum, and the several *Chionodoxas*, besides other interesting things.

A pretty collection of hardy plants was that from Mr. O. T. Hodges, Lachine, Chislehurst, who also had several plants of *Lachenalia Nelsoni*. The hardy flowers were chiefly *Primulas*, as *P. japonica*, the ever-blooming *obconica*, *nivalis* or *pubescens alba*, *denticulata*, *villosa*, the double forms of the common *Primrose* (*Crouseii* amongst the number), and a fine dark purple-rose-coloured variety of *viscosa*. The *Lachenalia* is a splendid hybrid, and the result of the interest taken in the race by the Rev. J. G. Nelson. It is a cross between *L. luteola* and *L. aurea*, the former the seed-bearing parent, and was illustrated by a coloured plate in THE GARDEN of 1880. Its rich lemon-yellow flowers are not unfrequently seen in greenhouses (bronze medal).

It is fortunate that at each of the meetings a number of rare and interesting plants are sent from Kew, and on this occasion there was a large group of indoor flowers, as *Agapetes buxifolia*, a beautiful Bhotan shrub, growing to a height of 5 feet, and having each of its slender branches hung with rich carmine tubular flowers. Also very pretty is *Olearia stellulata*, the flowers white, each about the size of a halfpenny, and forming a star. *Chorozema Soulangiana*, *Grevillea Thelmanniana* (a graceful plant), *Mackaya bella*, *Polygala Dalmaisiana*, *Bauera rubioides*, *Eupatorium atrorubens*, and *Eriostemon cuspidatus* were all well represented.

Orchids were fewer than usual. Mr. Blair, Trent-ham Gardens, exhibited a choice group in which there were excellent varieties of *Odontoglossum Ruckerianum* and *Cattleya Trianae*, each given the varietal name of Trentham variety; the *Cattleya* was unusually rich in colour, especially the bright rose-purple lip. *Dendrobium nobile* Cooksoni, *D. nobile nobiliss*, *D. chrysodiscus*, and *Odontoglossum flaveolum*, the flowers pale yellow blotched with brown, were also shown (bronze medal). Mr. W. H. Young, gardener to Mr. F. Wigan, Clare Lawn, East Sheen, showed *Cypripedium Swannianum* and *C. hirsutissimum*, and two forms of *Cattleya Trianae*

Schroedera, one of exceptionally fine, but soft colouring, the sepals and petals lilac, lip rich orange-yellow in the throat, and in charming contrast to the other delightful shade. The other type was poor in comparison. The old *Maxillaria* or *Lycaste Harrisonæ* and a good plant of *Angraecum Leonis* completed the group. This species is becoming a favourite in many gardens. It has white flowers freely produced, and was discovered by Mons. Leon Humbolt in the Comoro Islands (bronze medal). Mr. Cowley, gardener to Mr. Tautz, Shepherd's Bush, exhibited a good form of *Cypripedium selligerum majus*, a large and well-marked variety of *Odontoglossum cirrhosum*, an exceedingly finely coloured *Miltonia vexillaria*, and *Cattleya Lawrenciana* var. *rosea*, one of the richest varieties we have seen. The sepals and petals are deep rose, the lip of an intense crimson-purple. A specimen of *Aerides suavisimum*, carrying four spikes of bloom, was shown by Mr. T. A. Glover, gardener to Mr. E. Ellis, Manor House, Wallington. The flowers are very fragrant, the sepals and petals white, or nearly so, tinged with pink, especially at the apex; the incurved lip pink at the tip, and pale yellow in the centre. A fine variety of *Odontoglossum Alexandræ* was that from the Rev. H. Handley, Royal Crescent, Bath, the flowers massive, large, and finely formed. An excellent variety of *O. maculatum* and the spring blooming type of *Angraecum sesquipedale* were also shown. A finely spotted variety of *Cypripedium niveum* came from Messrs. J. Laing and Sons, Forest Hill, but to see the full beauty of this charming Lady's Slipper it must be shown in a mass. An interesting little *Disa* is *D. sagittalis*, from Mr. J. Odell, gardener to Mrs. Brightwin, Stanmore, the flowers small and white. A finely spotted *Odontoglossum Pescatorei* was shown by Mr. T. H. Powell, Drinkstone Park Gardens, Bury St. Edmunds, and Messrs. J. Veitch and Sons had *Dendrobium atro-vioaceum*, a singular flower, in the way of *D. Veitchianum* or *macrophyllum*; the spike proceeds from the top of the pseudo-bulb and bears several flowers, greenish-white, spotted on the outside with deep violet-purple, the lip striped within with the same colour.

A large group of *Roses* and a boxful of flowers came from Mr. Rumsey, Waltham Cross. He had good specimens of *Souvenir de Paul Neyron*, *Mme. Marie Rodocanachi*, *Mme. Lambard*, *Mme. Hoste*, *Lady Mary Fitzwilliam*, and *Sunset*, and excellent blooms of *Innocente Pirola* and *Niphetos* (silver medal).

Other things comprised *Cytisus purpureus*, a purple-flowered shrub, introduced in 1772, and very beautiful in full bloom, from the Rev. W. Wilks, Shirley Vicarage, Croydon. Mr. J. Wilkins, The Grange Gardens, Kingston, sent a basketful of *Polyanthus Primroses*, and Mr. J. Hudson, Gunnersbury House Gardens, a number of flowers of that early and beautiful flowering Chinese tree, *Magnolia conspicua*, or *M. Yulan*, also *Maranta Warcewiczii*, illustrated by a coloured plate in THE GARDEN, June 26, 1880, and *Habrothamnus scaber*, synonymous with *Newelli*, also represented by a coloured plate in THE GARDEN, Aug. 4, 1888. Messrs. J. Veitch and Sons had a fine light coloured *Hippeastrum* called *Dante*, the flowers white, beautifully feathered with light scarlet; and Mr. R. Dean, Ealing, sent *Primroses* Easter Even, a fine purple-rose coloured variety, and William Ingram, of a still deeper shade, while *White Cloud* is pure white—a delightful flower. Each year Mr. Dean's *Primroses* seem to increase in beauty and variety of colouring.

Messrs. Paul and Son, Cheshunt, exhibited several *Hippeastrums*, *Her Majesty*, a beautiful light coloured flower, white, feathered with scarlet on the upper segments, and other good kinds amongst the number. The same firm also had standard *Azaleas*, one mass of bloom.

There was little fruit. An award of merit went to Mr. Smith, Mentmore, for *Strawberry Auguste Nicaise*, a variety that crops remarkably well when forced, the fruits large, wedge-shaped, and handsome. It is worth double the price in the market of any other kind. The same exhibitor had *Laxton's Noble*, a now well-known variety, and a good early

in the open ground, but not of great value for forcing. The *Mushrooms* from Mr. Miller, gardener to Lord Foley, were well worth a passing note.

MR. INGRAM ON SPRING GARDENING.

In the afternoon, Mr. Ingram, of Belvoir Castle Gardens, read a lengthy and interesting paper on spring gardening and bedding, advocating the greater use of the many flowers of spring, and describing the system followed at Belvoir, which has for years made the gardens famous throughout the country. He alluded to the effect the spring flowers at Belvoir had on the surrounding villages, in which there was scarcely a garden that had not some early flowers to make gay masses of colour. A number of plants, all well known to those who take an interest in spring flowers, were mentioned.

AFFILIATION OF LOCAL HORTICULTURAL SOCIETIES.

THE following scheme of affiliation of local horticultural societies with the Royal Horticultural Society was passed by the council April 8, 1890:—

Local societies subscribing £1 1s. will be entitled to—

1. Two copies of the Royal Horticultural Society's Journal for circulation amongst the local society's members.
2. To nominate one of their members to rank as £1 1s. Fellow of the Royal Horticultural Society with all a £1 1s. Fellow's privileges, with the exception of the Society's Journal.
3. One transferable ticket admitting to all the Royal Horticultural Society's meetings and shows, and which may be used by any members of the local society.
4. To purchase at cost price one silver and one bronze medal of the Royal Horticultural Society (a new medal is being struck, and until that is done the price cannot be fixed).

Local societies subscribing £2 2s. will be entitled to—

1. Four copies of the Royal Horticultural Society's Journal for circulation.
2. To nominate two of their members to rank as £1 1s. Fellows of the Royal Horticultural Society, &c.
3. Three transferable tickets admitting to all Royal Horticultural Society's meetings and shows, &c.
4. To purchase at cost price two silver and two bronze medals of the Royal Horticultural Society.

Local societies are invited to send interesting exhibits and specimens of plants, diseases, &c., to the Royal Horticultural Society's fortnightly meetings of the floral, fruit, Orchid, and scientific committees, and to correspond with the Royal Horticultural Society's secretary on any interesting horticultural subjects or events in their locality.

The secretary of the Royal Horticultural Society will at any time be happy to assist the secretary of any affiliated society in introducing them to horticulturists or specialists able and willing to deliver lectures on interesting subjects before meetings of their local societies. W. WILKS, Sec. R.H.S.

Proposed Hall of Horticulture.—Readers of THE GARDEN have doubtless heard of the proposal to build a great Central Hall of Horticulture, in some prominent position in London, similar to the magnificent buildings which the Société d'Horticulture de France possesses in Paris. The effect of those central buildings on the whole horticultural trade of France has, I am told, been very marked, not only in the neighbourhood of Paris, but throughout the whole country, and we anticipate that a no less marked benefit would accrue to the whole horticultural interest of Great Britain if we possessed a similar central institution. It would promote, encourage, and stimulate an increased love and knowledge of gardening from one end of our country to the other, and produce everywhere an increased demand for all horticultural subjects,

thus greatly enhancing the transactions and emoluments of the trade. The promotion of such a scheme is, however, a matter demanding a far greater outlay of money in London than was required by our neighbours in Paris, the comparative value of land in the two capitals being almost beyond calculation. All the more necessary is it, therefore, that all horticulturists, both professional and amateur, should join cordially together in promoting the scheme. For these two reasons (1) the impetus which it would give to gardening everywhere, and (2) the absolute necessity of friendly co-operation, the trustees of the new buildings—Sir Trevor Lawrence, Bart., M.P., Baron Henry Schröder, and Mr. E. A. Hambro—have desired me to call a meeting of the whole horticultural trade of the kingdom, to be held at the offices of the Royal Horticultural Society, 117, Victoria Street, Westminster, on Tuesday, April 22, at 1.30 p.m. punctually, to consider in what way the trade can best help on the movement.—W. WILKS, *Sec. R.H.S.*

NOTES OF THE WEEK.

Narcissus triandrus pulchellus is in flower now with Mr. Ware, of Tottenham, who has a fine clump with more than fifty flowers, all in perfect beauty. Such a mass as this shows the character of this fine *Narcissus*.

Proposed Hall of Horticulture.—We learn that about £10,000 has been already promised towards this object, and, as shown by a paragraph on previous page, the earnest co-operation of the trade is asked for. A meeting to bring this matter especially before them will be held at 1.30, on the 22nd inst., at 117, Victoria Street, Westminster. It is hoped that there will be a large attendance.

Crinum giganteum is a noble flower now in perfection in the Palm house at Kew, where there is a large specimen bearing two strong spikes, each carrying about seven flowers, which are several inches across, pure white, except a tinge of lemon-yellow down the centre of each segment, and a deeper shade of the same colour on the exterior. They have also a sweet vanilla fragrance. It is a native of West Tropical Africa, and though introduced in 1792, is rare.

Strelitzia Regine.—In the last issue of THE GARDEN I see this old-fashioned and peculiar plant mentioned. In the gardens here (the seat of Mr. H. J. Walmesley) are two large plants between 7 feet and 8 feet through in boxes. Each plant has eleven breaks and during the flowering season fifteen to eighteen spikes have been developed. The plants are in flower eight months in the year, and are grown in a temperature of 50° to 60° in winter with a rise in summer. This plant requires plenty of water. I do not know of a more easy plant to grow, yet it is seldom seen in flower. I have enclosed two flower-spikes, one bearing two flowers.—E. THURPP, *Westwood House, Wigan.*

A hybrid Brownea.—By this post I send you from the fine collection of the late Mr. Sharnan Crawford, of Cork, a couple of inflorescences of Brownea, one B. Ariza, the other a hybrid. The hybrid is the result of a cross between B. grandiceps and B. macrophylla, and is one of a series of great interest and beauty raised at Lakelands, and grown to much perfection during the lifetime of the late proprietor. I hope that the flowers may reach you without falling to pieces, so that you may form an idea of what fine and interesting plants they are when carrying a number of these large and brilliant heads of flower.—T. W. MOORE.

Two magnificent heads of bloom. A good idea of B. macrophylla may be had from the coloured plate in THE GARDEN, May 31, 1879, from flowers drawn in the same garden as those now sent. The colour of the flowers of the hybrid is far more intense and the head of bloom much larger than in the case of macrophylla.—Ed.

A rare plant in flower at Kew, we believe for the first time, is *Taccarum Warmingianum*, a remarkable Aroid, with the habit of an *Amorphophallus*. It was introduced by Mr. Bull, of Chelsea, from the province of Minas Geraes, in Brazil, where it was found at Logoa Santa by Dr. Warming, after whom it is named. Although not so beautiful an Aroid as *Arisema speciosa*, it is of striking appearance, the plant at Kew sending up a solitary branching bright green leaf; the stem smooth, light glau-

cous green in colour, and marked with distinct white lines. The spathe appears at the base of the stem and is about 15 inches in length, coloured inside with pale copper, dotted with dull green, the outer surface ribbed and light brown. The spadix rises about a foot, the flowers not clustered thickly, and of a brownish colour. All interested in Aroids should see it.

Tulipa Korolkowi deserves more than a passing word of praise. It is at this moment the most brilliant flower in the garden, and is of rather a dwarf habit. Its flower is a six-pointed star, measuring half-a-foot across, the colour glowing orange-scarlet. It is very nearly in this respect identical with T. Greigi, but without the spots.—T. SMITH.

The Chinese Lily Tree (*Magnolia conspicua*) is splendidly in flower in the garden of Syon House, Isleworth, in spite of the sharp morning frosts and keen east wind. One specimen is over 30 feet high, and crowded with the Water-Lily-like flowers, that have a sweet fragrance, while there is another smaller tree clothed in the same beautiful way. In a sheltered corner the variety *Soulangiana* is bursting its buds, and forms a succession to the ivory white *conspicua* or *Yulan*. A historical note on these appeared in THE GARDEN of March 29.

Clianthus Dampieri and varieties.—We have received from Herr L. Vieweg, Quedlinburg, Germany, a letter in which he claims to have raised the variety of *Clianthus*, of which a coloured plate was published in THE GARDEN, March 29. He also sends a picture of *C. Dampieri marginatus* elegans, in which the standard and the keel of the flowers are white margined with red. Apparently *C. Dampieri* varies considerably in the colour of its flowers. It would be interesting to know if Herr Vieweg obtained his seedling, which he calls *Deutsche Flagge*, from seeds produced by typical *C. Dampieri* under cultivation in a garden or from seeds imported from Australia. Herr Vieweg also states his conviction, "after long years' experience that it is useless to try to grow *C. Dampieri* on its own roots. The only sure way to success is by grafting it."

The Daffodils at Kew should be seen by all interested in this spring flower, as in no public garden is gathered together such a variety of fine kinds, and grown, not in small patches, but in large beds of one distinct kind, while an idea of the beauty of the flower when seen in its wild state may be gleaned from the sheet of Daffodils on the mound near the Cumberland Gate entrance. We have seldom seen Daffodils in such profusion as this season at Kew, from the little Hoop-petticoat forms to the noble Horsfieldi, maximus and Emperor. Of the last of the three there are two large beds near the Palm house solely of this noble trumpet variety, and finer than we have hitherto seen it in any garden. The variety Countess of Annesley, noted in THE GARDEN, has a bed to itself also, and there are masses of such *Polyanthus Narcisi* as *Staten-General* and *gloriosa*, *Jonquils*, *incomparabilis* *Cynosure*, one of the loveliest of this section of Daffodils, *Sir Watkin*, *maximus*, the early *Poet's* varieties, the drooping *moschatus*, and many other kinds too numerous to mention. It is a pleasure to find the increased interest in early hardy flowers at Kew, as the present season shows greater strides in this direction than ever.

Magnolia stellata.—This lovely Japanese *Magnolia*, introduced under the name of *M. Halleana*, commenced opening its fine, white, sweet-scented flowers here on the 25th of March, and at the present time, April 4, is well advanced, although hundreds of buds as yet remain closed. In Nippon and the woods of Fusi Yama, we are told, it forms a small tree, but here, in a good situation, it has been ten or twelve years forming a pretty pyramid 6 feet in height. Having, in this country, a goodly number of faster-growing deciduous *Magnolias*, this comparative pigmy is a decided gain, as it can be grown in the flower border as a bush or pyramid against low walls where the early flowers can be protected from spring frosts. Its greatest value, however, in my opinion, consists in its being admirably adapted for culture in pots

for the decoration of rooms early in the spring. The flowers, about 3 inches across, are composed of numerous narrow petals, pure white within, with sometimes an external stripe of pink, and so numerous are they that a bloom-bud forms at the base of each leaf. The leaves, which come after the flowers, are each about 4 inches in length. When, a few years ago, the perfect hardiness of Japanese plants was doubted, it was thought *M. stellata* would not stand our winters, but this, I think, is a groundless fear, now set at rest, as trees here have stood all weathers from the day they were planted until now, and though April has come in frosty, a few degrees do not seem to hurt the open flowers. Like all the *Magnolias*, it likes a light, fibry, turfy loam mixed with peat and a little rough charcoal or sand, and the roots requiring so little space should be well drained and mulched, otherwise the occasional waterings through the summer are apt to turn the compost sour.—W. C.

Lilium auratum blooming in winter.—At a meeting of the Society for the Advancement of Horticulture lately held in Berlin specimens of *Lilium auratum* in flower attracted much attention. The bulbs are placed in an ice cellar immediately on their receipt in autumn, and are kept there until needed for forcing. They are at once brought into a house with a temperature of from 59° to 64° Fahr., when good-sized bulbs will show four or five flowers in four weeks. The flowers are highly appreciated in the winter months, and are often seen in the flower shops.

Tree Bugloss (*Echium callithyrsaum*) at Kew.—One of the showiest plants at the present time in the temperate house at Kew is this tree Bugloss, now bearing some scores of flower-spikes. It is a native of the Canary Islands, and is the handsomest and most useful of the larger growing kinds. The flowers, which are of the brightest purple-blue, are densely packed on an erect cylindrical spike from 9 inches to 1 foot high, by 2 inches to 3 inches through. The plant is over 10 feet high, with a flat spreading head, measuring as much across. Although plants so large as this could not be accommodated in greenhouses of ordinary size, there are many large conservatories throughout the country where this species would look well. If raised from seed, it begins to flower with freedom when about 4 feet high—that is the third or fourth year after sowing. It strikes freely if healthy growing shoots are taken and placed in a little bottom-heat, and plants raised in this manner frequently flower the next season.

Crown Imperials failing to flower.—Can you account for the non-flowering of Crown Imperials this season? Have any of your correspondents noted it? We have but one single spike of flower out of several dozens of plants. Old-established plants have failed as well as those planted last season.—H. BR. SIER, *Palace Gardens, Ely.*

Plant questions.—In the account of the Russian expedition to Central Asia under Colonel Pietsoff, given in the Proceedings of the Royal Geographical Society (Jan., 1890), M. Robozovsky speaks of "bushes, around which twines the wild Clematis, thrusting out its large yellow cruciform flowers for show" (p. 25); also of "a beautiful Clematis, bearing large, white, odoriferous flowers"; also (p. 26) of "Clematis orientalis and another variety," presumably not either of those described before. Can any of your contributors enlighten us as to these (apparently) most desirable additions to the hardy flower garden? and also as to the Rose (*Rosa sericea*?) whose "large bushes, 20 feet high and covered with white, sweet-smelling flowers like flakes of snow," seemed to have filled this lynx-eyed Russian with admiration? In addition to these queries, I should be very glad to learn which may be considered our highest-growing Rose which is self-supporting, length of rod on a wall being no criterion of strength in the open.—R. B.

Names of plants.—John Short.—Send better specimen.—A. G. R.—*Omphalodes Luciline*.—R. J. H.—1, send when in flower; 2, *Grevillea rosmarinifolia*.—W. A.—*Vanda tricolor insignis*.—G. Greenwell.—1, *Andromeda floribunda*; 2, *Aubrietia deltoidea*; 3, *Doronicum austriacum*; 4, *Narcissus Telamonius plenius*; 5, *Mesembryanthemum* var.—Cobham.—1 is a *Hose-in-hose Polyanthus*; 2, *Megasea rubra*; 3, *Lonicera caprifolium*.—W.—1, *Odontoglossum cirrhosum*; 2, a very fine form of *Dendrobium nobile*.

WOODS AND FORESTS.

THE CORSICAN PINE.

(PINUS LARICIO.)

IN THE GARDEN March 29 (p. 310) is an article on this Pine in which the writer says: "Its value as timber is not so marked when the tree is young, for thinnings of Laricio are found too soft and less durable than Larch, but when old it is remarkable for its toughness, and it is strongly impregnated with resinous sap." Pinus Laricio in the early stages of its growth is inferior to the Larch, Scots Pine, and common Spruce, the three chief kinds for planting heather ground in this country with the view of giving an early return to the proprietor, and which as soon as they attain a diameter of from 3 inches to 4 inches at the small end command a ready sale for pit-wood timber. The inferior wood of Laricio, on the other hand, at this stage of its growth is a serious drawback to its being planted, inasmuch as all those who invest money in planting barren ground expect to get something back by way of return from the time of the first thinning and onward. Although the Laricio has not attained maturity in this country, yet from what is known of it, its prospective value as a timber tree is immense, and in order to grow it to the best advantage it should be planted as a permanent crop, the ground between the plants being made up with Larch, Scotch Fir, and Spruce, which can be thinned out by degrees. In this way the Laricios will ultimately be left, and can be cut down and sold when its wood has attained its highest standard of perfection. By this mode of culture all is turned to good account from the time of the first thinning. In mixed plantations of this sort the Laricio may be seen towering above all its associates which proves the rapidity of its growth in early life, and it is a pity its timber is not more lasting and durable when in a young state. Further on in the paper referred to the writer says:—

Although we have said that the Laricio exhibits a preference for a deep, good soil, it thrives in almost any other description, if we except soft, spongy, and undrained marshy ground.

Most experienced planters know that trees of any kind will not attain a profitable size on undrained marshy ground, even the native Sallow, Poplar, and Birch, when growing in such positions in the natural forest, responding in a very pronounced manner when relieved of stagnant water at their roots. With regard to soft spongy soil being unsuitable for the growth of Laricio, this is not borne out by actual experience and observation, as I have raised the tree from seed on ground where the seed bed was composed of Moss and friable soil mixed together, and the plants appeared to be in excellent health and made rapid progress. Of course, the ground was thoroughly drained and prepared in other respects for the reception of the seed. The greatest fault that I had to these plants was on account of their long bare roots, destitute of small fibres, which rendered them rather difficult to handle with safety in the course of transplanting during their nursery career. The Laricio also thrives in Irish peat-bog, when the staple is mixed with earth or pulverised clay at the places where the trees are planted, although at the same time I by no means should recommend it for such places, as the texture of its wood is too soft.

J. B. WEBSTER.

Ornamental planting.—The principal thing to bear in mind in forming an ornamental plantation is always to allow sufficient space for each of the permanent plants to develop its natural charac-

ter. Therefore, instead of planting indiscriminately, as is so frequently done, plant upon a regular plan, and fill in with plants which can afterwards be cut back or removed as the permanent ones increase in size. Half the plantations formed for ornamental purposes are planted too thickly at first, and afterwards allowed to remain without thinning until they are rendered comparatively useless. Large and small-growing trees and shrubs are intermixed without regard to proper position. Inexperienced planters should be cautioned against what is misnamed cheap planting, that is, merely loosening the earth, and sticking the plants in holes barely large enough to receive their roots. Trenching and properly preparing the ground before planting are, in the end, most economical.—A.

WHAT ARE ORNAMENTAL TREES?

IMPORTANT DECISION BY THE MASTER OF THE ROLLS.

ON March 31, the Master of the Rolls gave judgment in the case of *Bedoyere v. Greville-Nugent*. The case came before the court on a final hearing of an application for an injunction to restrain the defendant from cutting and removing timber from off the demesne lands of Clonyn, in the County Westmeath, which have been planted for the ornamentation of Clonyn Castle. The plaintiff also sought for an account of the trees which had been cut, and of the sums received by the defendant on their sale. The plaintiff alleged that regular gaps had been cut through the wood opposite the Castle, and that consequently the picturesque aspect of the grounds had been greatly interfered with. Clonyn Castle had been the residence of the Earls of Westmeath. The plaintiff is tenant for life in remainder in the event of the defendant not having a son, and the tenant for life in possession. The defendant alleged that the trees were not improperly cut down, and that they were not ornamental.

The Master of the Rolls in giving judgment said the Clonyn estate appeared to have formerly belonged to the late Marquis of Westmeath. The estate of Mr. Greville-Nugent, for the life of the then Earl of Westmeath, came to an end on the death of that nobleman in 1871. A re-settlement, under which the lands were now held, was made by deed in 1882; and Lord and Lady Greville came into possession of the lands, which, under the settlement, were vested in them for life. The defendant was entitled, as tenant for life, on their death with remainder to children in tail male. Lady Greville died in January, 1883, and her husband then took a life estate, which, however, he only enjoyed for a week. Mr. Nugent, the defendant, thereupon entered into possession. The plaintiff now complained that a number of trees had been improperly cut down, and sought for an injunction to prevent further waste. There were altogether 12,000 trees—a portion being Larch, others Sycamore, and others Ash. No authority had been cited as to whether Larches were ornamental or not. All the witnesses spoke of one Ash of remarkable beauty and size having been cut; but the defendant alleged that the tree was decaying. He (the Master of the Rolls) was satisfied that the decay was not the cause of the cutting. In addition to the trees which had been actually cut, others had been marked for cutting. It had been contended, on behalf of the defendant, that the cutting down of the trees was really beneficial to the estate, and evidence had been given by some of the witnesses that a cutting had been done judiciously. It was proved that both Lord Westmeath and Lord Greville used to cut wood in the plantations, but they appeared to have done nothing more than thin the trees. Even if an owner in fee, as Lord Greville was at the time, cut trees for the purpose of thinning, it did not follow that he intended his successor to do so. It was suggested that the National League and the Plan of Campaign had been used for the purpose of annoying the defendant in this case, and the evidence showed that, not through interest in the plaintiff, but in consequence of hostile feeling towards the defendant, the proceedings against the latter were favoured by the

local branch of the National League. He (the Master of the Rolls) was, on the entire case, satisfied of two things—first, that a great deal of the timber which had been cut was ornamental timber; and second, that it had been cut for the purpose of profit. The question was whether the trees were originally planted for ornament. It did not matter whether they were planted with taste or not. He could not doubt that in the present case the timber was planted for ornament. It was a nobleman's demesne, and the trees evidently formed one of the greatest charms of the place. If the timber was not ornamental, the defendant had the right to remove it; but if it was ornamental, he had no right to do so. Having cited authorities, his lordship said he did not think the Larches stood on any different footing from the other trees. He was clearly of opinion that the trees which had been cut down were ornamental, and were therefore improperly cut down. The plaintiff was entitled to an injunction. As, however, the plaintiff was only tenant for life, he thought the case was not one in which an account ought to be directed. The defendant should pay the costs of the suit, and liberty should be reserved for him to apply at any future time for any order that might be necessary, as it might possibly be that some of the trees were such as ought properly to be felled.—*Irish Times*.

Epping Forest.—The Epping Forest Committee of the City Corporation have just issued a report, in which they say they have received from Sir T. F. Buxton and Mr. E. N. Buxton, without payment, a piece of land situated at Oak Hill, Theydon Bois, containing about 12½ acres. This land forms a valuable addition to the forest, not only on account of its beauty, but because there is now no break in the continuity of the forest adjoining the main road from the Wake Arms to Theydon Bois. The area of the forest, including Wanstead Park, is now 5542 acres. The committee say they have given very careful consideration to the question of thinning the densest portions of the forest, about which certain complaints have been made. They found in every instance where the forest had had time to recover itself that the underwood was springing up and the trees had benefited by the admission of more light and air, and by having more room for growth. The committee had drawn up a few rules for the guidance of the superintendent, one of which provided that each annual thinning should be spread over an area of about 500 acres of thicket, which was to be gone over lightly, and that no Blackthorn nor undergrowth should be cut, except where it was dead or when it ought to be removed for the improvement of the growth of neighbouring trees, or for protection from fire, or for the purpose of felling pollard trees. The amount expended on the forest last year was £3891, and the income was £1061.

Beauty of the Birch.—Even a small Birch tree may look very handsome if the sun's rays fall on its leafless branches just at the proper angle. The twigs are filled with a purplish misty sheen which gives the tree the appearance of being surrounded by a halo; and the beauty is enhanced if the hole is covered with that beautiful satin bark which comes from the nut-brown rind of the sapling and the elephantiasis of the mature tree.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES FROM SMYRNA.

SINCE my notes which appeared in THE GARDEN, March 8 (p. 215), I have flowered *Fritillaria amopetalis*. The blooms are almost as large as those of *aurea*, green striped with dark brown both internally and externally. As far as I can judge, both the above and the green form of *armena* will prove of interest only to collectors. The more I see of *aurea*, however, the more my opinion is confirmed as to its merits. Some red-tinged flowers are especially pretty.

Having noticed lately in your columns some discussion about *Hyacinthus orientalis*, it may interest your readers to hear what I have found out up to the present of this genus in this country. I am led to believe that the real *orientalis* must have first been brought from the Ante Taurus, where at a few miles distant from the sea you find large quantities of bulbs exactly like those sold in Europe under this name. On the Taurus, a friend of mine was surprised to find pink, white, and blue *Hyacinths* growing abundantly at an elevation of from 4000 feet to 6000 feet. In the close vicinity of Smyrna is found a blue one of diminutive growth. About 100 miles south-east of this town grows a white variety, but all the above are simply curiosities for the collector, and of practically little value in the garden. With a light pink or flesh-coloured one, however, I think the reverse is the case. Pretty in shape and colour and flowering as early as the earliest Roman white, it will in time, I believe, prove a valuable addition to the list of flowers that enliven the greenhouse during the dark days of December and January.

Now let me turn to Tulips. According to Paxton, eight varieties in all come originally from the Levant. If no additions to the list have been made since, I believe some interesting work could be done in this section. I have found up to now a tall-growing and very handsome yellow Tulip near Aidin, the ancient Tralles, an equally fine pink and white near Smyrna, a striking copy of *australis*, as illustrated in THE GARDEN, Dec. 17, 1887 (p. 561), comes from the Mourad Dag, a very large and handsome red with a black eye is found near Smyrna, an almost green form on the Nymph Dag, a bright red on the Ante Taurus, and two or three more varieties of which my memory does not retain the distinguishing features. If any Tulip specialist is willing to take upon himself the care and classing of these varieties, I shall be happy to send him bulbs as my collectors bring them down.

Cyclamens are fairly well represented in this country. The Ante Taurus, as usual, heads the list with a pretty dark red with an almost black eye, and an even prettier light

pink with a dark eye. The island of Rhodes and the adjacent coasts supply us with a large whitish-pink, probably *macropus*, and an autumn-flowering variety, which I should say is *europæum*, grows in large quantities near Smyrna. Are there any varieties alongside of these? I wish my botanical knowledge was extensive enough for me to answer.

The *Anemone coronaria* is a pleasant sight for the traveller, carpeting, as it does at times, so thickly some of the chalky hills in this district with its many hued flowers. Must we attribute the peculiar colouring of Oriental carpets to imitations of these flower-beds of Nature, or to the brilliant pictures presented by the fields of opium Poppies when in full flower? Up to now *Anemone blanda* is the only variety which I have hit upon worthy of culture besides *coronaria*. On the heights opposite the island of Samos it is insignificant or perhaps not *blanda* at all, but on the Ante Taurus it varies from lilac, or, as some may call it, blue to white. It well deserves the name of winter Windflower, blooming as it does from December to February. It is on this account, if not for its pretty flowers, a valuable addition to our winter collections. My collector now on the Ante Taurus has just sent down what he considers are seven new varieties of *Anemones*, but his dried specimens have suffered so much on the way that I cannot even describe them. He has sent me also three kinds of *Narcissus*, one bearing only single blooms on each stem. It is the first of its kind that I have seen in these parts, but whether new or not time will show.

Many more bulbous plants are worthy of description, but my leisure, so fully occupied by my large garden, makes botany as a study rather up-hill work for me. I am sure, therefore, that your readers will overlook any inaccuracies in my descriptions or the names I give to plants, remembering that though, perhaps, as ardent as any of them in this pleasant pursuit, I have neither the time nor the opportunities to learn the practical lessons in botany which the gardens at Kew and those of the many flower lovers in England allow of. Further, when I speak of my collectors, they must not think that I refer to men with any knowledge of flowers, but simply to poor, ignorant peasants whom I have tried to educate to the best of my power, and who roam about the mountains where few Europeans could safely venture, picking up any plants which may strike their eye as pretty.

I forgot to mention above that my nephew found last year a very fine *Asparagus* growing near Angora, the centre of the mohair trade. He tells me that it makes a delicious dish, even more delicate than the cultivated one, and as thick as the best *Argenteuil*. Would any growers like to have any seeds for trial? EDWARD WHITTALL.

Cineraria aurita is a pretty *Cineraria*, one of those charming little flowers that, when contrasted with the big-bloomed exhibition race, show how

much intrinsic beauty is lost in the productions of the florist. We are writing only of the individual flower, as *C. aurita* seems to be shy in blooming, not very vigorous in habit, and without the broad, handsome leafage that marks the florist's varieties. This gem is in bloom in the Cape house at Kew, and is bearing a few sprays of flowers, each the size of a halfpenny and delightfully coloured. The petals are narrow and pure white, tipped with rose-purple, the bunch of stamens of the same delicate hue. We should like to see a large plant of it in full flower, but at present it is poor, except the few exquisitely-shaped blooms of delicate colours.

NOTES FROM PAU.

TO THE EDITOR OF THE GARDEN.

SIR,—Among the greatest pleasures in gardening are the surprises that now and then take one, as it were, by storm, and compel our admiration when we least expect it. The other day, when cold winds and hail showers made chilly mortals wretched, and the frost-bitten *Euonymus* looked more deplorable than ever, a friend took me to see a villa garden where, as he said, he had seen a *Date Palm* thriving. Feeling quite sure that in the climate of Pau, where 20° of frost is by no means rare, that no *Phoenix* could withstand such a severe winter climate, my curiosity was aroused. Needless to say, on reaching the villa, which is by no means particularly sheltered, we found a fine young specimen of *Jubæa spectabilis* in admirable health and beauty, which in the distance, quite gave the effect of a *Phoenix*, and for which it had been mistaken. It is then evident that in *Jubæa spectabilis* we have a feathery-leaved *Palm* that will stand our English winters where the summer heat is sufficient to allow it to perfect its growth, and those who have warm and sheltered gardens in the south of England and Ireland will do well to give this very handsome *Palm* a fair trial. It thrives under exactly the same conditions as the well-known and hardy *Chamaerops excelsa* and its var. *Fortunei*, which in Pau attains to far greater beauty than on the sunnier Riviera, where the summer drought and heat stunt its full growth.

Camellias of various varieties were untouched by frost and flowering freely, but the shrub that most charmed and surprised us was a long line of the beautiful Chinese evergreen, *Nandina domestica*. Its finely cut, glossy, *Berberis*-like leaves and brilliant heads of crimson berries were made all the more remarkable by an edging of the variegated *Euonymus radicans* in front, and an entirely dead line of *Euonymus japonicus* behind, which acted as a foil to the luxuriant and glossy leafage and bright spikes of berries on the *Nandina domestica*. Knowing of the admiration the Chinese have for this shrub, I have often wondered what it must be like in its full beauty, and I do not exaggerate in saying that it is not possible to over-praise it. In England I have never seen it save as a wretched-looking object, and I suspect we have treated it as too tender a shrub, and planted it in too hot and dry situations. Here, at any rate, it thrives on a decidedly shaded and damp east border, where no growth is tempted to start till all danger of spring frosts is over, and as no sign of growth is yet apparent after ten days of hot weather that have brought the Lilacs and Horse Chestnuts to the verge of flowering, there should be no fear of its starting too early in England if planted with a western aspect. Probably our summer heat would not be sufficient to allow it to flower and fruit; but I daresay some happy gardeners who

live in the moist and sheltered Devonshire or Cornish valleys can tell us of their success with the beautiful *Nandina domestica*.

Paul.

E. H. W.

ORCHARD AND FRUIT GARDEN.

MULCHING IN THE HARDY FRUIT GARDEN.

It is not often that in April we find the ground anything approaching its present dryness, not only on the surface, but well into the subsoil. If there is any truth in the old adage that a "peck of March dust is worth a king's ransom," the passing dry seed time must be a great boon to all cultivators of the soil, but it is just possible that we may have too much of a good thing, especially amongst our hardy fruit trees, which set best in warm showery weather and swell the best crops when the subsoil is thoroughly moistened by winter rain and snow water. This being so, fruit growers should now look well to Peaches, Apricots, and other wall trees planted upon deeply drained borders through which the rainfall of Lancashire might pass without doing any harm, if not positive good, always provided solar heat were equal to the maturation of the fruit and wood. A dry time so far has done much good, for it has enabled our fruit blossoms to withstand the sharp morning frosts; it has favoured the absorption of the bright sun-heat by the soil, and when genial showers do come our gardens will be converted into hotbeds in which trees and vegetables will make rapid progress. The roots meantime must be looked after, and warmth having got into the surface it should be kept there by means of mulching, and in not a few gardens by substantial watering. A spring mulch need not necessarily consist of rich, solid animal manure, a material more suitable for the trees when the crops are swelling fast and require great support, but it may be made up of anything that will keep in warmth and moisture and prevent water from the hose from running off the surface of sloping borders. The best and most generally used material, however, is fresh stable litter, a good absorbent of sun-heat and moisture, and containing ammonia it exhales vapour highly beneficial to the foliage of the trees. There is, of course, no rule without an exception, and this exception will generally be found in gardens and orchards containing trees of mature age whose greatest proclivities are the production of more flowers than leaves followed by heavy crops of fruit which cannot be thinned freely and fed liberally. To these, not only in the open air, but sometimes under glass where thinning is not neglected, a winter top-dressing may prove a godsend, as it restores to the soil the elements taken out by past crops and favours the healthy development of foliage and flowers. A profusion of animal manure is not, however, the most suitable producer of fertility, say, in Vines, Pears, or stone fruits—at least this is my experience, and in his tenth edition of the "Practical Treatise on the Culture of the Grape" Mr. W. Thomson bears me out in the statement that it does not contain more than 3 per cent. of fruit-producing food, but once the crop is set and swelling it is of great use not only for keeping in moisture, but also for feeding the roots and forming leaves. Newly-planted or root-pruned trees, again, derive the greatest benefit from mulching, which keeps out frost in winter and maintains an equable temperature, especially if laid on before the earth has lost its summer warmth; it conserves moisture, draws the roots to the surface, and at the same time shields

them from injury by parching drought. Mulching, moreover, economises labour in watering, for, notwithstanding the fact that the rainfall may be above the average, there are times when young trees, cordons especially, whose roots do not travel far and whose leaves are against hot, rain-repelling walls, require plenty of water and a good mulch to keep it in the soil. If a feeding leaf-producing mulch is wanted, I use good nitrogenous manure, but when protection from drought or the retention of moisture is the object, almost any non-conducting material, including horse litter, mowings from the lawn, charred refuse, or thin sods of turf, may be used.

W. C.

BUDS OF GOOSEBERRIES INJURED.

I SEND you some shoots of Gooseberries, the buds of which have been injured in some way. The trees are about twelve years old, and are growing in clayey soil. I do all the pruning myself, and have treated the Gooseberries on the same system for twenty years, and never have shortened a shoot unless to keep the bush in shape. I have a notion of my own that I do not want to increase the growth of the trees, but the size of the fruit, so never give any manure until they are in flower, when each tree gets a gallon of liquid manure once a week until the fruit begins to ripen. Up to the last few years all the free-bearing kinds had such heavy crops that the berries were as close as they could hang, and we thinned them by using what we required in a green state. I have tried different times of pruning, and send you some shoots off those done in December, when the buds looked all right, and those I am doing now. I have only seen one bullfinch this year, and not near the Gooseberries; but the gardener watched the plots with his gun for some time after, but never saw it. Some of my neighbours' trees are in the same condition. Although it is ridiculed by some people, I am satisfied, from many years' experience, that a good-sized bunch of Furze put in the centre of each bush when in flower keeps away caterpillars. I never have any in two large plots, while a bush in the hedge, 20 feet off, was covered with them. During the last two years bushes of the early rough amber had their usual heavy crop, but they have suffered this year; whilst the very highly-flavoured small red appears to be all right. I do not know its name, but it is rather a late kind and grows upright.—JAMES THOMPSON.

* * In answer to the above, the buds upon the prunings sent to me by post have been injured undoubtedly by birds. The attack must have been made immediately after the buds commenced swelling, as it was here in January when we were obliged to net a month earlier than usual, and then we found certain early varieties had been severely injured by bullfinches. If your correspondent will carefully open the remains of the buds with the point of his penknife he will find the centres have been taken out, most likely as far back as December, when quietly and unsuspected a pair of birds would spoil a bush in a few minutes. Netting is cheap enough. Why not prune early, and make the bushes safe by covering in the whole quarter or row? a plan infinitely superior to setting a shivering man to await with gun the appearance in the garden of one of our most beautiful British birds. I have adopted this plan for years, and although, owing to the mildness of the winter, the finches this year have stolen a march, whilst admiring their superior business habits, I have decided upon preventing the recurrence of an attack which extends over only a few weeks.

I am not prepared to agree with or ridicule the statement that a branch of Furze placed in the centre of each bush will keep away caterpillars, but independently of an untidy appearance, and assuming that the eggs are laid in autumn, I must say I am not struck by the idea. A much better and more efficacious plan, I think, is the removal of the surface soil after the bushes are pruned, syringing with soapsuds and dressing with lime preliminary to

top-dressing with fresh compost. The rather late upright-growing kind which produces small fruit may be Ironmonger, one of the best for dessert or preserving. Being late, the buds escaped the attack, hence the prospect of a good crop of fruit. The early rough amber, on the other hand, being forward has suffered, as the buds were in toothsome condition.—W. C.

Early forcing Strawberries.—It is most useful to obtain the judgment of gardeners who are extensive growers of Strawberry plants for forcing upon the merits of kinds which, as Strawberries will do, vary very much in diverse localities. Mr. J. Smith, of Mentmore, who exhibited the superb fruits of Auguste Nicaise at the meeting of the Royal Horticultural Society, speaks of the variety in the highest terms. The fruits spoke for themselves, so far as size, quality, and appearance are concerned, for they were large, smooth, glossy, and flattish, and of a rich scarlet hue. The fruits shown beside a good sample of Noble were so superior as to justify the assertion that if fruits of Noble could realise 6s. per pound, those of Auguste Nicaise would sell at 10s. The variety, it is evident, merits general attention, and although it may not thrive everywhere so well as at Mentmore, yet it is obviously a first-class forcing variety. Mr. Smith employs Marguerite chiefly for first early forcing, and speaks warmly in its praise. If a census were taken from say 100 Strawberry forcers, we should probably find the majority in favour of Vicomtesse Héricart de Thury. Next, perhaps, would come Keen's Seedling, and then La Grosse Sacrée. It is therefore all the more interesting to find Marguerite so much in favour at Mentmore, whilst Black Prince is the variety mostly forced first at Hatfield. It is difficult to understand that difference in the atmosphere can account for the divergence found in the selection of such diverse sorts. Probably it is more a question of soil. In any case it is satisfactory to find that in Auguste Nicaise we have a valuable addition to our list of good early forcing Strawberries. Growers for market should look out for it, as if it will generally do so well as at Mentmore it will soon make a high reputation.—A. D.

Peach and Nectarine trees.—These are now in full flower with me, and with few exceptions look extremely well. The flowers are strong, but not produced in overwhelming quantities, which in no case is desirable, for it does not ensure a better set of fruit. Our trees being trained upon wires, are annually removed from any contact with the same as soon as the foliage is ripened off and the chief part of it has fallen. The branches are then unloosened, bunched up together, and afterwards secured just clear of the wires, but temporarily tied thereto in case of a heavy fall of snow breaking them down. This, on a west wall, retards the trees nearly or quite a fortnight, which on the whole is better in all respects. In the early part of the summer daily syringing in the afternoon is practised, and every encouragement given to induce a rapid and healthy growth. Thus treated, the trees are seldom infested with any green or black aphid or other insects, and mildew is conspicuous by its absence. I am under the impression that the fly is more troublesome to those trees that happen to be early in flower with early wood growth following. Retarding the flowering period as much as possible, and avoiding also a too luxuriant growth (the latter frequently encouraged by disbudbing too early), are two points that should not be passed over. Early disbudbing must cause strong shoots to get yet stronger, and if practised to an extreme degree renders those shoots that are left more liable to injury from the fly, whilst the fruit itself does not get that protection which is requisite, considering the extremely variable nature of our climate, particularly so in the spring months, when it is still of a tender age and liable to cease growing entirely if it receives the slightest check. The only protection that I give the trees is that afforded by three or four thicknesses of 1-inch mesh netting. This is lighter and preferable, in my opinion, to the half-inch mesh which, taken piece for piece of equal size, is four

times as heavy as the 1-inch mesh netting. The netting does not in any way prevent the bees working amongst the blooms in my case. I do not think, however, that they would take so kindly to trees covered with thicker netting.—J. H.

Strawberry Auguste Nicaise.—This variety, though not considered first-rate outside, is excellent for forcing, and much used by Mr. Wythes at Syon House Gardens. Its fruits are large, finely-flavoured, wedge-shaped and handsome. Market growers have discovered its value for forcing, as the fruits realise about twice as much as those of any other variety.

THE EVILS OF GRAFTING.

THE art of grafting, like nearly all other arts, has had much new light thrown upon it during the past generation, and some of its abuses have already been pointed out and corrected. There remains, however, something still to do in calling attention to some misuses of the art, which, next to that of the hybridiser, is the most fascinating of horticultural processes. It is well to discuss its scientific side, and show all that can be shown of the almost infinitely varied influences of stock on scion and scion on stock.

It is desirable also to keep in full view the practical, everyday side of the matter. Some friends of gardening in England have fallen into the belief that because many ill-assorted unions of trees are sold and bring loss and disappointment, the whole practice had better be abandoned. Not many will agree with such a sweeping condemnation, but there is good reason to look carefully into the misapplication of the art. When a whole section of a country engaged in fruit-growing finds that a certain fruit grafted on a given stock cankers and fails, we cannot blame people if they try other stocks, and finally settle down to the practice of growing this fruit on its own roots, if it does better so. When a tree is so short-lived on another stock as to be valueless in two or three years, it is folly for nurserymen to continue its propagation in that way. A choice variety of anything grafted upon a stock which is absolutely sure to send up a multitude of suckers and overwhelm it is a delusion and a loss, and this loss falls heaviest, finally, on the nursery trade.

An instance of this is the budding or grafting of the new varieties of Lilacs upon a stock of common Lilac, as are all those sent out from European nurseries. An example of a good plant on a stock where it will live but a very few years is *Prunus triloba*, the so-called Flowering Almond on Plum or Peach stocks. A mere touch separates the plant from the stock. Another is found in the working of the Rose Acacia on *Robinia Pseudacacia* with precisely the same results. So long has this sort of propagation been practised that I know of many nurserymen, both in this country and Europe, who have never seen either the Flowering Almond or the Rose Acacia on its own roots, and some have even told me that neither would grow in that way. I have had the pleasure of sending specimens on their own roots to the unbelievers. There are really many things that would be far better on their own roots than grafted upon any other

stock whatever, and there exists no sound reason for grafting such things at all. Some of this sort are the following: Wier's Cut-leaved Maple, most varieties of Elm, and every sort of grafted shrub on stock which suckers, since they can all be layered so very easily. The Plum on Peach stock may serve a useful purpose on sandy soils, but the indiscriminate sending out of budded Plum trees is working untold harm to the general nursery trade.

The use of a tender stock for plants which must endure a greater degree of cold than the stock can stand is illustrated by the use of *Rhododendron ponticum* as a stock for *R. catawbiense* hybrids. It has caused considerable losses of this beautiful plant in Massachusetts, and the best growers now see the desirability of raising them all from layers on their own roots.

Another plant that is far better on its own roots is the Quince. As grown now, the new sorts of Quince are budded on the common sort, which, after a few years, send up suckers on every side, and these are very difficult to distinguish. Why not grow these choice sorts from layers or cuttings? The double and also the white Wistarias are now almost universally grafted on the common purple sort, and they are often ruined by the more vigorous suckers of the stock. Why do we graft such plants at all, when by getting them on their own roots by layering we can then multiply them *ad infinitum*, by root cuttings, as easily as we can raise Peas?

Much labour is applied to the grafting of such trees as the purple, cut-leaved, and weeping Beeches, which are very difficult to graft out of doors, when they might be far more cheaply and better multiplied by layers. I was greatly interested in a well-known, huge Beech, in Kew Gardens, last season, which has rooted the tips of its immense, horizontal branches into the soil, and produced, at each of these reinforced points, a large and finely formed tree, so that a ring of these now surrounds the plant. The perfect success of these layers showed what could be done by this method in multiplying these fine trees.

The evident truth is that we often take the worse and more expensive way of propagating many useful plants simply through habit.—F. L. TEMPLE, Cambridge, Mass., in *Garden and Forest*.

Old wall clothers.—Permit me to add one or two to your brief list of these at p. 335. Of course the list might be greatly and indeed indefinitely extended, but the following three plants have proved so effective with others or by themselves as to deserve a place in the briefest list. The first is the alpine Forget-me-not (*Myosotis dissitiflora*). This, unlike the typical species of our ditches and streams, can hold its own on any crumbling wall, and its azure blue is almost unique among wall-clothing plants. It seeds itself freely, and can hold its own on moist old ruins or walls. It furnishes a long succession of bloom on different aspects, as well as displays various shades of colour from purple to the purest blue. Plants and patches of this alone are extremely striking, but when contrasted with the common yellow Wallflower or golden Stonecrop the effect is marvellously rich. This Stonecrop is perhaps the most gorgeous wall and ruin

clother in East Anglia and other portions of England. It has long been greatly prized for this purpose, and looks its richest when seen in contrast with plants or broad patches of this Forget-me-not. The dwarf Japanese Honeysuckle will probably find its most effective place among our wall-clothers of the future. The semi-starvation regimen to which it is subjected on old walls imparts a richness and intensity to its peculiarly variegated foliage, and few plants can form a richer trio of themselves or go better with those wall-clothers enumerated by "A Gloucestershire Parson" than these three which I have ventured to add to his brief list.—CALEDONICUS.

NOTES OF THE WEEK.

Evils of grafting.—We wish to call attention to the very important article by Mr. Temple, of Cambridge, Massachusetts, in this week's GARDEN.

Dendrobium nobile.—A gathering of flowers, representing an excellent variety of this favourite, comes to us from Mr. A. R. Henderson, gardener to Mr. Wm. Macfie, Corstorphine, Clermiston, Midlothian. The flowers are much brighter and larger than usual.

Aristea Eckloni.—This, from Mr. O'Brien, Harrow-on-the-Hill, is a pretty blue flower. The plant sends up numerous spikes, and the flowers, although lasting only one day, are continually succeeding each other. It will bloom in a cold frame.

Sophrontia grandiflora is one of the most brilliant flowers in the nursery of Mr. Bull at Chelsea. The little pans of it are sheeted with bloom, which varies in its intensity of colour. One variety is named *coccinea*, the flowers of which are of a glowing crimson-carmine colour, and in *aurantiaca* they are orange-scarlet—quite a distinct shade.

Richardia melanoleuca is an interesting Aroid in flower now in the stove at Kew. It has a pale yellow spathe, spotted with blackish purple at the base, and produced on a tall stem; the leaves are like those of the common Calla, and marked with white spots. It is far less beautiful than the white Arm or Trumpet Lily, but distinct, curious, and not unattractive.

A park for New Southgate.—Mr. V. E. Walker, of Southgate, has presented to the Southgate Local Board 15 acres of land situated at New Southgate for the purpose of laying out public recreation grounds for the inhabitants of that town. The value of the land is estimated at about £5000. It is proposed to hold a public meeting at New Southgate to consider what steps shall be taken to raise sufficient funds to lay out the grounds in a suitable manner.

Cyrtanthus obliquus.—This is a bold and handsome Cape plant, and one of the finest of the Cyrtanthi. It is in bloom now in the Cape house at Kew; the plant bearing an erect, stout scape about 18 inches long, at the apex of which is a large cluster or umbel of flowers, each of fine though quiet colours. They are tubular in shape, 2 inches long, and coloured in the upper portion with red, the lower being of a fine glaucous green shade. It was introduced as far back as 1774.

Cattleya Mendeli and its varieties are coming rapidly into flower in Mr. Bull's nursery at Chelsea. There are several splendid forms already in bloom, one of the finest of which is *imperialis*, the plant carrying four spikes. The sepals and petals are of a lovely lilac shade; the lip rich magenta in front, changing to a clear yellow in the throat. Quite a distinct thing is *Rex*, in which the sepals and petals are pure white, and the lip deep magenta, in rich contrast to the pale primrose tint at the base. Another fine variety is *Majestic*, the flower bold and distinctly coloured.

Crinodendron Hookeri.—Although this beautiful and interesting plant was introduced from Chili eleven years ago, it has not up to the present obtained a footing in our gardens. A coloured figure (the only one as yet published) is given in THE GARDEN for November 27, 1880. It belongs to the Lime family, and is now included by Benthams and Hooker under *Tricuspidaria*. It is stated to form a spreading evergreen tree 8 feet to 16 feet high, with a trunk 8 inches in diameter. The flowers are produced singly at the axils of the leaves on pendent stalks 3 inches long. They are of a deep rich red, opening but little, and are somewhat cone-shaped, the petals being thick and fleshy.

Each flower measures about 1 inch across the base, and may be compared in outline to a well-developed flower-bud of a Fuchsia. This plant has long been known in a dried state, and a fine set of specimens exist in the Kew herbarium, some of which were collected during the famous expedition of the *Beagle* in 1826, which Charles Darwin accompanied as naturalist. A considerable variation is apparent in the foliage, and if the figure quoted is correctly coloured, this extends also to the flowers, which are there portrayed as orange-red. On a plant at Kew now bearing several flowers there is no trace of orange, the colour more nearly approaching crimson. This species has been grown out of doors in the neighbourhood of London with the protection of a wall, but it is probably better treated as a cool greenhouse subject. In the south of Ireland and in other similarly favoured localities it would probably succeed in the open.—W. B.

Sparaxis lutea.—There is a pretty group of this plant in the Cape house at Kew, and those in search of a bright thing for the greenhouse at this season might make a note of it. It belongs to a well-known class of bulbs, and requires the same culture as the *Ixia*. *S. lutea* blooms freely, and the flowers are rich yellow on the lower portion of the segments, but paler in the other part—a nice contrast of two distinct shades of one colour. It is unfortunate that such useful groups as *Sparaxis* and *Ixia* are passed over, especially when we have such a bright flower as *S. lutea* to bloom in spring.

Prunus divaricata.—This is a beautiful early spring flowering tree, one of the earliest of all the Plum tribe to bloom, as in the later days of March even it is smothered with a multitude of white flowers that clothe each twig as if hidden by snow. It is a beautiful Plum for a lawn, not only for its profusion of blossom, but also for its elegant growth, the branches forming a thick and handsome spreading head. One of the finest specimens we know faces the Cape house at Kew, and each season attracts marked attention, as much by its beauty of flower and shape as by its earliness, blooming when only a few Almond, Peach, and Plum trees give colour to the garden. It was introduced several years since from the Caucasus, and thrives well without attention when once it is established, and no fear need be felt as to its hardiness.

The genus Cyrtanthus.—There are at least three distinct species which may be enumerated in continuation of the article accompanying the beautiful plate of *Cyrtanthus sanguineus* at p. 344, viz., *C. pallidus*, a lovely salmon-tinted vermillion species, of which I send you one spike taken from a pot bearing several of them. Also the pretty *C. spiralis* and *C. uniflorus*, which may roughly be likened to a white *C. sanguineus*, and which was the plant on which the supposition that there was a white form of *V. purpurea* was probably based, it having been named many years ago, at Amsterdam, Vallota Brehmi, after a well-known old-time lover of South African plants, M. Brehm. All these *Cyrtanthi* thrive well with me in unheated frames, and I fancy most of them will be perfectly hardy if planted rather deep; at least I mean to try them.—JAMES O'BRIEN.

The Horticultural Club.—The usual monthly dinner and conversation took place on Tuesday, April 8, at the rooms, Hotel Windsor, Victoria Street. The chair was occupied by the Rev. W. Wilks, and there were present besides the Rev. E. Handley, Messrs. Cousens, Drury, Walker, &c., Mr. W. Ingram being the guest of the club. Afterwards a most interesting paper was read by Mr. C. T. Drury on the "Wonders of Fernland." It was illustrated with some excellent diagrams and some beautiful specimens of dried fronds. The paper dealt very carefully with the germination of Ferns. It was stated that in the case of all Ferns, whether the gigantic Tree Ferns of New Zealand, &c., or the delicate Maiden-hair, the spores from whence the plants proceed are absolutely microscopic. He then showed the various methods of propagation, the ordinary one by spores, and the abnormal ones of bulbules and apospory. It was shown that of all the species of British Ferns there were to be found tasselled or crested forms, and

Mr. Drury believed that if the habitats of the foreign Ferns were searched as carefully as our own land has been, similar departures from the normal growth would be found. The paper was a model of what such papers should be—severely correct as to its botany and scientific side, yet delivered in language that any intelligent hearer might understand even although previously unacquainted with the subject. A cordial vote of thanks was given to Mr. Drury. We may add that Mr. Thomson, of Drumlanrig, and Mr. Bruce Findlay, of Manchester, will be the guests of the club at a special dinner on the 22nd on the occasion of their receiving the Veitch Memorial medal, and a large gathering of the members is anticipated.

United Horticultural Benefit and Provident Society.—The quarterly meeting of the above society was held on Monday evening last. Fifteen new members were elected at this meeting, making a total of thirty-two during the quarter. Messrs. Lane and Sons, of Berkhamstead, have also joined the list of honorary members. The sick list has been rather a heavy one, chiefly due to the influenza epidemic, £31 7s. 8d. having been paid to sick members during the quarter. At the present time there is but one member on the sick list. A convalescent fund is being established to assist members to get a change of air after illness.

Kæmpferia rotunda was recently in bloom in the stove at Kew, and a coloured plate of it was given in THE GARDEN of August 18, 1888. It is not a new plant, as a century ago it was grown in English gardens, and it is a favourite also in India by reason of the scent of the flowers. Although rare, *K. rotunda* is a plant that should be in every stove. The flowers expand during this month, the leaves appearing several weeks later. The flower-scapes are about 2 inches high, and are made up of leafy bracts, out of which the rose-magenta and white flowers push, opening about two together, not all at once, while they last only one day. This drawback is, however, made up by their profusion and quick succession, so that we have the plants gay for about four weeks. The root, like that of *K. Galanga*, has medicinal properties, and used in India.

Odontoglossums at Mr. Bull's.—We have never seen a finer show of *Odontoglossums* at the Chelsea nursery of Mr. Bull than at present, where in one house alone there are about 350 spikes of flowers either in full bloom, on the point of expansion, or in bud. In another house the beautiful *O. Pescatorei* is in full beauty, the many plants of it carrying a profusion of spikes of charmingly-coloured flowers. Some of the spikes of *O. crispum* or *Alexandrae* bear upwards of fifty blooms each, and branch several times, not only showing their remarkable vigour, but having flowers of bold, massive form, and finely and variously coloured. Those shaded with warm rose-magenta give colour to the house, relieved by the purer whites of the other kinds. *O. triumphans* is also blooming in great variety, the flowers rich, blotched with chestnut-brown on a golden yellow ground, these colours varying in intensity, but the richest are the most distinct and telling. *O. gloriosum* again exhibits the same variation in colour, and in some varieties, as *superbum*, the flowers are much larger and finer than in others; one named *album* is nearly white, spotted with mauve colour, and there is also a white form of *Wilckeanum* named *albans* in which the flower is white, blotched with brown. *O. septrum crenatum* is very distinct; the petals and lip are crested at the margin, and the colour of the flowers is yellow, blotched with brown. A fine spike of *O. naevium majus* showed the delightful beauty of this *Odontoglossum* when well grown, and nearly allied to this is *O. cirrhosum*, represented by several specimens in full bloom. Other good kinds are *O. citrosomum* in great variety, from pure white to the most delicate lilac shades; *O. Stella*, *insigne*, *Andersonianum*, *hystrix*, the now well-known *Harryanum*, and which seems to be expanding its hitherto converging petals; *Halli*, *caudatum*, *Edwardi*, *Rossi majus*, of course, *nebulosum*, *Erstedii majus*, *Cervantesi decorum*, and *C. Ehren-*

burgi, in which the barring is sharply defined, and the lip is pure white.

Clianthus Dampieri in Wales.—At p. 289 of THE GARDEN, March 29, appears a note upon the healthy condition of this *Clianthus* in Wales, and, judging by the description of flower-buds, I thought it might be *C. puniceus* and not *C. Dampieri*. *Clianthus magnificus*, which is an improved form of *C. puniceus*, has been in flower here for a long time, and is now laden with thousands of long racemes of flowers and flower-buds. The moist climate of the south of Ireland is well suited for the healthy growth of the plant.—W. OSBORNE, Fota, Cork.

Double Wallflower.—I send herewith a few spikes of double Wallflowers, representing a fair specimen of what I consider a grand lot now in full flower in a cool orchard house at The Warren, Hayes Common, the residence of Mr. Martin R. Smith. Mr. Blick, the gardener there, informed me that the plants have been grown in 8½-inch pots, three in a pot. The seed was sown in April last.—A. F. U.

* * * Remarkably fine heads of bloom, and showing how useful Wallflowers are when grown in pots for the conservatory.—ED.

Fritillaria aurea.—Herewith I have much pleasure in sending you a flowering specimen of this, assuredly one of the prettiest of all Fritillaries. As you will see, the shape of the flower exactly resembles that of the *F. Meleagris*, but the colour is a fine bright yellow both inside and out, with numerous small black tessellations. The plant is quite hardy, and a flowering mass of it is just now one of the most charming sights in my garden. On page 26 of the second part of Mr. Nicholson's "Dictionary of Gardening" there is given a figure of a Fritillary which I consider to be *F. recurva*, though the name of *F. aurea* is, no doubt erroneously attached to it. The true species as described in 1876 by Mr. Baker appears to be extremely rare in European gardens.—C. G. VAN TUBERGEN, JR., Zwanenburg, Haarlem.

Chrysanthemum Mrs. Alpheus Hardy.—That this variety will produce late blooms is beyond a doubt, as shown by a capital specimen of it now in flower in a greenhouse here at the present time. The bloom has all the peculiar characteristics of this variety in the hair-like formation on the under sides of the florets. This plant has flowered in a temperature very much higher than that usually employed to develop *Chrysanthemum* blooms. The plant which produced the bloom in question is but a weakly one, growing in a 4-inch pot. It was from a very late-struck cutting, which showed at the usual time no signs of flowering. Later on, however, a bud was formed on the point of the leading shoot, and thus many persons who had not previously seen flowers of this variety have had their curiosity gratified.—E. M., Svanmore Park.

Chrysanthemums in April.—Although *Chrysanthemums* blooming in the middle of April might be regarded by some persons as being very much out of season, yet the fact remains that they can be had at the time named, and have been much appreciated for Easter decorations, blooms of the pure white Japanese variety *Mrs. J. Wright*, which in the ordinary way is looked upon as rather an early-flowering variety, having realised 2s. 6d. per dozen. *Belle Paule* and *Duke of Berwick* have produced flowers freely, but, owing to their not being pure white like those of the first-named sort, have not fetched such a good price. Mr. J. Agate, nurseryman, Havant, who makes *Chrysanthemums* a speciality, has lately cut 100 dozen blooms of the varieties named, and, judging from some flowers sent me last week, I do not wonder at their finding such a ready sale. The flowers of *Belle Paule*, each from 4 inches to 5 inches in diameter, were quite full in the centre, and well worthy the small trouble occasioned in producing them. The blooms in question were taken from plants that last November produced show flowers, and instead of cutting the stems down, they were encouraged to form side shoots which grew strongly, the plants having been liberally fed with stimulants.—E. MOLYNEUX.

FLOWER GARDEN.

CUT FLOWERS IN THE HOUSE.

THE arrangement of cut flowers for the adornment of the dwelling-house appears to be in a general sense very little understood. Very often flowers, individually of the greatest beauty, are wedged together in a glass or vase so tightly as to be almost unrecognisable, and no regard whatever is paid to harmony of colour or to suitable foliage for forming a setting to the flowers. Wherever possible, the flowers should be arranged with their own foliage, and only one kind ought to be used in the filling of the glasses or vases. In the case of the vase herewith figured, the Narcissus looks well arranged among the sprays of Laurel, and the flowers being few in number and lightly and carelessly arranged

selection I have made in which the divisions are so broad and overlapping as to produce a perfect circle. Seeds are freely produced, and self-sown seedlings are coming up by the thousand. One curious feature about it is that after the flower has faded, the stalk lengthens to 6 inches or 8 inches. —T. SMITH, *Newry*.

TUB GARDENS.

PERHAPS the most interesting and suggestive of the several articles which "A Gloucestershire Parson" has lately given us is that on "Tub Gardens" in THE GARDEN of March 29. Tubs, if well and suitably filled and judiciously placed, add considerably to the interest and beauty of the garden. I think, however, it would be better to utilise them for special and larger subjects than those suggested in the article in question, for filling tubs "at least twice a year" entails a lot of labour. We are trying to get away from that system of planting the flower garden twice a year, and a further development

associate with the greenhouse, may be well grown in a tub. I have seen it growing and flowering freely in the open air in summer, and the sweet perfume of its flowers filled the air around. But the things as yet enumerated would all require protection in winter, yet the "tub garden" may exist even where there is no glass, and in such places it becomes important that it should exist, because it permits of the culture of some of our noblest types of hardy plant-life, where in the ordinary way of doing things or owing to want of space the self-same plants would be excluded. We value highly, but at the same time do not make half enough of the bold, yet graceful, effect produced by the Pampas Grass and other giant Reeds and Grasses. Their effect upon the garden landscape is so beautiful, that, if want of space or other causes prevented the permanent planting of groups or isolated specimens of these things, we might overcome the difficulty by having recourse to the tubs. The Yuccas, too, would revel in tubs, and even when not in flower charm us with their fine form. I might continue suggesting and enumerating fine things, but it would serve no further purpose, as those already mentioned illustrate the idea as regards both sections of plants, namely, those that would require protection during winter and those that would not. Tubs, moreover, are cheap, and one can be obtained for fewer pence than a pot of the same capacity would cost in shillings, with the additional security of freedom from danger or loss by breakage.

Another good use to which I have seen tubs put is for growing aquatic plants. In this way they are not, or rather will not, be so generally used; but aquatic plants have their admirers. They are much less objectionable than those little tanks, with hard and harsh cemented margins to retain water. The culture of aquatics in tubs, as I saw it, consisted in sinking the tubs into the ground, and those I saw were in two single lines, one on either side of the walk. The tubs were partially filled with soil and quite filled with water. I saw many things doing well, and this is not difficult to understand, because they were so much under control that any special requirements could be supplied.

"A Gloucestershire Parson" appears to have found much pleasure in his tubs, and we are indebted to him for telling us about them and how he filled them, the more so because the idea is good, and admits of a practice so diverse as to suit almost any situations, tastes, and requirements. A. H.



Arrangement of Narcissi and Laurel leaves.

are seen to the best advantage, a condition that cannot be attained when they are huddled up together, as is frequently the case.

Gentiana acaulis.—Four years ago I received from a French correspondent a packet of seed thus labelled. It grew well, and many of the resulting plants flowered when two years old, and all are this season blooming in the freest possible manner. It is evidently not our old friend which has done duty for so long under the above name, but a totally different plant. The leaves are much broader and thinner in texture, the flowers of large size, and varying a good deal in colour, though many are as near as can be of the same shade of blue that we know so well in the *Gentianella* of gardens. Others are much darker, and others much lighter. I have selected one which is nearly purple, and another of, I think, the most beautiful shade of true blue I have ever seen. The flowers vary also a good deal in form, from the most angular to a

of it in tubs is hardly desirable. Now that there are so many hardy and half hardy plants of fine form and flower, a selection of good things might well be grown in tubs, as by a good preparation of the soil at the commencement the only trouble such things would give for several years would be attention to watering.

Probably there is no finer plant for tub culture than the blue African Lily. A few tubs of this in corners or beside walks and filled with strong plants carrying from fifteen to thirty spikes of flower give an effect quite unsurpassed in its way throughout summer and autumn. It can be housed in any light, airy structure for the winter, and if the plants are dry, 10° of frost will not hurt them. Cannas, too, may be grown in tubs with excellent effect, and in this way they would adorn many a corner and look better than, as we often see them, in great unrelieved masses. The yellow *Hedychium*, a plant which we usually

Aquatics.—A timely hint might be useful at the present time respecting these most necessary and appropriate subjects for all ornamental waters. Now is a good time for replanting them, as growth is just commencing. If taken up with a fairly good ball in every possible case, they will quickly re-establish themselves and be effective the first season. Water Lilies are best planted in soil in old baskets, and then dropped into position where they are to remain. In every case, where planting a fresh stock avoid all formality in the work. By planting aquatics near the edges of water where the outline is stiff and formal, this defect may be greatly modified.—J. H.

Saxifraga Rocheliana and the variety *coriophylla* have both opened their spotless white flowers within the last few days. Both are well adapted for the rockery, as they form dense tufts of tongue-shaped white-margined leaves, with distinct impressed dots, from the centre of which are produced the numerous bunches of large white flowers. Almost any soil to which has been added a sprinkling of old mortar suits this species, and when compact masses, which do not take long to grow, are seen on the rockery, they at once give a

furnished appearance, interesting alike in or out of flower. This is one of the few alpine species that does well in the heart of London, where in a rocky border of ordinary garden mould we have seen flourishing healthy plants fully exposed to the sun. *S. R. coriophylla* is larger and somewhat freer than the type, and I think the more desirable where space is so limited that all may not be included.—K.

NOTES ON HARDY PLANTS.

Hepatica triloba (white).—Where this does well it is not uncommon to meet with flowers having ten petals, if I may so call them. When seen in bold clumps it is undoubtedly the most refined variety of the species. All are good certainly, but not only does this show off all the rest, but when grown alone the little heaps of Cherry blossom-like flowers have a unique effect in either borders or moist parts of rockwork. Moreover, owing to the resisting character of the bloom its purity remains unspotted to the last. This is an important gain where gardens are near factories, like mine. I find this increases more slowly than any of the other kinds, not excepting the double blue.

Megasea Stracheyi.—This is not so free as stronger and better-known kinds. This year, however, it seems to be flowering splendidly everywhere, and the big balls of densely clustered white blossoms are well worth the care of a little shelter. Is not the species variable, and is not *M. africana* identical?

M. ciliata alba.—Though the flowers of this are not in dense umbels, but few on a scape, they are, to my mind, far more beautiful than those of *Stracheyi*. They are certainly larger and of a purer white, and the striking terra-cotta-coloured anthers, which are large, render the flower all the more showy. The habit of the plant, too, is quite distinct, the leaves growing as flat as those of a rosette of *Ramondia*. The foliage is slightly wrinkled, hairy, and with long cilia. It is perfectly hardy, and seems to enjoy sandy soil.

Sisyrinchium pinnatum is an interesting kind, perhaps a variety of *S. grandiflorum*, though the flowers are smaller and later in appearing; the plant, too, is dwarfer. The chief feature of distinction, however, is that the white flowers have their petals or divisions jagged so as to resemble small white feathers. It is perfectly hardy, and enjoys a rich vegetable mould.

Chionodoxa gigantea.—I have again looked over a batch of this, and though I am told that among the newly imported bulbs there are various forms, I am inclined to believe that there is also a mixture of species too. Anyhow, among my stock imported as *gigantea*, though assured that the bulbs were unmixed, I have both *sardensis* and *Lucillae*. This is interesting as pointing to a common habitat of the various species of this lovely genus.

Dwarf Masterwort (*Dondia Epipactis*).—What a lovely thing this is when seen in good-sized clumps. How well it takes the place of the Winter Aconite, and what a beautiful companion to the Hepaticas, supplying the yellow colour that many might like to see. There is nothing in the garden that approaches it for habit or colour, being quite a distinct and showy plant. It loves a rich and deep soil of a somewhat heavy nature. Those seeking for a limited selection of the choicest hardy spring flowers cannot do better than make a note of this. J. WOOD.

Woodville, Kirkstall.

Primula Clusiana as a rock plant is unequalled by any of the alpine species in the south at any rate. The soft-leaved species, such as *P. villosa*, *viscosa*, *Kitaibeliana*, and others of that description in which the leaves are soft, hairy, and invariably viscous, rarely do well for any length of time, and certainly do not flourish and increase in the same ratio as *P. calycina*, *Clusiana*, *Wulfeniana*, and some others in which the leaves are glossy and from which the sooty accumulations are more easily

washed off. I do not mean that this accounts entirely for what I describe above, but it doubtless has something to do with it, as I have often seen the leaves of *P. viscosa* after a heavy November fog quite black and apparently clogged, while those of *P. Clusiana* were almost as clean as previous to its appearance. *P. Clusiana* never flowers so well as when planted out in good vegetable soil fully exposed to the sun, and all the better if a sloping bank can be made use of, as it lessens the danger of moisture accumulating about the necks of the plants. The rich rose-purple flowers are as large as a florin.—K.

THE FLOWER GARDEN.

THAT necessary operation connected with summer bedding plants known as the hardening-off process, although simple enough in itself, requires a little special care and attention, particularly if the majority of the plants are spring-sown or struck. It generally happens in the early spring that most pits or frames which could be utilised for the purpose are already tenanted with such indispensable necessities of the kitchen as Potatoes, young Carrots, Lettuce, and the latest batch of forced Asparagus, and if this is the case, another shelter has to be provided. A home-made frame has answered our purpose so well that I am induced to give the method of construction, thinking it may be new to some of your readers. A few pieces of quartering some 3 inches square were provided and driven into the ground at intervals of 4 feet, the back row 2 feet, and the front 1 foot in height, the width being 7 feet, this last to accommodate some old lights that were to be used for coverings. Some lengths of match-boarding were then obtained and nailed on either side the square quartering, the 3-inch space thus enclosed being tightly packed with dry Fern. So far as the sides are concerned, this is a perfectly safe frame, as we never get frost of sufficient severity after the beginning of March to penetrate the stuffed boarding. When the old lights, or, more correctly speaking, frames are destitute of glass, they are covered with hurdles rather closely thatched with straw, and this again on very sharp nights with a dressed canvas covering or with mats. We are able with the aid of this improvised frame or pit to get our plants out by the middle of March, thus relieving fruit houses of their presence and allowing plenty of time for the hardening off process. If some of the more tender things—as golden and variegated Fuchsias, tricolor Geraniums, &c.—have been growing under foliage in fruit houses, it is as well to give them a little shade for a day or two, as otherwise the leaves are apt to blister and drop when brought under the immediate influence of the sun. All plants in small single pots, which, besides Fuchsias, will include such things as Tobaccos, Acacias, Eucalypti, Japanese Hop and the like, will have the pots very full of roots before it is safe to plant them out, and will require a weak solution of manure water applied daily to keep them up to the mark, otherwise the foliage is apt to go, leaving nothing but a lot of sticks, that cut a sorry figure at planting time. I have for several seasons given Verbenas and Ageratums a shift from cutting pots into a pit or frame for about a month, and this is a wonderful help to them, ensuring nice stocky plants by the middle of May. They can be kept rather close for a time after planting and gradually inured to the weather. Frames emptied of early Potatoes are useful for this purpose, and if there is sufficient space, *Heliotrope* and *Lobelia* can be similarly treated. Where *Calceolarias* and Verbenas are to be used in quantity, and there is a suspicion that the natural soil is not altogether suited to them, the beds for their reception can be at once prepared, the existing soil excavated to a depth of 3 inches or 4 inches and filled up for *Calceolarias* with leaf-soil containing a fair proportion of road sand, and for Verbenas with compost from a heap of road sidings where this is available, forking these afterwards into and incorporating them with the natural soil. We generally devote some two or three days very early in April to the preparation of and planting all movable pans, boxes, or vases

that are to occupy prominent places in the immediate neighbourhood of the mansion, placing them after planting in the gentle warmth of a late vinery or Peach house for about three weeks. By this means a good growth is obtained, and a presentable appearance secured as soon as the boxes, &c., are placed in position, an important feature in this particular branch of gardening, as there are few things more unsightly than a number of such receptacles for plants partially filled with a few half-starved, miserable objects that make no show until nearly the end of the season. To illustrate my meaning, I may mention that a quantity of our boxes have in the back row, interspersed with other things, creepers in the way of *Cobæa scandens*, *Humulus*, and *Canary Creeper* for fastening to and covering a balustrade, and these we get 7 feet or 8 feet long by the middle of May, so that they partially effect their purpose as soon as they are placed in position. E. BURRELL.

Claremont.

THE GREAT LABEL QUESTION.

ONE of perhaps the greatest troubles of the garden arises from the imperfection and worry of labels. In the first place, we find the nurseryman puts his name in ink on his labels, but he writes the name of the plant he sends us in pencil, or some other way, so that it disappears in a few weeks. If the trade would give us a fairly legible and enduring label to begin with, a great step would be gained, as very often there is a great deal of hurry in planting, and people have no time to renew at once labels of things received from nurseries, nor should they be expected to do so. A nursery label should last a fair time, and be perfectly legible. A host of patent labels have been introduced into France and England, by far the greater number of which are worthless, because in the first place they are often too mechanical, so to say; and, secondly, they are far too expensive. Of late years a very good cast label has been made in England—at Stratford-on-Avon. It is a very simple one, but the great drawback of all cast labels is that they cannot be used again for other plants. The taste for garden flowers changes so much, and there are so many causes of the flora of the garden being changed, that this is a drawback. As we have said repeatedly, the best of all labels for endurance and for a large collection is the cast iron T label, well painted, and clearly written. We have had them last for 20 years perfectly clear. We were pleased, however, to see the other day in a Surrey garden a new label, which promises well and looked well. It is made of the slats of the common *Acacia* (False *Acacia* or Locust tree), about 2½ inches broad, and 13 inches or 14 inches long. It is used perfectly plain and free of colour, no paint whatever being put on, except the white letters. Neatly done, it looks excellent, and is perfectly inoffensive in colour, which many labels are not. The *Acacia* is a tree now and then seen in our woods, and the timber merchants do not seem fond of it, so that it is worth while to find a use for it. In spite of all Cobbett's efforts to make our fortunes with it, he has not succeeded, and it is not even a popular tree with us. Its fine qualities, however, for enduring in water and in wet earth should not be forgotten, and it has various good points in fencing and the like. Have any of our readers had experience of it as a fence? In any case, its minor use is worth knowing, and if the wood of the common *Acacia* will save us from the common rotten and consequently illegible labels of English gardens, we shall be very glad of it. The endurance of this wood in the case of a label is a most important consideration, as some of our labels made from common underwoods rot before they are six months in the ground. Common Hazel is a bad thing to write upon, as the writing gets rubbed off in a few months. If, therefore, you have an odd tree of the False *Acacia*, save it for labels and posts under water.—Field.

—A legible and at the same time durable label has long been a desideratum in most gardens, and although numerous forms have been tried, we have invariably had to fall back on the

wooden one. Wooden labels, if properly seasoned and prepared with creosote or other preserving material and well painted, will last for several years, though this may not be so in the vicinity of large smoky towns. The label now used at Kew is said to promise great things in the direction of durability, and it is certainly the most legible as well as the most inconspicuous label we have yet seen. We must not forget that the "label is for the plant, not the plant for the label," and the less conspicuous the label, coupled with legibility and durability, the better will it answer its purpose. The present label is made of strong zinc, and of the same shape as the ordinary wooden one. It is first thoroughly cleaned with a cloth and painted white with Aspinall's enamel, which is allowed to become hard, and then painted black, and before it sets the name is scratched through the black with a piece of pointed stick. The very small surface of white enables it to remain legible much longer than in the case of the old one; the labels are, besides, almost invisible at a very short distance.—K.

* * Labels made of wood and written on in the same way have been in use for the fruit trees and the herbaceous plants in the Royal Horticultural Society's Gardens, Chiswick, for years, and after many seasons' exposure the writing has been found quite legible.—ED.

Crocus aurea imperialis.—Having been informed that a certain firm has exhibited this plant as the firm's own seedling, and observing in the catalogue of another firm a notice that it had been found wild at the Cape, I beg to protest against such proceeding and statement. The plant has been raised here, after many years' careful selection, from seed sown in 1883, and I claim for myself the full honour of having raised it. I am convinced that still further transformation is possible, because it is bearing seed very freely. If a younger horticulturist would take to it, he might within eight or ten years produce reflexed flowers, a shape which would give quite a novel feature to this desirable autumn plant.—MAX LEICHTLIN, *Baden-Baden*.

Aubrietia Leichtlini.—This is by far the best of all the Aubrietias, as it not only makes a charming compact carpet, but also furnishes us with a colour long desired in spring gardening. Like the other species or varieties, it may be increased rapidly from cuttings, and no time should be lost in making the stock as large as possible, as the finest effects can only be seen in large masses or carpets. The difficulty with most people will be in finding space for large groups of all deserving plants, but large masses of a few of the choicest are better than small bits and numerous kinds. A. Leichtlini as a rose, and A. violacea or Hendersoni as a purple-blue or violet, should be in every garden however small.—K.

Alpine Primroses.—The majority of these are much earlier than usual in the south at least, many of them being already over. P. Auricula, now in full flower, wants a deal of beating; its large bunches of soft yellow blooms on a groundwork of grey mealy foliage leaves little to be desired in the way of beauty. It is one of the surest to bloom, and is also one of the few that one does not need to trouble about when grown on the open rockery. P. alpina, of which we have raised several seedlings, promises to be an exceedingly variable plant, and we may hope to get many good things from amongst them; so far, none of those yet in bloom show the slightest resemblance to one another. One or two are very fine, the flowers large, and of a very rich dark purple. It is a very free-flowering Primrose and increases rapidly on the rockery. P. calycina, known also as P. glaucescens, has always been a shy bloomer until it was lifted, broken up, and replanted annually. Now the clumps or patches are literally smothered with lovely pale purple blooms. P. obconica is still in perfection; it is really a charming and extremely useful species. P. floribunda is also good; the bright golden-yellow flowers in huge bunches are always attractive. P. viscosa seems to be the commonest of all the spe-

cies in gardens, and in some of its various forms does duty for a great number of fine names. It is a very useful plant and very amenable to shady spots on the rockery.—K.

A BORDER OF DAFFODILS.

IN many an old garden there is a border of Daffodils, some sunny spot where the great April flower is the leading feature, but blooming amidst a variety of old-fashioned things, the whole forming a quaint and interesting picture of flower beauty. It is not everyone that has access to these homely gardens, but we have in the Royal Gardens, Kew, many a bright and happy piece of planting, and nothing is prettier in its way than a border of Daffodils that runs beside an old-fashioned wall in the herbaceous ground, that portion laid out in beds, with the plants grouped according to their natural order. The wall itself is always worth notice. It faces due west, and is therefore warm, sunny, and in a measure sheltered, just suiting the growth of many fine old plants, as *Indigofera floribunda*, the Pearl Bush (*Exochorda grandiflora*), now in bloom, and Magnolias. The Daffodils occupy the border, and are planted thickly together, the varieties ranging from the yellow Hoop-petticoat Narcissus, that nestles at the foot of the wall, to the great trumpet varieties, as Emperor and Horsfieldi. The nodding moschatus makes a large group, and impresses one with its softness of tone and elegance. Finer than moschatus, that is, its flowers are larger, is Colleen Bawn, one of the "white" Daffodils, but which may be more correctly called "creamy white." The flowers are handsome, and have a bold trumpet. The Polyanthus Narcissus Daffodils are flowering well at Kew, except the variety Staten-General, which does not seem particularly happy. There are distinct beds of them near the Palm house, but in this border grouped with a variety of other kinds they have a greater charm, the surroundings relieving an otherwise conspicuous stiffness of habit. Etoile d'Or, rich yellow, and Grand Monarque, white segments and a rich yellow cup, are in full beauty, and are two of the best of the section, which, however, contains many other choice gems. Of the bicolor varieties, Michael Foster, which has a noble rich yellow trumpet, the segments paler; Horsfieldi, well known to all as the finest of trumpet Daffodils; Emperor, blooming splendidly this season, are worth a note, as here they shine out boldly, by reason of their greater stateliness, amidst the grassy leafage and frail flowers of the incomparabilis varieties. Of these last especially fine is Cynosure, a large flower, broad and handsome, the segments pale lemon-yellow and the cup tipped with orange. Groups of the scented odoros, poeticus, ornatus, and angustifolius (one of the finest of Poet's Narcissus), princeps, Jonquilla, and such less-known types as N. Johnstoni and the Bulbocodiums were all in bloom a few days ago in this border of choice Daffodils. Of the Hoop-petticoat, or Basket Daffodils, we may say that, at the foot of a sunny wall as at Kew, and in a warm, well-drained border of light soil, they are perfectly at home, revelling in the sunny position, and showing by the vigour of their leaves and the profusion of flowers that they are fitted for the open garden. Many an amateur, regarding the Basket Daffodils as tender, we suppose from their frequent occurrence in pots, never thinks of planting the little bulbs in such a sunny position as here described. They will even stand full exposure to every wind that blows; but shelter protects the frail flowers from damage by the beating up of the soil through heavy rains. Those who have no park or

meadowland to naturalise the Daffodil in—and it is only in such conditions that its true beauty can be seen—should first think of a border before resorting to pots, or even beds of one kind—a good way to get bold blocks of colour, at the expense, unfortunately, of the individual beauty of the flower. A narrow border running beside an old wall clothed with many climbers will just suit the Narcissus, and, as at Kew, one could have a rich variety of kinds, representing many groups and many distinct phases of growth and flower. Plant with them tufts of Primroses, the quaintly-coloured Drooping Star of Bethlehem (*Ornithogalum nutans*), Crown Imperials, and other favourites of the cottage garden, not in any set pattern, but to make an interesting variety of hardy flowers at small expense. In such a border of Daffodils there is a long succession of flower. Amongst the first we have the sulphur-white pallidus præcox, then a host of trumpet and other forms, which give way as May approaches to the fragrant Poet's Narcissus, that has long held an honoured place in English gardens. We are pleased to note such a pleasant "border 'of Daffodils" at Kew, where a few years ago early spring flowers were unthought of.

THE WOOD ANEMONES.

I SUPPOSE we may group apennina, blanda, and nemorosa under this heading, and what a useful group it is for the decoration of the spring garden; from first to last we have one or another in bloom for at least three months.

ANEMONE BLANDA opened its first flowers in January. Among them there are dark blue, light blue, and pure white forms. Hitherto this has been too scarce to allow of its being largely planted, but it is now becoming plentiful and cheap.

A. APENNINA begins to open in sunny positions before the former is over, and is one of the most lasting. In this we also have much variety, deep blue, pale blue, pure white, and rose-coloured forms.

A. NEMOROSA RANUNCULOIDES is the first of this lot, opening its clear yellow flowers, as it usually does, along with apennina. It has but one fault—its flowers are too fugitive.

A. N. MAJOR is generally the first of the white forms to open, and masses of this are very telling. It grows in full exposure about 9 inches high; the flowers are about 2 inches across. In shady places amongst low shrubs it grows much taller.

A. N. FLORIBUNDA is, I think, the freest and best of all. It forms a dense clump; the flowers are nearly as large as those of the last named, but it only grows 5 inches to 6 inches high, and becomes such a thicket of stems that the flowers nearly hide the leaves.

A. N. ROSEA AND A. N. ROSEA MAJOR are both distinct and good, the first being of rather a low spreading habit, and the latter of quite erect growth, 6 inches or so high. The buds are quite red in both cases; the flowers nearly white when first open, but gradually deepening in colour until they die off quite a deep rose.

A. N. ROBINSONIANA, the best of the blue forms, of which there are two, if not three, comes into flower about the same time as the rosy kinds, and has full-sized flowers of a very charming shade of blue.

A. N. BRACTEATA succeeds the above and is a very distinct kind.

A. N. FL-PL, the double white, is the latest to flower, and is now (March 30) only just appearing above the soil. It is also one of the most lasting, continuing in beauty for quite a fortnight or three weeks. Considering that all these are quite hardy and able to take care of themselves anywhere, under the shade of trees, among stones, in the Grass, or to fight their way in the border amongst grosser things, or even to establish themselves in a Box edging, there is no reason why even the

most unlovely corner should not be brightened by them during the first quarter of the year.

The common wood *Anemone* grows well in this neighbourhood, and varies to a great extent in some of the woods. I once met with a pale yellow form. I have found many shades of red, but never any trace of blue. T. SMITH.

Newry.

Anemone vernalis.—I never remember to have seen this (*Anemone vernalis*) in such great beauty as it is this year. It is still a comparatively rare plant, a native of extreme northern countries, and requiring a deep moist soil, as in the early spring especially it loves abundance of moisture; indeed, to the neglect of this may be attributed many, if not all the failures experienced. The flowers are large, whitish, or pale lilac inside, with abundance of brownish silky hairs on the outside, which give the bloom a very curious appearance. The well-known *A. Pulsatilla* is also in full bloom now. This is deservedly a popular alpine in English gardens, few of these dwarf species surpassing it in beauty, and none, so far as I know, in quantity of bloom. It may be grown on the most exposed positions, and prefers a free or loose chalky soil. A quantity of old mortar broken small serves the purpose very well, the plants growing and flowering freely. *A. pratensis*, a rarer species than either of the above, is a very pretty and most useful one for rockeries. The flowers are rich deep purple and very striking. All three are best raised from seeds. Seedlings usually flower freely the second season, and form nice little tufts by the third year.—K.

Hardy Primulas.—A low, damp situation on the limestone marl is not, I believe, considered quite the best home for alpine, and yet *Primula nivalis* does well on a border facing west. Many growers divide their plants and winter them in small pots in frames; but this plant has not been disturbed, certainly, for ten years, and at the present time it is quite 18 inches across, with foliage literally hidden by its pure white flowers. When originally planted, a hole about 1 foot in depth and the same across was taken out, and refilled to within 6 inches of the surface with broken sandstone. Upon this I placed the compost, consisting of medium sandy loam and a little peat, raising it a few inches above the level, and put in a single crown. This has sent out side shoots, which are trained outward, and an annual top-dressing of sandy loam, washed in with an occasional soaking of water, is all the attention the plant receives. The first flowers commenced opening this year about the 20th of March, and, the better to preserve them from frost and wet, a large square of glass, for the time being, is placed over them a foot from the ground. *Primula cortusoides* *amena*, on the same border, unprotected and left to itself, is now more than 4 feet across, and will soon be a sheet of flower. These, I say with regret, are all the hardy Primulas I have, but doing so well in a cold, damp situation, I have often thought the owners of good selections might make a much better and more natural show than by dividing annually and keeping them under glass in small pots.—W. C., *Eastnor Castle*.

Varieties of Greig's Tulip.—There is no finer species of Tulip than *T. Greigi*, illustrated by a coloured plate in THE GARDEN of May 12, 1877, two or three years after its introduction from Turkestan. The first collector to send living bulbs to the St. Petersburg Botanic Gardens was, we believe, Korolkow, who travelled in Central Asia in 1872. Dr. Regel discovered it to be a new species, and named it *Greigi*, as a compliment to the President of the Imperial Russian Horticultural Society, General Greig. This Tulip is a good garden plant, but its expensiveness is the reason for its scarcity, as it is rare to see more than a few bulbs at a time in the garden. In the Royal Gardens, Kew, last season there was a small bed composed of nothing else, and from a glowing mass of colour as here presented one could see the distinctness and richness of this Tulip when grown thus. There need be no fear as to the tenderness of the bulbs, as Max Leichtlin, whom we have to thank for introducing

it into commerce, states that the bulbs are hardy enough to stand the severest frosts, and will even survive with the thermometer at zero. The type is of vigorous growth, growing about a foot in height, and the rich scarlet goblet-shaped flowers that when expanded are from 4 inches to 6 inches across. The leafage, too, has a characteristic beauty in its breadth and fine glaucous colour, relieved by numerous bars of deep chocolate. So much for the original type, which is still what may be called a recent plant, but there are now several striking varieties which may be seen in Messrs. Paul and Son's nursery at Broxbourne. The same firm has also exhibited them at the Royal Horticultural Society's meetings, where they have gained the attention of all who love Tulips by the variation of the strikingly rich colours. They were, we believe, recently introduced by Dr. Regel, so this seems to show that *T. Greigi* varies considerably in its wild state. A few of the most distinct varieties, and which have remained constant have been named. One called *Victoria* is rich yellow, feathered with scarlet down the centre of each segment; another is *carminea*, brilliant scarlet, the flower of a more carmine shade and larger than that of the type; and in *aurea* superba the colour is intense yellow, except at the base of each segment where it is scarlet. There is the same variation in the leaf marking, but it is the distribution of colour in the flowers that should earn for *T. Greigi* a good place amongst the finest of bulbous flowers. Those who have not grown the type should first have that to make a distinct bed with, then secure some of the rich varieties that have recently appeared.

Collinsia verna is an annual one does not see often enough in gardens now-a-days. It is one of the most beautiful dwarf annuals we have seen for a long time, the deep rich blue flowers on sturdy dwarf plants being very effective. This is perhaps the only one requiring special treatment, and it well deserves it. The seeds should be sown in autumn in boxes of loose, leafy soil, which should be kept well watered until the seedlings appear. When ready to handle the plants may be pricked off into pots to bloom in the conservatory, or into the open ground in light, rich soil, and preferably a north aspect. In this way the plants are dwarfer and the blue more intense. A most useful plant in spring gardening for edgings, &c.—D. K.

SHORT NOTES.—FLOWER.

Hyacinths in Grass make a poor show. They are too heavy and lumpy for naturalising or planting in blocks of one colour, as we see them in the London parks. Why not plant the Bluebell instead?

Drooping Star of Bethlehem.—This is in flower now in many borders. It is a beautiful thing, but must be planted cautiously. In some places it becomes a weed by reason of its quick increase. The satiny, glaucous flowers are more beautiful when cut than on the plant. They open more fully in water, and the lower ones do not run to seed.

Trillium fetidum and *T. sessile*, though not beautiful, are extremely valuable and interesting plants, and help to enhance the value of the bog or peat garden when it would be otherwise dull and lifeless. *T. fetidum*, the flowers of which are dingy purple and drooping, is among the most useful of the genus. It never fails to produce abundance of bloom, and the bright fresh green leaves are always welcome.

Dicentra canadensis and its near ally *D. cucullaria* are charming little plants for the rockery at this time of year. They may be described as miniature *D. spectabilis*, the foliage being handsome and with a lovely glaucous sheen, that gives the little groups a charm of their own, as they are always attractive. The flowers, in graceful drooping racemes, are creamy white and very interesting. Both plants prefer a loose peaty or leaf soil, and may be increased to any extent by their bulbils or tuberous roots.

Dog's-tooth Violet in Grass.—We find that this early, distinct, and pretty spring flower does admirably in the Grass on banks in the pleasure ground. We use it on banks not mown before the usual hay time, so that all the early bulbs that grow in it may be able to finish their growth. In most country places there is a bit of Grass, which it is best to treat in this way. It saves needless mowing, and brings into the garden picture the various things that bloom in Grass.

The greatest charm is in the Grass enabling us to have the most delightful kinds of spring gardens without the usual and great bedding-out effort, and the subsequent wasteful throwing away of the bulbs. This old way is a very good one for the Dutch bulb merchants.

GARDENING ON A DRY SOIL.

THE character of the soil that cultivators have to deal with has a good deal of influence on the operations conducted upon it. To find out the most suitable plants and trees that will thrive best upon it, and to ascertain the best way of working the land in order to secure the best results, require, I find, both practice and observation. In one part of a garden that I have to manage there is a bed of gravel within 2 feet of the surface, while the top soil is somewhat of a sandy nature. In the other part the soil is much deeper and more retentive of moisture. The behaviour of different trees and crops in the two parts is more striking than inexperienced people would readily credit. Where the land is sandy, Carnations will live in the open through the winter without any protection, while in the other part many are killed through damp. Lettuces and Parsleys also do well in the lighter soil through the winter, but in the other part of the garden they are injured very much. Violets, if planted in the autumn for early flowering, are satisfactory over a bed of gravel, but if I attempt to grow them in this way during the summer, the leaves get terribly disfigured with red spider, and are, therefore, useless for autumn and winter blooming. With regard to fruit, neither Black Currants nor Raspberries are taking kindly to the sandy soil. It is very clear that nothing less than a thick annual mulch of good half-rotten manure will induce them to thrive satisfactorily. Plums appear to be less particular, as they are doing well wherever planted. Such is not the case, however, with the Pear trees on the Quince and Apples on the Paradise. Where the gravel is nearest the surface the soil is much too dry for their roots, and, as a consequence, red spider attacks the foliage in the summer to an injurious extent. I am now covering the surface over the roots with a mulch of rotten manure, and on the manure I place flat pieces of stones. By doing this I am in hopes of doing away with the necessity of so much watering, which the trees required last year to keep them growing. The Quince stock for the Pear may do very well where the soil is rich and deep and where the moisture is well retained, but it is altogether unsuitable in cases similar to mine, where the subsoil is gravel. Of the early fruiting of Pears on the Quince, my trees afford good proof, but it must be remembered that they require a lot of attention to keep the trees growing. The question is, Would it, outside of a private garden, pay to do so? I think not. Apples on the Paradise stock, I find, in my case at least, do not require so much root moisture as Pears on the Quince.

With regard to the working of the ground and arranging seed beds, I have had to strike out a new course for myself. In making seed beds, &c., it is usual to throw the soil from the alleys on to the beds, so that they are more or less raised. I have, however, had to reverse this plan. I have my alleys where I can raised above the beds. The advantage of this will be clearly seen, as when the surface of the bed is lower than the alleys, it does not dry so quickly; and the greatest advantage is that when the bed wants watering the water does not run away down the sides and ends. The advantage of this plan can only be properly estimated by those who know what it is to manage crops growing in a naturally dry soil.

I feel sure now with increased experience that I could have done better with all the permanent crops if I had planted them in shallow trenches instead of on level ground. Overcrowding of either plants or trees in a naturally dry soil I have proved to be a mistake. The results are, I find, far more satisfactory when all the subjects have as much room as they want. Some people plant thickly with the object of getting the plants to shade each other. This plan, however, I have not found to answer. Plant or sow at a moderate distance

apart, and shade the surface over the roots before the soil gets too dry is the plan I find to answer best.

I can also recommend the cultivators of dry soils to mulch early and thickly. It is necessary to lay the mulch on before the soil gets dry. Taken altogether, there is no better mulch than half rotten manure, as it acts as a stimulant as well as breaks the force of the sun. Those who can obtain cocoa fibre may use it for flower beds and other prominent positions. I am able to obtain spent Hops, which I find are a capital mulch for fruit trees, as they do not waste so much as some other materials. For the coming summer I have laid in a stock of rag manure. This is the refuse from factories where old carpets, &c., are worked up for various uses.

Greenway, Taunton.

J. C. C.

FERNS.

SWORD FERNS.

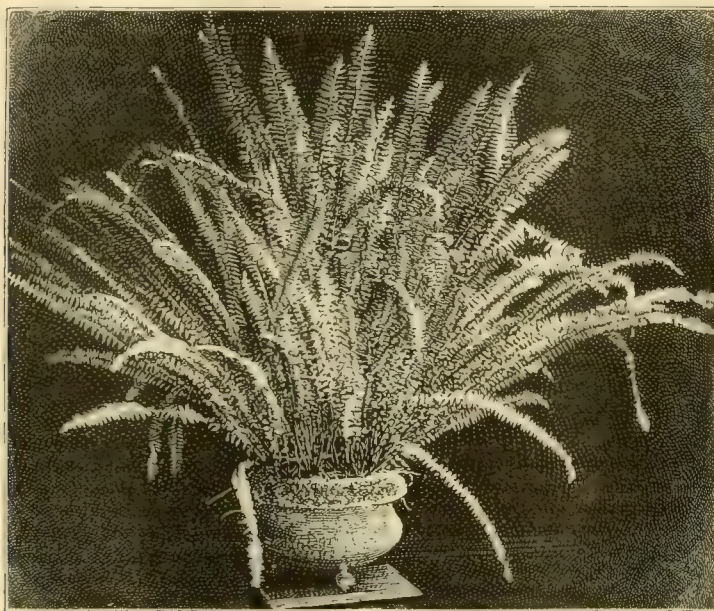
(NEPHROLEPIS.)

THERE can be little doubt but that Ferns are again becoming great favourites with plant growers, and I am glad to contribute anything

duce, and which scramble about over the surface of the ground and produce young plants, thus rendering them effective in clothing rock-work in a naturally-arranged fernery. Another good way of using them is in hanging-baskets, where, if they are kept carefully watered, they form splendid ornaments; indeed, few plants can surpass them when so grown. They succeed well in a mixture of loam, peat, and sand, with good drainage. *Nephrolepis* are all stove Ferns; some few kinds will thrive in a cool fernery in the summer months, but I have never seen them look happy in such a situation through the winter.

N. EXALTATA.—This, although the commonest species, is one of the very prettiest. It makes fronds each from 1 foot to 4 feet or more long, and, as will be seen by our illustration, is simply pinnate, as indeed are all the species. It is light green in colour, and forms a splendid basket plant, while it is one of the very best for planting out.

N. DAVALLIODES is a plant of no ordinary merit, and its fronds, each attaining to 5 feet or more in length, are from 6 inches to a foot broad, and



Nephrolepis exaltata.

that shall tend to encourage the revival of the taste for these plants. The plant here figured is *Nephrolepis exaltata*, a superb Fern, but I do not think it displays half its beauty when grown in a pot. It is never seen in a more beautiful position than when planted out above the line of vision, when its long fronds hang down in a most graceful manner. Some people, however, have not the convenience of thus growing the plants, and so the next best plan is to grow them in pots. *Nephrolepis* require attention in managing them, as from their natural habit and the construction of their fronds they are sure to show neglect in watering, their pinnæ being set in little sockets, and not joined on to the stem, as in the majority of Ferns. This has the effect of causing them, if they get dry at the roots, to shrink at the joints and the pinnæ to fall out, leaving a collection of bare sticks or mid-ribs of the fronds, so that it is absolutely necessary to be careful that the plants never become dry. They have one feature which distinguishes them, and that is the great quantities of stoloniferous roots they pro-

duce, and which scramble about over the surface of the ground and produce young plants, thus rendering them effective in clothing rock-work in a naturally-arranged fernery.

N. TUBEROSA makes fronds some 2 feet long, and similar in shape to those of *exaltata*, but broader and more leafy. It is one of the best kinds for basket work. The fronds also are deep green in colour. It derives its name from its habit of making small tubers on its roots. It comes from the East Indies, and is often confounded with

N. UNDULATA, which also makes tubers on its roots, but is a very different plant. It is rare, and loses its fronds in winter, and becomes deciduous. Some throw it away under the impression that it is dead, which, perhaps, accounts for its remaining scarce. This plant is a native of Western Africa.

Other fine kinds are, *N. pectinata*, a small and pretty drooping kind; *N. hirsutula*, a somewhat rare and handsome plant, making fronds some 2 feet and 2½ feet high; and *N. ensifolia*, a beautiful species, which makes a good basket plant.

J.

Wild gardening.—We notice that a gentleman in the seed trade offers, for the wild garden, seeds which

consist of a great number of kinds, evidently the refuse of the place, thrown together and mixed. It is an outrage on the name of wild gardening, which, properly understood, means adapting the plant to the situation exactly suited for it. Properly carried out, it is a most charming phase of gardening, but unless the place for each plant is considered, it is perfectly useless to attempt it at all. The idea that anybody can get wild gardening in the proper sense of the word by sowing the sweepings of the seed shop, from the Cow Parsnip to the little Californian annuals, is preposterous.

ORCHIDS.

DENDROBIUM ALBO-SANGUINEUM.

I HAVE received from "F. W.," of Teignmouth, a lot of Orchid flowers, and amongst them a bloom of this species which I would call attention to, as I find it is now rarely grown. It is, however, one of the most superb species in the genus, the flowers reminding one of those of the beautiful *D. Dalhousianum*, which also is a native of Burmah, a land which appears to abound in beautiful Orchids. The species now under consideration grows upon the tops of the forest trees and in the vicinity of water, so that it would appear to derive nourishment during the dry season from the damp air which arises through the night. The plant, first found about forty years ago by Lobb, was introduced by the Messrs. Veitch, of Chelsea. For some few years after its introduction it was greatly in demand, but latterly it seems to have almost disappeared from cultivation, for one seldom sees it, and I am, therefore, greatly obliged to "F. W." for sending me a flower, which I shall carefully dry, as it is good both in colour and size, measuring nearly 4 inches across. This *Dendrobium* forms stout, erect pseudo-bulbs, which grow from 6 inches to 9 inches in height, but I have seen imported bulbs a foot high. These bulbs are stout, and bear somewhat large, lanceolate leaves, which are deciduous. The peduncle rises from near the top of the bulb, bearing from two to three flowers, which vary from 3 inches to 4 inches across, the colour being buff-yellow or nankeen-yellow, the side lobes and the base of the lip being completely covered with a large blotch of crimson-lake, the base of the lip buff-yellow, with a faint streak or two of crimson. It usually flowers during the present month and the next. Orchid pruners should not interfere with this plant, for I have frequently seen two and three-year-old bulbs producing numbers of peduncles bearing many flowers, thus adding considerably to the display.

Of late years I have had little to do with the cultivation of this *Dendrobium*, but during the time between its introduction in 1851 and 1860 I had large quantities through my hands. I found it succeed best on blocks of wood or in small baskets, the blocks being nearly bare. When grown in baskets it should have very little soil about its roots, and this should be good fibrous peat mixed with Sphagnum Moss, and the drainage must be well attended to. While growing it should have full exposure to the light and to sunshine, but still during the hottest part of the day it requires shading, because there is such a great difference in being in the open air and under glass. When growth was finished I used to remove it to a similar position in the Odontoglossum house. Here it obtained a moist atmosphere, but with a reduced temperature, and thus it was prevented from growing, and during the time it occupied this position it did not receive much water. In the middle of January or the beginning of February I removed the plants back to their original position in the East India house, where they gradually

received more water until the flower-spikes began to appear. Soon after, the growths would start and the flowers open. When growing this plant I had one example which bore forty-two flowers, and I do not think this number has been often exceeded. This was a large imported mass with several leading growths, and the two and three-year-old bulbs yielded their quota of spikes also, so that the display was excellent. I do not think the species has been much imported lately, but as it is found in various parts of Burmah, plants should be easily obtained, and I would strongly urge its cultivation upon readers of THE GARDEN. It only requires heat and a good supply of water during the summer, and a rest during the autumn and beginning of winter, to get its beautiful flowers in quantity in the early spring months.

W. H. GOWER.

Dendrobium Findleyanum.—This species is a native of Burmah, near to the frontiers of Siam, and it is now about twelve or thirteen years ago since it first flowered in this country. It differs considerably in its varieties, but I have never yet seen a bad one or a form not worthy of attention. It has curious club-shaped and compressed stems and swollen joints, and it is from the upper part of these swollen joints that the flowers are produced, mostly in pairs. The flowers are some 3 inches across, pinkish-lilac in the sepals and petals, the lip somewhat large and rounded, rich orange-yellow at the base, and becoming of a lighter and brighter yellow at the margin. A beautiful form of this species is now flowering in Mr. Larkin's garden, Highbury New Park, where also another species, *D. Jamesianum*, is just now very good.

Cattleya Lawrenceana.—Several plants of this species are now flowering in The Woodlands collection at Streatham, and they afford a pleasing change. I must say, however, that I did not see such a fine form amongst them as I recently noted as coming from Mr. Cypher, gardener to Mrs. Studd, Royal Crescent, Bath. That plant will evidently develop into a very grand variety, as I think many others will after they have been thoroughly established. I am told, too, that it is likely to be a long time before we have another importation of this species, as it is said to be difficult to obtain, and to cost a considerable sum to get it down ready for shipment; those, therefore, having the species had better pay every possible attention to it.—W. H. G.

Orchid flowers from Arddarroch.—From Mr. R. B. White comes a very interesting collection of *Odontoglossums*, numerous in quantity and excellent in quality, showing how fine the plants must look at this season at this establishment. Amongst them is a very pretty spray of *O. Pescatorei*, which Mr. White tells me is from a very large spike, the sepals and petals being all blotched and spotted in the centre with chocolate, the sepals also being more or less tinged throughout with a paler shade of the same colour. It is a charming form. A spray of *O. crispum roseum* looks as if it had come off a small or recently imported plant, the flowers being rather small, but with an abundance of colour. I recently noted a similar, but larger flower in Mr. Jacob's collection at Cheam Park, and I should imagine this form will increase in size as the plant gains strength. At present it looks somewhat like the variety called *fastuosum*, but without the few spots of chocolate on the lip of that variety. No. 5 is an excellent form of the variety known as *Ruckerianum*. No. 6 is a very fine form of *O. gloriosum*. From the size of the flowers I should imagine they came off a large spike. Then I have three flowers sent as varieties of *O. Andersonianum* or *Chestertonii*; they are pure white and heavily spotted. If they belong to either variety, they most resemble those of *Chestertonii*, but they look more like those of the form known to me as *Holfordianum*. They would appear to belong to this variety, judging from the coloured plate now before me. No. 5 is sent for *Jenningsianum*, which it may be. It has a pure white ground, spotted and

dotted on the sepals and petals on the lower half, bears a few spots on the lip, and is very fragrant. In addition to the above is a very fine flower of the white *Lycaste Skinneri* from a plant with sixteen flowers, which must be very handsome. The flower sent which is unknown is *Lycaste fulvescens*, not a very great beauty, but its flowers are produced in great abundance.—W. H. G.

CYPRIPEDIUM SPECTABILE.

NOTWITHSTANDING that Mr. Wood in his "Notes on Hardy Plants," at page 320, speaks at some length concerning the above plant, I cannot help noting his indecision as regards the general requirements of this charming plant when under cultivation. Upon one point only does Mr. Wood appear happy, and this is that the plant is essentially a lover of moisture. This is an undoubted fact, and equally true that shade is also beneficial to its well-being. What this charming flower delights in is a moist, spongy peat, that throughout the spring and summer is kept moderately moist, but on no account allowed to stagnate. The roots coming to the surface, as referred to in Mr. Wood's note, is quite new to me, and I can only conclude that some error has been made in planting them. Anyone accustomed to receiving large consignments of these plants from their native habitat will be well aware that the crowns are invariably imbedded, frequently completely out of sight, by a mass of roots surrounding them, and by the accumulation of vegetable matter, which is constantly being replenished from above. Anyone who desires to be successful with this *Cypripedium* should first select a spot shaded from hot sun by distant trees. Then excavate a bed fully 2 feet deep, and of a size to meet individual requirements. At the bottom of the bed place 6 inches of brickbats or broken pots, and cover these with screenings from the peat heap, or some rough lumpy peat to keep the drainage secure. Next prepare the soil for the bed, which should be composed of spongy peat and leaves, the latter about half-decayed, in equal proportion, adding, if procurable, a few bushels of Sphagnum Moss. In Orchid-growing establishments there is generally some old Sphagnum which will be very acceptable for the purpose. When the soil is ready, fill in the bed to within 6 inches or 8 inches of the surface, making the soil moderately firm. In planting keep the crowns well below the surface, fully 3 inches or 4 inches deep, and see that all fresh roots are not crammed together in a heap to rot, and eventually create fungus beneath the plant they should sustain. From repeated observation of large importations the plants would appear to exist to a great extent in swampy or marshy ground, from which they can be readily drawn without much injury to the long wiry roots, which when fresh are yellowish in colour, and frequently quite 2 feet long. The new roots are emitted annually during autumn, more or less throughout the entire length of the rhizome, though they are most plentiful from the vicinity of the crown or crowns. Where the bulk of the roots have become blackened they are better cut away; this is, however, due to exposure, an infliction which the plants might well have been spared. Like many another plant having a rhizomatous root-stock, there is a tendency to come to the surface; this is, however, easily overcome by an annual mulching of leaf soil and well decomposed manure. Some years ago, when in charge of Mr. Latimer Clark's garden at Sydenham, our bog bed of this plant was annually a grand sight, hardly a spike but what carried a couple of flowers, and among the many spikes were some very pale as well as deeply coloured forms. The bed was placed in a quiet, shady spot in the wood, and made in the manner I have indicated above, and what was more important still, was well supplied with water from a fountain basin in the terrace garden some 60 feet above it. The overflow from this fountain was first made to trickle over a fine piece of rockwork into the rock garden pond, and in turn was conducted to the bog garden in the wood below. The supply being under control, we were enabled to keep the bed at semi-saturation

point till the plants had completed their flowering. Finer examples under cultivation I have not seen, and I advise all who attempt their culture not to omit the water supply, for I regard it as one of the greatest essentials to success. And while making such a spot let not the fact be overlooked that it is equally suited to many things besides *Cypripediums*, for *Trilliums*, *Lilium pardalinum* and *canadense* vars., *Onoclea sensibilis*, *Dentarias*, *Primula japonica* and *sikkimensis*, and others do equally well. E. JENKINS.

Cypripedium Elliottianum.—This species was introduced by the Messrs. Sander, of St. Albans, and it would appear to come near to *C. Rothschildianum*, but in this last named species the petals are longer and pendent, whilst in *Elliottianum* they stand at right angles. The leaves are plain green and it bears an erect scape, the flowers being large, ivory white, streaked with broad lines of deep brownish purple, the petals at the base flushed with yellow. The lip or pouch is large, brownish purple streaked with darker veins; the staminode curved, hairy, and beak-like. Mr. Sander speaks of his collector having found plants producing five flowers on a stem.

Odontoglossum citrosimum.—This is a species well and largely grown by Mr. Measures at Streatham, and the first batch of about a hundred spikes will soon be expanded. The plants are grown slightly warmer than the crispum section of this genus, and during the winter months when at rest they are kept cool and quite dry, and water is not given until the spike of flower shows up from the young growth which has started before the plants went to rest. Upon the appearance of the spike the plants should have a soaking of water and be hung in a slightly warmer position. In Mr. Measures' garden they now hang in the middle of a house of *Cypripediums* above a small fountain, the spikes hanging down a yard in length, and in about a week's time they will be charming.—W. G.

Cypripedium Ashburtoniae superbum.—Many plants get the name *superbum* tacked on to them through a trifling or fancied superiority, but this is not the case in the present instance. It was raised by Messrs. Williams and Son, and is the result of a cross between *C. barbatum superbum* and *C. insignis*. The colours in the flowers are very bright and clear, the flower really approaching that of some of the forms of *C. oenanthe*, being well defined, clear, and distinct, the colours being just such as are wanted to enliven and to make collections of these plants bright and attractive. Mr. Williams says it is free in growth and flowers freely; that it likes heat, light, and moisture, but that it requires shading from the fierce sunshine. It requires good drainage, and should be potted in a mixture of light yellow loam and fibrous peat, to which may be added some Sphagnum Moss and nodules of charcoal.

Vanda Sanderiana.—I was very much interested in the article in THE GARDEN of March 22 by "W. H. G." on the above-named Vanda, and I quite agree with all he said in praise of this lovely Orchid, which is certainly far superior to any other Vanda that I have seen. In the article referred to the writer asks, "Has anyone tried growing it cooler?" This question has occupied my mind for several years past, and I will give my experience, and hope that other readers of THE GARDEN will do likewise. I obtained a small piece in 1886. It was fairly healthy, but not strong, with four pairs of leaves. In the autumn of 1887 it bloomed, the spike carrying four flowers, each measuring over 4 inches across. After it had finished flowering, I wintered it with *Vanda cœrulea* in a moderately cool house, the temperature of which was but little above that of the *Odontoglossum* house, but the atmosphere drier. Here it remained until early in the new year, when I discovered that it was looking wretched in colour and so shrivelled that I was afraid my treatment had injured it. I washed it clean (roots and leaves), supplied it with new material, and replaced it in the East India house, where it soon became plump and began to grow. The root and top-growth it made that season was

very fine, and in the autumn of that year (1888) it flowered again, this time bearing larger and finer flowers than those of the previous year. Now knowing it to be so rare and valuable an Orchid and so highly prized by my employer, I was afraid to subject it to the cool treatment that I had given it the year before; therefore I kept it in the East India house all the winter. The result, however, has not been so satisfactory. The growth it made last summer was not so good, and it has not flowered. As the plant is just as strong as when it flowered last, I can only attribute its failure to bloom to want of proper rest, caused by keeping it in the East India house all the winter. My opinion is that whatever its natural conditions may be, it requires a season of rest, both as to heat and moisture, after its flowering period. We have a second plant, very healthy, which has always been kept in the East India house, but it has never flowered.—X. L.

Cyrtopodium St. Legerianum.—Two plants of this fine species are now flowering in Mr. Smee's garden at Carshalton, the one shown and certificated some time back being very much the paler, and by far the more inferior variety. It has a large branched panicle of bloom, several feet in height, bearing 154 flowers, the colour being soft yellow, profusely marked with streaks and bars of dull crimson. It would be a valuable plant did not a superior form of the same species stand beside it. This plant is bearing two panicles of bloom from the same growth, upon which are 127 flowers of the most beautiful colours; the ground colour of the sepals is a rich deep yellow, transversely blotched and streaked with dark brownish crimson, the petals being of a rich clear yellow. The side lobes are large and erect, wholly deep reddish brown or crimson; the front lobe yellow, bearing on the disc a fleshy excrescence, around which are a few crimson spots, and on the front border is a row of somewhat warty reddish crimson spots. These plants are exceedingly showy, and a houseful would make a wonderful display. Around these plants are several other imported *Cyrtopodiums*, supposed to be of a new and distinct species, and I hope another season to see a grand lot of them all open together. *Cyrtopodiums* require to be grown in strong heat and moisture, and to be thoroughly rested after the growing season is over. The spikes rise with the young growth and rapidly outgrow it, so that the flowers are the chief burden which the plant has to bear at this season. The plants enjoy a thorough rest, and may be kept cool and dry.—W. H. G.

SHORT NOTES.—ORCHIDS.

Lycaste Harrisonæ.—A fine plant of this beautiful old species bearing sixteen flowers is now flowering in Mr. Coulthurst's garden at Streatham Lodge, where it fills the house with fragrance. Orchids are grown here with stove plants, and as a rule do well.

Cymbidium Lowi (F. W.).—Your plant is a very poor variety. The *Celogyne* is the old common form, with narrow sepals and petals; but your *Dendrobium albo-sanguineum* is excellent.

Odontoglossum gloriosum (F. G.).—The flower represents an excellent form of *Odontoglossum gloriosum*, and the branching spike you describe must have had a grand appearance. Keep it in the house in which it has been grown. These plants, as a rule, last longer when in flower so treated than when removed.

Dendrobium Jamesianum (F. B.).—The flower of your *Dendrobium Jamesianum* is large and like that of *D. formosum giganteum*. It was, however, so smashed in the paper that there is some difficulty in saying what it is. The spots possibly result from cold condensed water dropping on the flowers. This is the wrong time of year to reduce the night temperature, as you do not now require to keep anything dormant.

Oncidium sarcodes.—This pretty species is very fine just now in Mr. Larkin's garden, and I have flowers of it from several correspondents. In a letter with a spray from "J. T. B." he says: "I have now a spike of bloom with 230 flowers, and I send you a branch so that you may see what a bright and handsome plant it is." This it certainly is, and I would

advise every reader of *THE GARDEN* to grow it. The spikes of bloom are long and branching. It is a plant of easy culture, thriving during the growing season in an intermediate stove.—W. H. G.

Dendrobium Devonianum.—This is one of the most beautiful of the *Dendrobiums*, and is flowering well in many collections. There is a highly coloured form in the garden at Streatham Lodge, the flower being very round and the segments heavily tipped with purple. It also appeared to differ somewhat in growth from the type.—W. H. G.

Odontoglossum grande.—It is very curious how many flowers one meets with out of season amongst Orchids, and to find flowers of this species open in the first week in April is rather a surprise. I, however, noted a spike open in Mr. Cannon's garden at Merton, in Surrey. A spring blooming form of this species would be certainly acceptable.—H. G.

Cattleya Mendeli.—This species has come into flower unusually early this season, as we have noticed it flowering in several collections. It is now very good in Mr. Larkin's collection at Highbury New Park, where, together with *C. Trianae* in variety and *C. Trianae alba*, the houses now are quite gay with *Cattleyas*, and are likely to be for a long time to come.

Oncidium retusum.—This plant is very showy and interesting, being dwarf in growth and bearing an erect spike with many flowers; these are of a colour at once rare and beautiful. The sepals and petals are thick and fleshy in texture, projecting forward, deep orange in colour, the lip bright orange, with one or two fleshy protuberances on the disc of the same colour. It would appear to run very closely into the genus *Odontoglossum*.

CHRYSANTHEMUMS.

NEW AMERICAN CHRYSANTHEMUMS OF 1890.

WE have recently given a list of the new Continental varieties sent out this spring, and as a useful and equally interesting list of the novelties now being distributed by the Transatlantic raisers and importers may be of service, we present one which we have compiled for that purpose. It is somewhat a difficult matter to decide to what section many of these American varieties belong, for the reason that classification in our sense of the word is not very much attended to by the distributors in the States. Probably all the *Chrysanthemums* enumerated here have been, or will be, imported into this country, and many of them will doubtless appear in the English lists next season. By that time they will have bloomed in the establishments of those of our nurserymen who make a specialty of new *Chrysanthemums*, and a goodly proportion of those which cannot now be classified will have developed their characters sufficiently to enable them to be relegated to their appropriate sections. With regard to the descriptions we give, it is sufficient to say that they have been rendered as concise as possible. Our friends on the other side of the Atlantic seem not a little disposed to emulate the example of the raisers in France so far as flowery language is concerned, and all verbiage has, therefore, been dispensed with in the compilation of the following list. Considering the extra interest likely to be aroused in everything connected with the *Chrysanthemum* this year, it appears to us to be of primary importance that the raisers and dates of such flowers should be placed on record.

We must once again express our disapproval that the constantly-recurring multiplicity of names is not repressed. Our American friends bid fair to be as great culprits in this matter of nomenclature as those on the other side of the Channel. *Auricle*, *Coquette*, *Garnet*, *Galconda*, *Gold Thread*, *Golden Fleece*, *Model*, *Zenobia*, or names almost identical with them have previously been attached to other *Chrysanthemums*, and unless an end can be put to this very reprehensible practice on the part of those whose business it is to distribute new varieties dire confusion is sure to abound sooner or later. This question was recently brought to the notice of the National *Chrysanthemum* Society's General Committee, and a resolution was passed by them intended to meet the

exigences of the case, but which it is feared may possibly augment it. It was to the following effect: "That it be a recommendation to their floral committee that, in the event of a new variety being submitted to the committee under an old name in its section, the exhibitor be required to have the name altered before the flower be considered." Up to a point it may be conceded that the idea is good, and if the variety were only in the hands of the exhibitor no harm would arise. But when, as will be most frequently the case, the new flower with an old name is in the hands of a large number of trade growers and probably has been distributed amongst many of their customers, the person who has grown a particularly good specimen and is desirous of submitting it for a certificate will change the name of his flower for that purpose, and he can by no means ensure it being altered by the other possessors. So then it is much to be feared if this recommendation be acted upon that instead of one flower having an old, and perhaps a long since disused name, the modern flower will only go to swell the already inordinately lengthy list of synonyms. The difficulty is an awkward one, and cannot be overcome easily. It is one that ought in strictness to be altered at the fountain head and nowhere else. Great efforts have been made by the National *Chrysanthemum* Society to ensure their official catalogue being recognised as a standard authority in all questions of nomenclature, and they have succeeded to a very large extent. We know authoritatively that the work has been largely circulated in the United States of America, and that a goodly number of the French raisers are members of the Society and in possession of the catalogue. It appears to us, therefore, highly desirable in this respect, at least, that they should profit by a work that is the outcome of a genuine desire to do justice not only to the exhibitor, but to the raiser and the importer.

It is much to be hoped that in future there will be no necessity for us to point out the desirability of a closer study of the list of names already existing.

Ada Spaulding (Spaulding).—Globe-shaped, sturdy habit, lower half of the flower rich deep pink shading to purest pearl white, petals large, broad, and solid.

Addie Becker (Spaulding).—Mandarin-yellow enlivened with salmon and flame colour.

Amber Gem (Hallock).—Flowers in form of a ball, beautiful amber. Imported from Japan.

Antoinette Martin (Spaulding).—Japanese flower, curly petals, forming a compact mass of pink silvery sheen.

Auricle (Hollis).—Japanese; bright straw-yellow, shaded silver.

Bird's-nest (Hallock).—Single; tubular petals, carnation-pink. Imported from Japan.

Bronze Jewel (Hallock).—Large tubular petals, imbricated, bronze; inside of petals bright crimson. Imported from Japan.

Carrie Denny (Hill).—Flowers spherical, incurving, and slightly whorled; colour clear amber.

Charity (Hallock).—Bright rosy carmine, lighter towards ends and centre; centre petals incurving towards centre, outer ones drooping. Imported from Japan.

Charles A. Reeser (Hill).—Recurved flower, rosy pink, with lighter shadings.

Chiffonier (Hallock).—Petals twisted, forming a ball; silver-pink. Imported from Japan.

Clara Rieman (Hill).—Lavender-rose, shading to silvery rose, white centre.

Coquette (Hallock).—Single; rosy pink, yellow disc with white zone.

Crown Prince (Hill).—Broad petals, like Mrs. C. H. Wheeler, blood-red and old gold; early.

Cyclone (Spaulding).—Japanese; creamy white centre.

Eclipse (Waterer).—Large, flat, incurved, bright mahogany; probably synonymous with *Gipsy*.

Edwin Lonsdale (Waterer).—Similar to Mrs. Bullock in shape; colour a velvety deep cranberry.

E. G. Hill (Spaulding).—Large flower, golden yellow, lower petals sometimes shaded carmine.

Galconda (Hallock).—Long petals, canary-yellow. Imported from Japan.

Garnet (Spaulding).—Japanese; petals rich wine-red, reverse silvery-pink.

Gipsy (Waterer).—Flat incurved flower, light velvety mahogany, probably the same as *Eclipse*.

Gold Band (Hallock).—Broad petals, deep lemon-yellow. Imported from Japan.

Gold Thread (Hallock).—Outer petals long and thread-like; inner ones shorter; colour crimson, maroon and yellow. Imported from Japan.

Golden Burr (Hallock).—Full flower, petals twisted; sulphur-yellow. Imported from Japan.

Golden Fleece (Hallock).—Like *Neesima*; rich golden-yellow. Imported from Japan.

G. P. Rawson (Spaulding).—Rich buff, with centre of nankin and apricot-yellow.

Harry E. Widener (Hill).—Incurving, large flowers on stiff stems, bright lemon-yellow; very free.

James R. Picher (Spaulding).—Reflexed Japanese; light blush, passing to white; strongly perfumed.

John Lane (Hill).—Rose-pink, with reverse of lighter shade; tips of centre petals golden.

Lutea (Hallock).—Twisted petals, deep golden-yellow. Imported from Japan.

Mandus (Hollis).—Deep flower; Chinese; rosy-white.

Marie Ward (Spaulding).—Large cup-shaped flower; long narrow petals; sport from Mrs. J. N. Gerard; pure snow-white.

Miss Mary Weightman (Hill).—Large flower, colour chrome-yellow.

Miss Minnie Wanamaker (Waterer).—Incurving, rather dwarf habit; cream white.

Model (W. K. Harris).—Large full flower; deep pink.

Molly Bawn (Hill).—Sport from *Syringa*, pure white.

Mrs. Benj. Harrison (Hollis).—Japanese, pearl white; inner petals slightly flushed straw colour.

Mrs. Charles Dissel (Waterer).—An improved Mrs. Thomson; flowers larger and perfectly incurved, colour variable, sometimes lavender-pink, at others cream white.

Mrs. Edmund Smith (Hill).—Long narrow petals, interlaced, pure white.

Mrs. Frank Clinton (Waterer).—Soft canary-yellow, shading to straw-yellow; flowers slightly incurved.

Mrs. J. S. Fogg (Hollis).—Japanese; long petals, chrome-yellow.

Mrs. J. T. Emlen (Hill).—Similar to Mrs. Carnegie in size and colour; blood-red, reverse old gold.

Mrs. Thomas A. Edison (Spaulding).—Incurved; long petals, rose-pink.

Mrs. President Harrison (Spaulding).—The largest of the Mrs. Wheeler type.

Mrs. Winthrop Sarjant (Hill).—Incurved; large flower, brilliant straw colour.

Ortole (Hallock).—Crimson tipped gold. Imported from Japan.

Peerless (Hollis).—Lemon-yellow; incurving so as to form a perfect ball.

Pendennis (Hallock).—Large flower, underside of petals silvery, upper side rose madder; incurving to a ball. Imported from Japan.

President Harrison (Monahan).—Large cupped flower, outer petals salmon-red, centre deep Indian red.

Reward (W. K. Harris).—Reddish-violet.

Robert S. Brown (Hill).—Dark crimson, free bloomer.

Rose Queen (Hallock).—Flowers cup-shaped, colour rose-amaranth. Imported from Japan.

Silver Tassel (Hallock).—Long narrow petals, silvery white. Imported from Japan.

Snow Crest (Hallock).—Pure white, light lemon centre. Imported from Japan.

Snowdrops (Hallock).—Incurved; snow-white. Imported from Japan.

Thistle (Hallock).—Thread petals, lemon-yellow changing to white. Imported from Japan.

Twilight (W. K. Harris).—Large white flower, lemon centre.

V. H. Hallock (Hallock).—Rosy pearl, deepening towards the centre; centre slightly twisted, incurved. Imported from Japan.

White Cap (Hallock).—Exquisite whiteness, short broad incurving petals. Imported from Japan.

White Cap (W. K. Harris).—Pure white, reverse violet-pink.

Zenobia (Spaulding).—Japanese; long petals, pure white.

Narcissus jargon.—We much regret to see in the circular issued by the Royal Horticultural Society about the Daffodil Conference a misuse of Latin to a ridiculous extent. These charming and well-known flowers, long known by familiar names, are thrown into groups with very awkward Latin names, such as *Magpi-coronata*, *Medii-coronata*, and *Parvi-coronata*. Latin names are given to groups of seedlings, and in this circular have the same value as names of old and long-known species like *Narcissus poeticus*, *triandrus*, *Jorquilla* and other species fami-

liar to all who have paid any attention to these plants, and consecrated by use in every Flora of Europe. The *Narcissus* committee, in their work to abolish all absurd Latin names for garden varieties, are perfectly right. We hope they will go further and stop the pedantic and confusing nomenclature used in this circular.

PLANTS IN FRUIT HOUSES.

FROM occasional notes on the above subject, one is led to imagine the existence of an impression that the cultivation of plants in fruit houses is rare in gardens, and whenever met with can only be regarded as a highly objectionable and disastrous combination. At the period when fruit is at the ripening stage houses must be free of plants, but from January onwards for several months there are not many places where fruit houses are not required for this purpose, simply from the fact that without this accommodation there is no provision for the ever increasing stock of plants, and there is really very little time when they are entirely empty, as soon after the fruit is removed they are required for autumn storage. Not from any desire to claim an exceptional case, but simply to show what may be done in fruit houses, I may mention that we have at present oneinery full of *Gloxinias*, tuberous *Begonias*, *Achimenes*, *Cypripediums*, and *Maidenhair Ferns*; another is filled with *Fuchsias* and *Amayrillises*, and the latest house with a batch of fancy and cut-back zonal *Pelargoniums*, and a lot of window boxes requiring an early start, whilst shelves in all three houses are filled with *Strawberries* in various stages. Peach houses are full of late *Azaleas* and those that have flowered, and *Callas*; *Melon* and *Cucumber* pits contain newly-potted *Coleuses*, *Capsicums*, and other batches of the fruit in pots for future planting; whilst the *Tomato* house is still tenanted by a lot of stuff required for summer bedding, but lately pricked off, as *Tobacco*, *Perilla*, *Eucalyptus*, *Melanthus*, and other things, and also a quantity of plants to be grown on for autumn-flowering, as zonal *Geraniums*, winter *Begonias* in variety, *Eupatoriums*, *Goldfussias*, *Epiphyllums*, &c. The great point to be aimed at in such combinations is absolute cleanliness. Before the fruit houses are shut up they must have a thorough washing down, every bit of woodwork scrubbed, glass brushed down, all walls white-washed, taking care no holes are left unstopped, top-soil on beds or borders removed and fresh substituted, and paths well cleansed. When all this has been done, the houses may be filled with smoke to an extent that would not be tolerated when they are tenanted with plants. Of all the plants enumerated above there are not many that are particularly susceptible to the attacks of insects, show *Pelargoniums* and *Azaleas* being about the worst. Theinery containing the first-named should be fumigated when the buds are well advanced just before the expansion of the leaf, and this will generally carry the plants through until they are nearly ready for the conservatory. *Azaleas* are not the best of tenants for fruit houses, and should be carefully inspected before they are transferred to these quarters, receiving a couple of syringings with an insecticide if there is the least sign of thrips. *Strawberries* are the most dangerous of all pot plants, and they must be thoroughly dipped at the outset to kill any lurking spider, and may, perhaps, require more than one fumigating before coming into flower if green-fly is at all troublesome. Another point to be noted in the management of fruit houses that are full of plants is the avoidance of a too liberal use of the watering-pot in damping down. Damping down may be slightly performed on very bright days, but I find that the watering essential to the plants, together with the syringing of the same, will keep the houses quite as moist as is expedient for the development and progress of the fruit.

A thought arising from this question of the proper degree of humidity for various structures suggests the substitution of the hydrometer for the thermometer in all gardening operations. I fancy it would be a capital guide to the young gardener, and that by its aid we should have a more uniform growing tem-

perature, avoiding on the one hand a stuffiness and superabundance of moisture, suggesting the advisability of a little judicious air-giving, and on the other a state of things more allied to what we usually associate with a parched and arid desert than the genial atmospheric conditions essential to the well-being of our plants and fruit. The relative positions of the wet and dry bulb in the various houses will naturally depend on the character of their inmates, and would be as carefully noted by the cultivator as the thermometer, varying those positions from the point of saturation sometimes necessary in the Pine stove and Cucumber house to that extreme of drought that is characteristic of the structure devoted to the members of the Cactus family.

E. BURRELL,
Claremont.

GARDEN FLORA.

PLATE 749.

LILIUM OCHROLEUCUM.*

THIS handsome and distinct Lily attracted a considerable amount of attention among the lovers of this beautiful class of plants when first exhibited by Messrs. Low and Co. at the meeting of the Royal Horticultural Society on June 25 last year, when it was awarded a first-class certificate by the floral committee. It was then shown under the name of *L. Wallichii superbum*, which species is undoubtedly its nearest ally, though it has been by some contended that *L. ochroleucum* is but a variety of the Nepal Lily (*Lilium nepalense*), on what grounds it is difficult to imagine, for between the two Lilies in question there are few, if any points in common, as may be seen by the respective plates in THE GARDEN, viz., that on January 19 last year of *L. nepalense* and the present one of *L. ochroleucum*. *L. ochroleucum* pushes up a stem which is very much stouter than that of any other of the Himalayan Lilies, except *L. giganteum*, the said stem being thickly clothed with narrow leaves, which are shorter and of more substance than those of *L. Wallichianum*, and in addition the leaves are, when young, tinged with reddish brown, while they gradually become broader towards the top of the stem. The height attained by the flower-spike is really of but little moment, as so much depends upon the conditions under which the plant has been grown, for while Messrs. Low's first plant was about 6 feet high, I have seen it flower well when not more than a yard from the pot, and, on the other hand, it has reached three times that height. The general appearance of the flower is so well shown on the accompanying plate that no further description is needed, except to notice the agreeable fragrance of the blossoms.

The bulb of *L. ochroleucum* is composed of rather large scales of a reddish brown tint, closely adpressed together, and though there is a certain amount of variation to be found among the bulbs, they are mostly globose in shape with an elevated centre. A peculiar feature of this Lily, which renders it as far

* Drawn for THE GARDEN by H. G. Moon in Messrs. Low's nursery at Clapton, October 3, 1889. Lithographed and printed by Guillaume Severeys.



LILIUM NEPALENSE VAR. OCHROLEUCUM

as I know unique among the Eulirion, or tube-flowered section, is the formation of bulbils in the axils of the leaves, such as are so abundantly produced in most of the Tiger Lilies and in *L. bulbiferum*. This prominent characteristic is well shown in the accompanying plate.

Whether this beautiful and distinct Lily had been discovered by anyone previously is at least open to doubt, for though *L. ochroleucum* is by Mr. Elwes in his monograph considered synonymous with *L. nepalense*, this latter had at the time of the publication in question never flowered in this country, and various were the ideas concerning it, till Messrs. Low, in 1888, satisfied our curiosity by exhibiting the Nepal Lily in flower, when I venture to assert it was so distinct from the opinions formed and descriptions given, as to surprise everyone. The firm in question are certainly to be congratulated on flowering two such handsome novelties in successive years as *L. nepalense* and *L. ochroleucum*.

CULTURE.—With regard to the culture of this beautiful and distinct Lily, little can be said, for it is probable that, like the other Himalayan species, the best results will be yielded by imported bulbs, which in the case of *L. neilgherrense* flower well the first year, but in a much less satisfactory manner afterwards. As far as can be judged, *L. nepalense* bids fair to behave in a similar fashion, and about the same may be said concerning *L. Wallichianum*. In all probability, however, *L. ochroleucum* will require to be treated as a cool greenhouse or frame plant, and after it commences to grow the height attained by the flower stem is against this latter mode of protection, though when first potted a frame where it can be kept secure from frost is a very good place for it. The bulbs that yielded such satisfactory results last year were simply potted in ordinary compost, consisting principally of sandy loam, lightened by a little vegetable matter. In growing this Lily an experiment might be made (which would in all probability yield satisfactory results) in districts where the Himalayan *Rhododendrons* thrive, by planting the bulbs among them, as then the young growth of the Lilies would be protected from frosts and rough winds by their larger neighbours.

With regard to the conditions under which *L. ochroleucum* is found in a native state, Messrs. Low say: "It is found growing on the hills at a very considerable elevation in Burmah, and in what must be a very temperate climate, judging by the vegetation of the locality as described by the collector."

The different Lilies that are natives of the Himalayan region were all described in *THE GARDEN* of January 19 last year, when the coloured plate of *L. nepalense* was issued, so that it would be quite useless to again describe them. Coloured plates of the complete series of Himalayan Lilies that have been introduced have appeared in *THE GARDEN* as follows: The first was the distinct and stately *L. giganteum*, figured in 1875, then *L. Wallichianum* in 1876, *L. polyphyllum*

in 1881, followed by *L. neilgherrense* in 1885, and *L. nepalense* as above noted.

H. P.

TREES AND SHRUBS.

BIOTA ORIENTALIS PENDULA.

THE Japanese *Retinosporas*, representing endless variety in form and colour, having absorbed so much attention of late years, some of our older, and even extremely remarkable Conifers have suffered neglect. Amongst the latter may be mentioned this Whipcord Arbor-vitæ, at one time supposed to be a distinct species introduced from Nepal, but which now, like all the members of this numerous family, is put down as a variety of one of our commonest, yet most useful garden shrubs. The species introduced from Japan or China nearly a century and a half ago has been extensively used by planters for filling up shrubberies in town and country, and, being so thoroughly hardy, soot-grimed examples are met with in every London garden and square. From this well-known species have originated several beautiful forms, including the popular and useful *Biota aurea*, raised by Mr. Waterer, of Knap Hill. *Biota o. elegantissima* is a fine golden fastigate variety, found in a bed of seedlings in Messrs. Rollisson's nursery at Tooting, and the less popular, yet more remarkable, subject of this notice, which shows a most extraordinary departure from the type, so remarkable, indeed, that ovate-headed columnar specimens seem composed of skeins of whipcord cut into various lengths, and forming a most graceful whole which attracts the notice of all admirers of trees. Seedlings from the common form, the exact counterpart of *B. o. pendula*, we are told, have been raised in this country, also on the Continent, and specimens were met with under cultivation in Japan and China many years ago, where also, if Gordon is reliable, Dr. Siebold found it growing wild on the Hakone Mountains. From these statements one might infer that the weeping *Biota* is plentiful over a very wide area, including the Continent of Europe as well as Asia, and yet on reference to the little book published by Knight and Perry, only three large plants at that time were known in Europe, one at Kew, one in the Chelsea Botanic Garden, and the other in the garden of Comte de Rumigny, at Laval, in France. The authors of this first synopsis give the height as 10 feet to 15 feet, and these figures, I think, cover its greatest dimensions, as our largest specimen, planted in 1855, now measures 15 feet in height and 10 feet through the branches close to the ground. This specimen, perfect in every respect, is densely composed of tufts of slender-recurved and loosely-drooping branchlets of various lengths, set on the branches at irregular distances, and although by no means stiff in appearance, it forms a round-headed column as beautiful as it is curious. Messrs. Veitch in their Manual say: "As a garden plant *B. pendula* is rather a curiosity than an ornamental subject; it casts off its lower branches at a very early age, leaving the trunk bare to a considerable part of its height." I do not for a moment presume to say they have given to this Conifer a worse character than it deserves, but this statement being calculated to check the demand, they will, I am sure, be pleased to learn that our large and small specimens do not show this tendency. The tree is perfectly hardy, and grows well in a heavy loam resting upon limestone, the broken character of which doubtless has favoured the descent of the roots, as the driest summers do not affect it. As a single specimen for the lawn, in the smallest as well as

the largest gardens, it is worthy of a prominent position, and there in its warm brown dress, independently of its peculiar structure, it will contrast admirably with the less hardy *Biota aurea* and the various shades of grey and green now so plentiful amongst the minor sections of our Coniferae.

W. C.

Abies ajanensis.—Among the more distinct of the Spruce Firs, this Japanese species forms a very handsome small or medium-sized specimen. When allowed space for its full development the plant usually assumes a pyramidal shape, the branches, which are numerous, being in their turn plentifully supplied with the minor twigs, while all are alike thickly furnished with foliage. The leaves, which are half-an-inch or a little more in length, are of a deep shining green on the upper surface, while the undersides are so glaucous as to be almost of silvery whiteness. A peculiar effect is produced by the arrangement of the young shoots, which in many cases have a slight upward tendency, just enough in fact to show their silvery undersides standing out in direct contrast to the more sombre hue of the older branches, the dark-tinted upper part of which alone is visible. This distinct Spruce Fir was introduced in 1861 by Mr. John Gould Veitch from Japan, but unfortunately a certain amount of confusion arose between this species and *Abies Alcockiana*, which is also a good Spruce Fir, and, like *A. ajanensis*, perfectly hardy.—T.

Norway Maple (*Acer platanoides*) is very distinct in the garden of Syon House, Isleworth, at this season of the year, where there is one of the largest specimens in the country close to the lake. It blooms freely in the early days of April, each twig having a bunch of bright yellowish-green flowers, which give the tree considerable beauty, as they appear before the buds on other trees have scarcely burst. The Norway Maple grows to a height of 70 feet, and is a native of Europe from Norway to Switzerland, and is also found in North America. It was introduced in 1683, and is not unlike the common Sycamore in aspect. The leaves, which appear after the flowers, change in the autumn to a yellowish-red colour. The tree is a quick grower, making long shoots each season, and will in ten years grow to a height of between 10 feet and 20 feet. The tree at Syon produces an abundance of fertile seeds, but these are not borne until the tree has reached a considerable size. *Acer platanoides* was first grown in Britain in the Edinburgh Botanic Garden by Mr. James Sutherland, and since that time has found its way into many gardens and all good tree nurseries. There are several varieties, amongst the finest being *Reitenbachii* and the ornamental *Schwedleri*. The type grows freely in any soil and situation.

Forsythia intermedia.—This hardy spring-flowering shrub is, I believe, of Continental origin, and said to be the result of a cross between the shrubby-growing *F. viridissima* and the more slender *F. suspensa* or *Fortunei*, as it is often called. *F. intermedia* is certainly intermediate between the two better-known kinds; but though opinions as to its value may differ, the generally expressed one is that it is by no means so valuable as either of its reputed parents. *F. viridissima* forms a very handsome shrub, which is not improved by being made more rambling; while *suspensa* loses in value when it partakes of the more compact habit of *F. viridissima*. Still, the *Forsythias* are so beautiful and flower so early in the year, that no doubt a place will be found in many gardens for the new-comer. *F. suspensa* is very beautiful when treated as a wall plant; not where it is stiffly trained, but where the long, pendulous shoots are allowed to arrange themselves naturally, and are then wreathed for a considerable distance with their bright yellow blossoms. Where pruning is needed, this should be done directly the flowering season is over, and the branches must not be stopped in any way afterwards, as the new shoots then take the place of those that have been removed, and flower well the following season. Of late years both *F. suspensa* and *F. viridissima* have been sometimes used for flowering under glass in the early days of the year,

and for this purpose their freedom of blooming serves them well, as but little forcing is required to have them in flower during the months of January and February.—T.

Populus certinensis.—Under this name I received from the Arnold Arboretum, a number of years ago, cuttings of a Poplar which promises to be very valuable on the high, dry prairies of the north-west and west, as it maintains perfectly healthy foliage and makes a clean, rapid, upright growth where the Cottonwood and other native trees of the bottom-lands of our streams utterly fail to live. It appears to me to be identical with, or very closely related to, *Populus Petrovsky*, as sent us by Director Arnold, of Moscow. It also appears to be very closely related to the species known in Russia as *Populus Wobsky*. As it is likely to be a valuable tree I am anxious to determine its origin and its correct name.—J. L. BUDD, in *Garden and Forest*.

Lily of the Valley tree and the frost.—Despite the very sharp frosts we experienced during the early part of March, the beautiful Japanese *Andromeda japonica* has flowered in the open ground in a far more satisfactory manner than it has done for years, for, generally speaking, the late spring frosts play havoc with the blossoms. This year the flowers were not sufficiently advanced at the time of the severe frosts to receive any damage, and the slight ones we have experienced since do not seem to have affected the plants in any way. It is certainly a beautiful shrub, but it does not resist frost so well as its North American relative, the Lily of the Valley tree (*Andromeda floribunda*), whose flowers are proof against frosts. If the sprays are cut while the flowers are still in the bud state, the blooms will open well in water and retain their beauty for a long time.—H. P.

Magnolia pumila.—This Chinese species of *Magnolia* was at one time regarded as a stove plant, and is even now occasionally to be found treated as such, though it will thrive in an ordinary greenhouse and flower well under such circumstances. As implied by the specific name, it is small in habit, and plants not more than a foot high will bear several of their highly fragrant blossoms. This species forms a branching bush clothed with oblong-shaped leaves, 6 inches to 8 inches in length, deep green above and glaucous beneath. The flowers are egg-shaped, of a greenish white colour, and, as a rule, hidden amongst the foliage, so that they are by no means showy, but a single bloom will make its presence manifest even in a large structure by its delicious fragrance. Sandy loam with a little silver sand and vegetable matter will suit this *Magnolia* well, and when once established it will seldom need repotting.—H. P.

The common Laurel (*Cerasus Laurocerasus*).—Probably no shrub has been more extensively planted in pleasure grounds than the common Laurel, though it is difficult to understand why this should be so, as, with the exception of being easily raised and quickly grown, it has few qualities to recommend it, and even these two qualities are not sufficient excuse for the way in which it is overdone and, more often than not, planted in positions and for purposes totally unsuited to its natural habit. Laurel should never be planted where the knife, or, worse still, the shears or hook, has to be used to keep it within bounds, either in height or breadth, and yet how often is it seen planted almost close to a walk, or in large breadths which have to be kept to a uniform height, entailing a large amount of labour at a busy time of the year. In spite of all the care bestowed upon Laurel, it will get bare at the bottom after a few years' growth, and a wholesale cutting and pegging down have to be done before it can be got into anything like good condition again. How poor such shrubs look when compared with the fine specimens that are occasionally met with in the southern and western counties near the sea, where they have been allowed room to develop, to flower and fruit freely, and where they never get cut with the frost. Such trees as these are very effective, and help to adorn the garden, but

the low-cut thickets should never be planted with a view to permanency when so many more suitable things could be got. No doubt very many of these thickets are due more to accident than design, and were originally planted as nurseries for better things, or to furnish the place quickly, with a view of being gradually replaced. The strong, however, have overcome the weak, and gaps have been filled as they have occurred, and, perhaps, other thickets planted to get rid of young stock from the nursery ground. Then, again, the bugbear of fashion, than which few things are stronger, has helped the mistake, by doing her worst to make natural beauty play a very subordinate part in the garden. When such a wholesale and perverted use of a shrub, that has not even thorough hardiness to recommend it, is seen, it leads one almost to regret either its introduction, or the ease with which it can be raised, for it has undoubtedly crowded out a host of better things, especially flowering shrubs.—J. C. TALLACK.

GRAFTING LILACS AND OTHER SHRUBS.

THERE is sound sense in what "H. P." says about grafted Lilacs (p. 316). A few days ago I was looking at a man planting some grafted standard Lilacs that had been sent over from a Continental nursery and sold by auction in a town near where I am living. To do the Continental nurserymen justice, they turn out neat little plants; but why graft Lilacs at all when they can be so easily had on their own roots? They are bought by amateurs, and for the most part they dwindle and die in a few years, for it is very rare to meet with a large grafted plant. The following day I was in another garden, and was shown a standard Broom, which had been grafted in a similar manner, the head of which had died, leaving the stock alive. And the owner of the garden plaintively asked, "Cannot the stock be grafted again?" No one has a greater dislike than I have to planting ornamental trees which have been grafted, especially those grafted standard high. I would rather wait years for a tree whose well-doing from the first one could feel sure about than anything about which there must always be grave doubts. At the present moment there is a mania for cheapness, and the grafter manages to undersell the man who relies upon the stool ground for his stock of plants. Budding is less objectionable than grafting; in the former case the union is more likely to be happy and lasting, and there is less danger of the heads being blown off by the wind, but all such expedients, by reason of their uncertainty, must be regarded as makeshifts, calculated only to deceive and disappoint. If we must continue to have grafted plants thrust upon us, why not graft on the roots? There would be a chance then of some day having the plants on their own roots. Root-grafting is even more certain than working them standard high in the usual manner. In a general way, anything which has stood the test of time and become universally adopted has some good in it, but in the grafting of Lilacs and such things one fails to see where the good comes in.

E. H.

SHORT NOTES.—TREES AND SHRUBS.

A hybrid *Berberis* worth a note is one produced between *Aquifolium* and *fascicularis*, and now in bloom in Messrs. Paul and Son's nursery at Cheshunt. It has been selected for years for its early-blooming habit and fine trusses of flowers, which are light yellow and borne in large bunches.

Plum Fir (*Promnopsis elegans*).—Although a native of the Valdivian mountains, this shrub will thrive in smoky districts much better than the majority of *Coniferae*, and will, under such conditions, form at least a fair specimen, though, of course, not to be compared with the grand plants at Eastnor Castle, alluded to in the article on p. 316. I have seen it in good health for years when confined in a pot, and used for furnishing a balcony.—T.

Rhododendron ciliatum.—Having grown this *Rhododendron* in a pot and brought it into bloom early, I can speak of its value. It will come into bloom early in the year in a cold house if its growth has been made under glass. Some years ago I remember seeing

it flowering well early in the season in the conservatory at Maiden Erlegh, Reading. It is, however, as an open-air plant that I wish to point out its value. In Lord Ilchester's garden at Abbotbury Castle, Dorset, this *Rhododendron* thrives well. When looking through this most interesting garden in January, I noted a large bush of *Rhododendron ciliatum*, 5 feet across and from 3 feet to 4 feet high, covered with buds. Such a plant must be a grand sight when in full bloom. *Rhododendron Falconeri* also thrives well in these gardens. There is a plant of from 15 feet to 20 feet high. Its long shining leaves and pure white flowers in spring render it very effective when in bloom.—J. CROOK, *Forde Abbey*.

STOVE AND GREENHOUSE.

WALLS IN HOTHOUSES.

WHEN it is necessary to furnish a wall in a glass structure with plants, various means are resorted to for the purpose, as by some the entire wall is faced with wire netting, which is placed a few inches from the wall itself, and the intervening space filled with fibrous peat, or a mixture of peat, turfy loam, and Sphagnum. Into this many kinds of Ferns, Selaginellas, foliage Begonias, Fittonias, Peperomias, and several other things are planted, and if frequently syringed and encouraged to grow freely the wall is quickly furnished with a mass of greenery from the top to the bottom. The planting of such walls is best carried out early in the spring, as at no time are the roots so active as then, while if done thus early in the season the plants have time to become established before the more trying weather of summer. Young and vigorous plants in small pots are by far the best for this purpose, as they make themselves at home more quickly than older specimens, while when in small pots the plants are so much handier for planting than if they are in large ones. Though there are many Ferns suitable for such a purpose as above indicated, one of the very best is the common Maiden-hair (*Adiantum cuneatum*), and a stretch of wall covered with this alone is very pleasing and greatly admired by many, while others prefer a judicious admixture of different forms. Another way of furnishing a wall is by means of various climbing plants, many distinct and desirable kinds being available for the purpose. Where the wall occupies a shady spot, few, if any, flowering plants can be employed; still, there are several remarkable for the beauty of their foliage, which may be utilised for the purpose. *Cissus discolor*, with its richly coloured leaves, is one of the very best, while some of the climbing species of *Asparagus* are just at home in such a position, and produce an abundance of their delicate frond-like branches, which, apart from their beauty when on the plant, are also of great value for cutting. In the case of moist walls in a warm structure there are many plants that will attach themselves thereto without any trouble, and will clothe the wall with a mass of foliage so dense as to hide everything in the way of brick or plaster. Perhaps the most useful are the little creeping *Ficus repens* and the still smaller form (*minima*), the latter, especially when first planted, pushing out its shoots over the surface like a delicate green tracery, while they in turn branch out, and a considerable space is soon covered. This clings very closely to its support, *F. repens* a little less so, while a third form, *F. radicans*, though it produces aerial roots like the two preceding, and will attach itself thereby to any suitable substance, is a much more rapid and looser growing species. We have a stretch of wall completely covered with these three species of *Ficus*, and most people prefer the

variety minima. In their case a narrow border about a foot in depth was taken out and re-filled with some fairly good compost, into which the *Ficus* were planted, most of them being established plants in pots. A few of the taller shoots were nailed to the wall, and directly the plants began to grow, quantities of roots were produced from the younger portions thereof, these, no doubt, being encouraged by the moist condition of the surface of the wall.

The Aroids also contribute largely to this self-supporting class of wall plants, one of the best being *Pothos celatocaulis*, rather a quick growing climber, with deep green oblong-shaped leaves each about 5 inches or 6 inches long. These leaves are tightly pressed to the wall against which they grow, and are arranged so closely together that they slightly overlap at the base. An allied plant with the same peculiar habit of attaching itself closely to the wall is *Marcgravia paradoxa*, with roundish unequally-sided foliage of the same deep colour as the preceding. This description only applies to the juvenile form, as the *Marcgravia* in question occasionally grows out of the above character, and produces stout stems and large divided leaves, somewhat like those of *Monstera deliciosa*; indeed, it is more than probable that many Aroids if allowed space for their full development would prove to be not only distinct species, but also belonging to a different genus from that in which they are now included. Another pretty member of the same family is *Marcgravia dubia*, a species with smaller and much narrower leaves, which are arranged in a very regular manner on either side of the stem, which when it mounts upward to a considerable height without branching presents a very curious appearance when clothed from base to summit with leaves that vary but little in size and still less in the regularity of their arrangement. There are several species of *Philodendron* available for the same purpose, but many of them are such bold-growing subjects that they are suitable only for very large structures. Such, however, cannot be urged against a few of them, one of which, *P. melanochrysum*, has its deep olive-green leaves overspread with a peculiar satiny lustre, which renders it very attractive. This description applies only to the older leaves, as when young they are lighter in colour and have the satiny character still more pronounced. The last Aroid to mention is *Scindapsus pictus*, which will attach itself to the wall by means of roots from the stem, as in the others, but the foliage is not so closely adpressed thereto. In this the leaves are unequally sided, in shape something like those of a *Begonia*, and marked with irregular greyish white blotches on a dark green ground. These Aroids will thrive in a very shallow amount of compost for the roots; indeed, heat and moisture appear to be their principal requirements. H. P.

Rhododendron Rosy Bell.—This is a pretty little *Rhododendron* resembling *R. ciliatum*, and still more one of the hybrids raised therefrom, viz., *R. præcox*, but it is perfectly distinct from either. In *R. Rosy Bell* the flowers, which are somewhat blunt in shape and widely expanded at the mouth, are from 1½ inches to 2 inches in diameter, and when in the bud of a deep reddish pink colour with which the exterior of the bloom is suffused when first expanded, but after a time it becomes paler. The interior of the flower is a very delicate blush, almost white. The blossoms, which are borne in clusters well above the foliage, are slightly drooping or arranged in a nearly horizontal manner, and a very pretty effect is produced by the contrast in colour between the unopened buds and the expanded blossoms, as well as by the crimped edges

of the petals. The Myrtle-like foliage is very dark green, while the plant itself is dwarf, much branched, and very free flowering. This variety was, I believe, put into commerce by Messrs. Davies, of Ormskirk, so well known as raisers of many valuable *Rhododendrons*, and it is described in their catalogue as hardy, on which point I have not yet had sufficient experience to speak positively, but as a very ornamental small-growing kind for the cool greenhouse it is certainly among the most desirable hybrids we possess.—H. P.

SPIRÆAS FOR FORCING.

MOST of the *Spiræas*, herbaceous as well as shrubby, are very beautiful flowering plants, and many of them are easily forced, and may in this way be had in bloom very much earlier than would be the case without such treatment. In a general way the only species forced to any extent is the old *Spiræa japonica*, or *Astilbe barbata*, which is annually imported in immense numbers from the Continent and largely forced for market. It can be had in bloom as early as Christmas, at which time the beautiful feathery spikes of blossoms are much admired; but the foliage of the plants that flower so early is not so good as that borne by plants that are at their best a month later. Where home-grown plants are intended for flowering under glass, they are sometimes planted out or confined entirely in pots, each mode of treatment having its advocates; though there is no doubt that when planted out they give much less trouble than those grown in pots, for all the *Spiræas*, and this one in particular, require copious supplies of water when growing. From this circumstance, a moist spot should, if possible, be chosen for planting them in, and those required for early forcing must be lifted as soon as the foliage shows signs of decay, when, if potted at once, the roots will become established in their new soil before winter. The variety of this *Spiræa* in which the leaves are veined with gold (*aureo-reticulata*) is very pretty when the foliage is first developed.

A *Spiræa* which has attracted a good deal of attention within the last few years is *Spiræa astilboides*, a fine, bold-growing species, but, to my mind, never likely to take the place of *S. japonica* for early forcing, though for flowering under glass about April or May, it will be found extremely useful. To obtain this end, protection rather than forcing is all that is required, and brought on in this way, large clumps, in pots perhaps a foot in diameter, will yield a wealth of blossom. This *Spiræa* is altogether a coarser growing kind than the common form, the leaves being much larger, but fewer in number, while the flower-spikes are less tapering and far more massive. *S. astilboides* is also a grand plant for the bog garden; indeed, our hardy plant nurserymen report a continuous demand for this particular species. The bright-coloured *Spiræa palmata* may be also forced into bloom much earlier than it would naturally flower out of doors, but it must not be pushed on too rapidly, otherwise the growth of the plant will be weak, and the colour of the flowers pale and washed out compared with that of those that expand in the open ground or under glass where plenty of light and but little, if any, heat is given. Another thing to bear in mind is, that in a moist atmosphere the foliage is often liable to be attacked by mildew, which quickly disfigures the leaves and destroys the beauty of the specimen. Mr. Noble has for many years made a speciality of this particular *Spiræa*. These Surrey grown plants are always bristling with stout well-ripened crowns that may be depended upon to flower well. With such good results attending the home cultivation of *Spiræa palmata*, it is a matter for surprise that the commoner species is not grown to a greater extent in this country, as with suitable cultivation clumps quite equal to the imported ones may be had. The white-flowered variety of *S. palmata*, a newer introduction than the typical form, is well worthy of a place as a companion to the older kind. The densely-packed, flattened corymbs in which the flowers of the *palmata* section are borne render them quite distinct from those of *S. japonica* or *S. astilboides*.

Of shrubby *Spiræas* suitable for forcing into bloom, by far the best for this treatment is the Japanese *S. Thunbergi*, a dense, much-branched bush, composed of slender, gracefully arching shoots, that are clothed for a great part of their length with little clusters of Hawthorn-like blossoms. Whether forced or in the open ground, it is the first of the shrubby *Spiræas* to unfold its blossoms, and also one of the prettiest. Another species (*S. confusa*) is also seen occasionally forced into bloom, but it is not so early as the preceding.

In the case of the shrubby *Spiræas*, there is always a tendency for the plant to become crowded towards the centre with weak and exhausted shoots, and as the finest flowers are borne on the stout vigorous ones, the object should be to encourage clean, well-ripened wood. H. P.

Acacia grandis.—Among the smaller growing *Acacias* that may be successfully flowered in pots not more than 6 inches in diameter must be included this species, which is at its best when the flowers of *A. Drummondii* are past. *A. grandis* is a sturdy-growing kind with very rigid spiny branches, thickly clothed with small divided *Mimosa*-like foliage, and profusely laden with little rich yellow-coloured balls, each standing out singly from its neighbour, but so numerous are they that the entire plant is quite a mass of gold. The greenhouse *Acacias* can be kept in health with but little trouble, and where small bushes are required we have several kinds available for the purpose, such as *A. Drummondii*, *grandis*, *armata*, *lineata*, and others.—T.

Lachenalia Nelsoni.—This beautiful hybrid *Lachenalia*, one of the finest raised, is in flower with Mr. Hodges, Lachine, Chislehurst, who showed a charming group of it at the last meeting of the Royal Horticultural Society. It was raised by the Rev. G. J. Nelson, Aldborough Rectory, Norwich, an enthusiastic lover of *Lachenalias*, and as the result of a cross made between *L. luteola*, the seed-parent, and *L. aurea*, we had this beautiful flower appropriately named after himself. It is intermediate in colour between the two parents, but the growth is more robust and the spike longer, while the colour is a lemon-yellow with the tips of the petals tinged with green. We have many *Lachenalias*, but none to surpass the delightful lemon-yellow colour of *L. Nelsoni*.

Maranta Warscewiczii.—This Canna-like plant is in flower now with Mr. Hudson, of Gunnersbury House Gardens, who grows this plant well, as it deserves. It is sometimes called a *Calathea*, and we may unfortunately seek many gardens before finding it. We must, however, wait until there is a keener interest in stove plants than exists at present, and then the velvety leaves of this *Maranta* will beautify many a structure. As mere description conveys but a poor idea of a plant, we refer to the coloured plate of it, which appeared in THE GARDEN of June 26, 1880, which shows well its characteristic beauty. The leaves are rich in appearance, green with yellow lines on either side of the midrib, the flowers forming rings of pearly white colour, and lasting by reason of their substance a long time in good condition. Those in search of a good stove plant should make a note of this *Maranta*.

Peperomia resedæiflora.—Most of the *Peperomias* have prettily marked foliage, and some from their creeping character are well suited for growing in suspended baskets in the stove, but the species under notice is very distinct, as the flowers are ornamental, while the plant is partially erect in growth. The flowers are not particularly showy, and are seen to the greatest advantage when in a mass, so this *Peperomia* being a shallow rooting subject is best grown in a good-sized pan. In this way it will prove an object of beauty for some time. In this species the leaves are dark green, while the flowers, which are borne on stems nearly a foot high, are arranged in dense conical-shaped clusters at the ends of the shoots. Before expansion they are of a greenish tinge, but when fully open are pure white. It is a native of New Grenada,

and is a plant of very easy culture, provided heat and moisture are given.—H. P.

CINERARIAS.

IN a recent note on Cinerarias in THE GARDEN it was remarked that the flowers were becoming too large. When blooms attain to 3½ inches in diameter, it may well be said that such size is inordinate. But then it is also evident that such dimensions do not show average form. Out of some 2500 plants I noticed in bloom at Woodside, Farnham Royal, recently only very few flowers were so big, the general average being perhaps 2½ inches, not at all excessive, and not so large as the dimensions would lead us to believe. It is true, however, that we have considerably increased Cineraria blooms in size during the past twenty years. If the best named varieties of that day could now be produced, they would compare to the fine blooms of to-day pretty much as ordinary farthing pieces do to pennies. But there has been with such development of size increasing development in substance and breadth of petal. The perfect raying of petals now seen in good flowers is quite remarkable. Many persons who have seen such blooms shown off the plants have come to the conclusion that this perfection is the result of dressing. That is, however, quite a mistake. It is rather the result of constant selection from the best, so that now not only are petals so stout and broad that they overlap each other, but they overlap with complete regularity, so that there is no break in the continuity and no interval of the minutest kind between the petals. Then there has been remarkable advance in the production of a more compact habit of growth. The old leggy plants have, or should have, disappeared. When a good strain gives plants ranging in height from 10 inches to 15 inches, there need be no lanky plants from 18 inches to 24 inches high, and none too well furnished with leaves. Colours, too, have to some extent increased in quantity and richness. With greater stoutness of petal have come dense, rich hues. Self especially are full of body, but the margined flowers also display much variety and richness. The old blue hues, once so much favoured, had nearly left us, but they have been got back again. It is a flitting hue, one which needs a lot of looking after, and plants having flowers of the blue tint should stand in bulk together, and if possible in a different house from that containing the reds and whites when required to produce seed. Not only do white selfs come very true now, but they are apt to overdo the dark hues if left amongst them in an indiscriminate way. I notice that Mr. James, who grows so largely for seed, puts all his selfs into one house and his margined flowers into another. The selfs are white, cerise, red, crimson, blue, purple, and one or two intermediate shades, and there are of margined flowers about six sections also, but the diversity of tint is none the less very great. Each section forms a separate block, and as seen in the bright Buckinghamshire sunlight are beautiful indeed. For ordinary winter decoration seed of the Cineraria should be sown as early as the month of May, and be kept growing on in a cold frame looking north until October, when the plants should be put into a little warmth to accelerate blooming. A later sowing in July will give a batch to bloom through March until May. Mr. James usually sows in July to get his big lot of plants into bloom at their best during April. As they are not allowed to rest from the time of germination until blooming, but kept moving on, of course their growth is rapid. Cinerarias if in any way checked produce very imperfect flowers, lose their lower leaves, become infested with aphids, and get altogether in a bad way. It is therefore unwise to sow too early, unless the plants can have ample pot room and plenty of looking after. Still, pots too big are a mistake; generally those from 7 inches to 8 inches across the top will turn out capital plants for ordinary greenhouse or conservatory decoration.

A. D.

Gardenia Stanleyana.—This is now classed as *Randia*, and is a rare plant to many, though intro-

duced about fifty years ago from Sierra Leone by the Earl of Derby. One of the prettiest features in the stove recently at Kew was a plant of this *Gardenia* about 18 inches in height and bearing ten flowers, each being distinctly trumpet-shaped, about 9 inches in length, deep chocolate colour on the outside, but white, or nearly so, dotted with the same deep shade inside. The width of the flower is about 3 inches.

PANCRATIUMS.

IN THE GARDEN, March 29 (p. 303), appears an excellent article on this popular class of plants, but the writer is perhaps a little misleading in his estimate of the ease with which they may be cultivated. I have come across places where *Pancratiums*, in common with *Eucharises*, grow like weeds—that is to say, no difficulty whatever is experienced in keeping them in a very healthy, free-flowering state. But there are exceptions to the rule, as in all probability very many more failures than successes take place. There are hundreds, I may say thousands, of gardeners who would be glad to learn how to grow them as easily as “J. H.” appears to do. We have a fairly large healthy stock of *P. fragrans*, or quite as many plants as there is room for, but I very much question if such would be the case if we were always pulling them to pieces and repotting them. That sort of thing answers very well in many cases, but the time comes when, from some cause hard to account for, it will fail completely. A friend who first supplied me with bulbs had the grandest stock of *Pancratiums* I ever saw in a private place, and he followed a practice much as detailed by “J. H.”; but “the pitcher went to the well once too often,” and when I last paid him a visit not a healthy plant was to be seen. He could not account for this total collapse, especially seeing that the important work of dividing and repotting had always been done under his own personal supervision. I could enumerate several other very similar cases with *Pancratiums*, *Eucharises*, and *Amaryllises*, but will merely add that I have given strong pots of the first to friends anxious to rear a good stock, only to learn later on that they had divided badly, neither old nor young bulbs thriving in their fresh quarters.

“J. H.” is of opinion that the *Eucharis* mite does not affect *Pancratiums*, and adds that in one case where plants were known to have it their health was unaffected by it. He advised that strong doses of soot water should be applied, and these proved highly beneficial. But what if the mite was present on the roots and between the scales of newly-potted bulbs and divisions? Would he advise strong doses in this case, and would he expect the plants to grow if thus treated? I should not at any rate, and rather than run any risks in that direction, I much prefer to adopt a very different method of culture. If we are frequently pulling to pieces and repotting *Pancratiums*, *Eucharises*, *Amaryllises*, *Vallotas*, and such like subjects, there would not long be a healthy pot of bulbs on the place, this, as we have found from bitter experience, being the surest way of inviting an attack of the mite. The latter cannot make any headway—it is comparatively harmless, in fact—when the pots are well filled with roots, but once break up the plants and try to establish them in fresh soil, and then the turn of the mite has come. Even if we had not the latter to contend with I fail to see the necessity for frequently disturbing the roots, but, on the contrary, have long been under the impression that the various genera I have named flower the most freely when kept in a root-bound, though not necessarily starved state. We started seven years ago with a few young strong *Pancratium* bulbs and a number of small divisions. The former were placed singly into 6-inch pots, the best of the divisions singly into 5-inch or rather smaller pots, and the remainder in threes, also in small pots. They were kept in a brisk stove temperature and given the benefit of a little bottom-heat. At first progress was slow, but after the original check was got over all have done remarkably well. No pulling to pieces has been attempted, but two shifts have been given to most of the plants. At the present time the strongest bulbs (these being of the size of

Tripoli Onions) are much root-bound in 10-inch pots, strong suckers being pushed up all round them. Not only the original bulbs, but also the offsets produce at different times fine flower-scapes, a good succession being obtained from one pot without any drying-off or resting whatever. The first flowers this season opened about March 30, and, all being well, we shall rarely be without one or more spikes up to November. It should be added that root-bound plants are frequently supplied with soot water, this keeping down the mite, and also serving to maintain a healthy, vigorous growth of the foliage. Liberties may be taken with *Pancratiums* that have crowded their pots with roots; but if the drying-off or resting-in-cold-pit process is attempted with any not properly established or any over-potted, this also may be the commencement of their decadence. W. I.

HYDRANGEAS AND THEIR CULTURE.

THOSE who live in distant parts of the country, on their first visit to Covent Garden Market, if such happens to be during the spring or early summer, see nothing that strikes them more forcibly than the numbers of *Hydrangeas* grown in small pots, not generally more than 6 inches or 7 inches in diameter. The plants grown to a single stem, 6 inches or 8 inches high, are furnished with three or four pairs of healthy leaves, surmounted by a globular head 12 inches or 15 inches through, generally of the freshest and clearest bright pink colour, although a few are met with possessing the blue shade that is so much prized by some, and for producing which there are several different recipes, in the shape of soil more or less impregnated with iron filings, charcoal, or alum, or pure peat. We have always found that if the plants were supplied with the large quantities of manure water requisite to give size to the heads of flowers, whatever the nature of the soil or ingredients added to it, the blooms when fully matured were pink of some shade. Larger specimens are grown for the London market bearing several heads of flower each, but for general decoration the small plants with single heads are much to be preferred. In addition to the pleasing colour, general attractive character, and long endurance of the flowers, the plants possess the advantage that during the time they are in bloom they can be stood in places where there is comparatively little light.

Cuttings will strike at any time of the year that they can be obtained in a half or three-parts ripened state, but to ensure the large heads on small plants, such as above described, the best method is to have a few plants grown out in an open, sunny situation, where they keep strong and short-jointed.

These, according to the early or late character of each season, will generally get sufficiently matured to be taken off in August, at which time the buds will be formed in the points, in which state they should be taken off at about the third joint below the bud, and inserted either singly in small pots or several round the side of a 6-inch one. Place a few bits of crocks in the bottom of each, on these a little fibrous material, and dry or flaky rotten manure, such as has been used for mulching a Vine border or Asparagus bed. They are in no way particular as to soil, but if it is preferred to have some of a blue shade and others of the normal colour, a portion may be struck and grown in sandy peat and the others in loam, in both cases using it for the cuttings in something like a proportion of one-fourth sand to the loam or peat. The cuttings should be severed at a joint and inserted firmly in the soil. A slight hot-bed should be prepared, on which place an ordinary frame with

glazed lights; in this plunge the pots, keeping the cuttings moistened and shaded from the sun, but with the lights tilted night and day, so as to keep the tops cool, otherwise the heat will have a tendency to cause them to break into growth, and they would be spoilt for flowering in the dwarf state they are intended to assume. They will soon strike, after which the shading must be dispensed with, and when they are well furnished with roots at once remove them to 6-inch pots, in which they may be allowed to flower. Keep them quite cool through the autumn—any pit, frame, or house will answer, in which they will not get frozen—it is better not to subject them to frost; they will cast their leaves before winter, nothing remaining but the woody shoot with the bud at its extremity. Never allow the soil to become dry, or the roots will suffer. If desired, a portion of the plants may be had in bloom early by putting them in a moderate heat at Christmas, such as a vinery or Peach house at work, or anywhere where an intermediate temperature is

will make more compact plants; plunge them out of doors for the summer, winter out of the reach of frost, and in the spring, just as they show signs of beginning to grow, head them right down to the bottom. They will quickly throw up shoots that will produce large heads of bloom on much shorter growth than if borne upon the old wood formed the preceding year. We have kept plants for three years in the same 6-inch pots they were first potted in, without either change or addition of soil, simply by using manure water during the time they were growing; in the second and third years they produced from three to half-a-dozen fine heads, showing what can be accomplished with the aid of liquid manure to such plants as will bear it; in this case they may be said to have been altogether supported by it, as the small quantity of soil in which the roots were placed must, after the first year, have become so exhausted as to be nothing more than a medium through which the liquid sustenance was conveyed to them. For anything perceptible in the appearance of



A well-grown pink Hydrangea.

kept up; here they will soon commence growing, making two or three pairs of leaves below the flowers. As soon as they begin growing freely those that are intended to come with pink flowers may be assisted once a week with moderately strong manure water, which will cause the production of much larger heads of bloom; but we have never been able to produce flowers of a decided blue colour if manure water was used; when it has been given to them even when they were grown in all peat, or with alum or iron in the soil, they have come neither one thing nor the other, but a not very pleasing mixture of both. Such as are wanted later may be put into a little warmth, and some allowed to come on with the assistance of solar heat in an ordinary greenhouse temperature. So managed, a succession of flowers can be kept up for six months. If suckers are produced at the base these should be removed until the plants come into flower. After the blooms have got shabby the shoots that have borne them may be cut out at the bottom, as suckers are sure to spring that

the plants as to vigour and ability to produce flowers, they would have gone on longer without change or addition of soil, but the experiment was cut short through unforeseen circumstances. If it is thought advisable to grow some on to a larger size, as in the case of that here illustrated, the plants should, when done blooming, be moved into pots proportionate to the size they are wanted to grow to, say 9 inches or 10 inches the first year; but for general use, to produce plants to flower in a small state with single heads, nothing equals the appearance of the autumn-struck cuttings that have been produced out of doors. The variegated forms of *H. japonica*, *H. japonica argentea variegata*, and *H. japonica aurea variegata* are well worth cultivation for the beauty of their leaves, as well as the flowers they produce.

Plumbago rosea.—One of the prettiest pictures we have seen in a private garden is a row of *P. rosea* in the Musa and Vanilla house at Syon House. The

plants are dwarf and one mass of bright bloom. They were cut down in January and repotted, thus giving a second display with a comparatively short interval. Last autumn the plants were in full flower, but they were then several feet in height, now they are dwarf and evenly bloomed throughout.

Epacris miniata splendens, when allowed to grow naturally, unfettered by ties and sticks, is a charming flower. Several plants of it at Syon House are thus grown, each shoot being hung with the bright crimson flowers.

Rudgea macrophylla.—This is a conspicuous plant now in the stove at Kew. There are several specimens in bloom, the flowers fleshy, creamy white, not unlike those of a *Stephanotis*, and borne in a crowded head. The leathery leaves, each quite 2 feet long, give strong character to this Brazilian plant.

A coloured plate is given in *Le Moniteur d'Horticulture* for April 14 of *Pelargonium Souvenir de Mirande*, one of the finest single varieties in its special line of colour, which is bright red with a suspicion of salmon in it, the centre white. The plate scarcely does justice to the variety.

THE WEEK'S WORK.

PLANT HOUSES.

GREENHOUSE.—BORONIAS.—The profuse habit of flowering, and the length of time the plants remain in bloom entitle the *Boronias* to a first place amongst greenhouse subjects. For ordinary decorative use the plants require very little support in the way of sticks and ties, their slender branches appearing best when allowed to droop naturally. Most of the species form long thin shoots which require cutting back annually. This should be done as they go out of flower. The preceding season's growths may be shortened to one-half or two-thirds their length, and as soon as they have again begun to grow any that require a shift should be attended to. *Boronias* are free rooters and want plenty of pot room, without which they make insufficient growth. Good peat, with a moderate amount of sand mixed with it, is the material they like best. Drain carefully, and make the soil firm in the pots. Before potting see that the plants are in right condition for water, so that it may not be necessary to give any for a week or ten days afterwards. Keep the atmosphere of the house a little closer until the roots have begun to move. A thin shade over all newly potted subjects of this nature in the middle of the day when the weather is bright assists them to get over the operation.

ROCHEA FALCATA.—Small plants that have been propagated from leaves put in last summer, and that have now made some progress in top growth, should be moved into pots a size larger than those in which they were struck. The plants will grow in either peat or loam, with some sand added. Older examples that are intended to flower during the ensuing autumn should be moved into 5-inch pots which are large enough for single plants. Where two or three are grown together use a size larger. Similar to most things of a succulent nature, this *Rochea* likes all the light and sun that can be given it; consequently the nearer it is kept to the glass the better.

CROWEAS.—Plants that were cut in after flowering and have since been kept in genial warmth will now have made an inch or two of new growth. Any that require potting should be attended to. *Croweas* form a large quantity of roots and need larger pots than many things that attain a larger size. Turfy loam answers for them, but they make more progress in peat, and where the latter can be had of fair quality I should give it the preference. After potting, syringe them overhead in the afternoons. Where *Croweas* are kept in a greenhouse temperature during the winter, they make their growth and flower later, and so treated they generally bloom through the latter part of winter, and keep on into the early spring. In the case of those that have been managed in this way, the shoots should be cut back in the manner previously described as soon as they have flowered, after which such as require

it should be potted. Plants that flower and make their growth late are best grown in a frame or pit that can be kept close and warm.

HARD-WOODED PLANTS, REPOTTING.—Most of the kinds of hard-wooded plants from New Holland and adjacent countries, as well as those from the Cape, are much better for being potted during the present month instead of later on. All small stock should from this time be stood on some moisture-holding material. Dry shelves or open wood stages are wholly unfit for plants of this description. Where a separate house or pit is not available, the plants that are newly potted should be all put together at one end of the structure, where they can be shaded so far as necessary for a time without interfering with others that do not need any protection of this kind. Less air should be admitted at the end where the newly-potted stock is located, and plenty of water should be thrown under the stages on which they are stood. In admitting air at the side lights opposite, where plants of all kinds stand, but more especially the hard-wooded section, careful regard should be paid to the state of the weather, as even the old leaves of Heaths, which are hard in texture, will not bear cold spring draughts.

WATERING.—Watering at all times requires to be carefully carried out, but especially so in the case of hard-wooded fine-rooted greenhouse plants. Now when both the roots and the shoots are in an active state, plants that appear moist enough in the morning often become too dry before the ensuing morning. This being so, it is better to look over the stock twice a day, in the morning before the sun gets up high, and again in the evening when its rays have less power.

STOVE.—**TABERNÆMONTANA.**—The double form of this is the only one which is held in much estimation. The plants last for many years, and unless due attention has been given to stopping during the early stages of growth, so as to secure the specimens being properly furnished down to the bottom, they ultimately get bare and unsightly at the base. The best remedy for this is to head them down. The time for carrying it out is in the spring, as then the stools have a chance of making the requisite progress before autumn. Previous to heading back, the soil should be allowed to get moderately dry, and no water ought to be given further than by syringing overhead until they have broken. If the plants are kept in a brisk stove heat they will break in a short time. Any that require more room should have a shift. Cuttings should now be put in. The plant blooms freely in a small state, and though large specimens are most to be depended on where large quantities of flowers are required, this *Tabernæmontana* is such an effective object in the stove, even when small, that it is well to keep up a sufficient stock.

CYANOPHYLLUM MAGNIFICUM.—Although this plant will not bear cool quarters long even in the summer, its large massive leaves contrast well with slender growing Palms, Ferns, and other things of a like character. It strikes readily from shoot cuttings, such as are produced freely by old specimens that after getting bare of leaves have had their tops removed. The shoots, when they are 9 inches or 10 inches long and have made two pairs of leaves, are in a condition for striking. In taking them off secure a little of the firm wood at the base. They are best put singly into 4-inch pots in sand, and they will strike in a few weeks if kept close, moist, and shaded in a brisk heat. When well rooted move them into 7-inch or 8-inch pots. The plant is a quick grower and roots freely; consequently the size of pots named is not too large. In growing this *Cyanophyllum*, it should be kept well up to the roof and always shaded from the sun during the spring and summer. Though the plant, as already said, is too tender to stand long out of heat, it may be used in halls and rooms for two or three days at a time during the summer without being injured.

SPHEROGYNE LATIFOLIA.—This, although not so large in its foliage as the *Cyanophyllum*, is equally as attractive. Its propagation and after treatment are also in every way similar, except that being a smaller grower it does not need so

much pot room. Both the above plants do well in peat, which should have sand and a liberal quantity of rotten manure mixed with it, unless manure water is given regularly. T. B.

FRUITS UNDER GLASS.

MELONS.

PLANTS upon which the fruit is swelling will now take liberal supplies of tepid water, especially where the roots are confined to pots or small areas. If top-dressing with loam and bone-dust has been properly managed, surface roots will now be abundant and capable of taking weak liquid, so much better than solid manures at each watering. Care, however, must be observed in preventing it from flooding the collars of the plants, as moisture about the neck is a common cause of canker. Feeding should not be commenced until the fruit is the size of a duck's egg, and then it may be very liberal for a brief period, but once the Melons are full size, animal stimulants should be discontinued and bottom-heat if possible increased, as a falling off at this stage is a common cause of poor flavour.

Succession plants in various stages will now make rapid progress, the main factors being heat, water, air free from draught, and all the light that can be admitted. Cordon plants trained up sticks to the trellis must be kept to single stems, from which all the laterals must be pinched until they come strong enough to show and carry fruit to maturity. Three fruits to a plant are ample, but two good ones are sufficient, and when these of uniform size are secured no gardener should be blamed for failing in an attempt to emulate sensational drawings which make seed catalogues ridiculous. Fertilise all female flowers as they open, and have enough and to spare for choice; support them with bits of lattice wire or board, preserve all the principal leaves, pinch and re-pinch the laterals. Damp the walls and floors on fine mornings, but do not wet the foliage, ventilate principally, but not entirely, in front to avoid draughts, maintain 80° or 85° for a few hours in the middle of the day, and give a thorough overhead syringing when the time arrives for closing.

Frames.—If plants in nursery frames are fit for turning out, they should be potted on if the fruiting beds are not ready for them, as root-bound plants often breed spider and rarely make good progress. If grown upon the old plan each plant must be stopped when it has made four leaves, but if possible a trellis, be it never so rustic, should be introduced, as the fruit then lies clear of woodlice and the surface of the bed can be flooded without wetting the vines or foliage. The middle or end of April is quite early enough for planting out, and then the beds must be well lined with hot manure and the glass covered with mats from sun-down until the return of daylight.

CUCUMBERS.

Plants in full bearing will now take immense quantities of tepid water tinged with liquid, and frequent top-dressing. Where several compartments can be devoted to high pressure, heavy crops and away, manurial top-dressings may be used, but the grower who has but one house to do duty for months will do best by using sound materials, including large pieces of light flaky turf, rough hair plaster, charcoal, and bone dust. With these materials the stems may be earthed up to any extent, and being excellent absorbents they will take up liquid in quantity. Let the bottom-heat range about 75°, that by night 70°, run up to 80° or 85° through the day and shut up with a warm bath in time to touch 90°. Dress the plants three times a week, crop lightly, and cut so soon as the fruit is large enough for its intended purpose.

Spring-sown plants not yet in bearing will require generous treatment, but they must not be overdone with rich food, a very common mistake, which results in large coarse leaves and vines, followed by collapse when they should be in full bearing. Another mistake is close planting, which entails checking and pinching at an early age, and so baneful is this, that it would be much better to start with a single plant well away from the hot-water pipes and allow it to extend in every direction.

The compost recommended for top-dressing winter plants will suit summer Cucumbers at the outset, but when the roots have filled the hills a heavier loam may be used for earthing purposes. Train thinly and evenly over the trellis, which must be low enough to allow a circulation of air above the leaves, a very important matter where summer shading is dispensed with. Avoid or discontinue morning syringing, otherwise the fruit will scald and gum, but damp the walls and surface of the bed very freely when the temperature begins to rise, and bathe the foliage with soft water at 80° or 85° when the house is closed in the afternoon, as this is the period for rapid growth and the suppression of red spider. Sow seeds for succession in pots and frames now occupied by Potatoes and plants requiring slight protection. Telegraph answers very well, but the hardier spined varieties are most suitable.

HARDY FRUITS.

STRAWBERRIES.—As the early varieties will soon be throwing up their flower trusses, no time should be lost in getting the beds covered with fresh stable litter for the two-fold purpose of keeping in moisture and preservation from splashes of grit when the fruit is ripe. Various materials, including clean wheat straw, old tan, and cocoa-nut fibre, are equally suitable, and short Grass from the lawns is sometimes used, but if placed early in the season the litter answers every purpose, as washing with rain carries down ammonia, and exposure to the sun and air bleaches and purifies the straw. Short Grass, on the other hand, is the most unsuitable material, as it decays in wet weather, sticks to the fruit, and, having an offensive smell, taints the flavour. The ground at the present time (April 1) is very dry, too dry for Strawberries, especially upon light land or heavier soils which have not been well mulched, but this, before the plants come into flower, may be changed by a fall of rain now overdue. If, however, it is not, a heavy soaking of liquid from the tanks or pure water through the hose will greatly benefit the plants and prevent sterility, so common after long periods of drought. If spring planting has not been brought to a close, the opportunity presented by the splendid working of the soil should not be lost, care being taken that the nursery beds are made moist to ensure lifting with good balls. Plant firmly, allowing 2 feet each way, water home, and mulch to prevent the balls from drying out. As fruit must not be expected this season, the beds may be planted with Lettuce or autumn-sown Onions, a single plant in the centre of each square, and rich food being acceptably, the whole surface in due course may be liberally mulched.

RASPBERRIES, like Strawberries, enjoy moisture throughout their season of growth, and the soil which suits them best being light, they will well repay a repetition of the manurial mulch. If not already done, fruiting canes left full length may now be shortened back to about 4 feet, whilst those intended for autumn fruiting may be cut over close to the ground.

The principal work amongst stone and kernel fruits will be protection from frost. Advice as to ways and means is out of the question, as conditions, positions, and materials at hand vary to an extent which justifies our leaving each man to act for himself. Peaches at the present time with us are in full flower, the finest and most promising I have seen for several years. A great number of the flowers, I believe, are set, and if this dry, warm condition of the borders and walls continues a few days longer, it will be a heavy crop of fruit, not blossom, that will require protection from frost. Pears on walls and in the open are profusely flowered. Cherries and Apples are the same, but Plums are thin—an unexpected event, as the trees were not overdone last year. This scarcity of bloom may not be general, although I have been told that it extends over the orchards on the Avon and the Teme. When wall fruits are set, all borders facing south and west should be treated to a covering of fresh stable litter without delay, and in the case of Peaches and Apricots a liberal surface watering

with the hose will do much good. The young shoots from this time forward must be closely watched, and, prevention being better than cure, the usual remedies must be resorted to on the appearance of the first green-fly. If the weather is mild, the whole of the trees may be well washed with pure water through the syringe or the hose, but on no account must this be attempted when there is the slightest appearance of frost. Early morning, under any circumstances, is the safest time, as the foliage will then become dry before night. Although early disbudding is bad practice, all trees should be looked over before they are washed, and if any shoots show signs of curl, they may be picked off or well syringed with soapsuds to prevent the spread of green-fly.

THE ORCHARD.—The grafting of young stocks of Apples and Pears will now be in full force, and the quicker the operation the greater the chance of success. The value of own-root fruit trees being now an admitted fact, the Crab, the Paradise, and the Quince, it must be borne in mind, cannot be worked too near the ground. So important, indeed, is this, that a little of the surface-soil should be removed, and when the scions are clayed or waxed it may be returned. Older trees of Pears will now be ready, but large Apples, headed back in January, may stand over until the end of the month or the beginning of May. W. C.

THE KITCHEN GARDEN.

TOMATO PLANTS FOR THE OPEN.—Seedlings ought not to remain crowded together long in the pots in which they are raised at any time, but especially at this late date. With a stress of other important work they are apt to be neglected either before or after they are potted off, and hard wiry plants are the result—this probably meaning a loss of a fortnight or more of valuable time in their recovery. A mistake very commonly made is that of first placing the seedlings in quite small pots, in which they soon become very root-bound and leggy. The simplest and also the better plan is to sink the seedlings up to their seed-leaves either singly into 5-inch pots, or in pairs in 6-inch or rather larger sizes. Any light and fairly good soil, previously warmed, will suit them, and very little drainage is needed. The plants ought to have the benefit of shade and brisk heat, being carefully watered at the outset, and when growing strongly, shelves or some other position near the glass with more air and water should be given them. By the end of May a strong lot of plants in flower, perhaps, will be ready for putting out, and a good start thus be made.

FORWARDING TOMATOES.—Not unfrequently Tomatoes pay well for a little extra trouble taken with them prior to their being transferred to the open. The plants should in this case be raised somewhat earlier, or they may be a portion of the batch reared for fruiting under glass. Instead of keeping these in a starved state in 6-inch pots till it is safe to plant out, they ought to be shifted into 10-inch, or slightly larger pots, and kept growing in heat. Being given a fairly light position, duly trained to tall stakes, and the superfluous side shoots that are constantly forming on the single main stems kept closely removed, several strong clusters of fruit will have set and commenced swelling off, with more following by the end of May. Supposing they are properly hardened off in an airy greenhouse, little or no check will be experienced on their being placed in the open. There are often sunny sheltered walls among the houses and other buildings connected with a garden on which one or more of these tall strong plants could be trained. They do not require to be planted out, the better plan being to set the pots on a small bed of fairly rich soil, and to mound over with soil and manure into which the roots will quickly spread. At the outset especially they need frequent supplies of water and liquid manure, and if the season is only moderately favourable, an early and continuous supply of fruit should result. Instances could be given where plants thus treated have yielded good crops of ripe fruit from June to October inclusive.

BEANS IN PITS AND FRAMES.—Where kidney

Beans are extensively forced, it is always a great relief to be able to get rid of them from the houses. Few can afford to devote heated pits and frames on gentle hotbeds to their culture, but in many cases there is nothing to prevent their being grown in succession to early Potatoes. The latter are now being, or soon will be, gradually lifted and used, and in anticipation of this a number of Beans ought to be raised in small pots ready for planting out. According as two or three lights are cleared of Potatoes, all rubbish should be removed and the soil be levelled and well watered if at all dry. The Beans should be then planted out 6 inches apart in rows not less than 15 inches, or given the same room as the Potatoes, the rows in all cases running from the back to the front of the pit. The plants might well be lightly staked or supported with Birch or Hazel spray, and the surface of the bed mulched with short manure. They must be kept well supplied with tepid water, frequently syringed in hot weather, and be given the benefit of a fairly brisk top heat. Later on unheated frames may be planted, and a close succession thereby maintained. Ne Plus Ultra or Osborn's Forcing are preferable to the stronger-growing Canadian Wonder.

SEED FAILURES.—Seeds are germinating well this season, but the weather has not been in favour of quick growth in the open, and various enemies have been at work among the tiny seedlings. Chaffinches are particularly troublesome, and it is a very difficult matter to preserve Turnip, Radish, Broccoli, and such like seed from them. A net must be perfectly sound to keep them out, and they even visit frames where there is any of their favourite food to be had. When new and old Turnip or other seed is mixed and sown together, it not unfrequently happens that the former being the first to germinate is quickly drawn up, while the latest to come up escapes. This, however, is not a sure remedy. All that can be done in addition is to either closely net over the seed-beds or to just damp and then roll the seed in red lead prior to sowing it. Directly it is seen there is likely to be large gaps in a bed or a scarcity of any kind of plants more seed ought to be sown at once. In some instances the best plan is to resow the whole bed; in other cases patches only need to be sown. The owners of or those in charge of small gardens cannot be constantly dusting over their seed-beds with soot and lime in order to save the plants from birds and slugs, and seeing they only require a comparatively small number of Brussels Sprouts, Broccoli, Cauliflower, Lettuce, and other somewhat similar plants, these may well be raised by sowing seed thinly in boxes or pans, either in a cold frame or in a sunny position where they can be saved from birds.

LATE-SOWN CELERY.—In order to be at all certain of a supply of good late Celery, the seed must be sown from the middle to the end of April, or otherwise the plants will bolt long before the demand has ceased. The seed being somewhat slow in germinating, it may well be sown either under glass—a sufficiency in most instances being raised in a handlight—or, better still, on a gentle hotbed without any glass covering, Radishes, Lettuces, or other quick-germinating seeds being sown with it, these being removed before the Celery requires all the space. Both Standard-bearer and Incomparable Crimson keep well, these evidently being among the most hardy varieties that can be grown, the quality also being good.

POTATOES ON WARM BORDERS.—These, where planted early, a strong sprout being attached to each tuber, are already showing through the ground, and unless protected in some way are liable to be seriously crippled by a moderately severe frost. The shoots are particularly tender just when they reach the surface, and for a time the soil may be drawn up to and over them, this being sufficient to protect them, especially if the work is done early enough in the day for the newly-exposed soil to become somewhat dry and warm before night. After a good length of stem has been nursed up in this manner, it does not so much matter if the tops are damaged by frosts, fresh shoots being quickly pushed up from just below the surface. At the

same time there will be a gain both as regards earliness and weight of crops if the haulm is not injured in any way, and the attempt should therefore be made to ward off severe frosts with the aid of inverted flower-pots with their drainage holes stopped, hoops and mats, thatched shutters, branches of Evergreen, or some other contrivance.

W. I.

KITCHEN GARDEN.

OVER-HEATED MUSHROOM HOUSES.

THERE are far too many of these to be found in different parts of the country, and more particularly where the construction of the various buildings connected with a garden has been of comparatively recent date. What Mr. Miller (p. 307) has to contend with is common enough, the Mushroom houses apparently being most suitable for the various purposes for which they are designed, when in reality they are quite the reverse. Who has not met with instances where the flow and return pipes from the boilers have to be taken through either a Mushroom house or fruit room, or it may be both? It is done for the purpose of economy, and may at first sight appear to be so, but in most cases this, when too late, is found to be a great blunder rather than a commendable practice, and should be prevented as far as possible by those who may eventually have to be responsible for the crops produced or the fruit to be preserved. High temperatures, whether accompanied by atmospheric moisture or not, are simply ruinous to Mushroom beds, and if they cannot be kept down without the admission of currents of cold air, failures will inevitably be the order of the day. A bed may do fairly well for a short time in a temperature ranging from 60° to 70°, but the produce from the first is of a very inferior description, while the duration of the crop may be numbered by days instead of weeks. The figures given, and even considerably higher temperatures, are undoubtedly favourable to the quick spread of the spawn, and are also conducive to the rapid fermentation of the manure and consequent loss of moisture from the same. If there is no moisture in the manure there will be little or no decay going on, and, the latter ceasing, it is very certain that very few Mushrooms will be forthcoming.

After repeated attempts in these over-heated structures, those in charge find that some other method of growing Mushrooms must be resorted to, and what, therefore, should have been most serviceable in their production has to be abandoned in favour of apparently less suitable sheds, cellars, and other makeshift positions. Probably few gardeners have more often tried what can be done without the aid of an orthodox Mushroom house than I have, and on the whole I am of opinion that it is not always wise to discard a well-built house in favour of any place originally intended for other purposes. By all means as many Mushrooms as possible should be grown under cover as well as in the open, but in most instances the crops thus obtained might well be regarded as supplementary to those more surely obtained with the aid of a properly managed heated house. Open-air beds in a small way are very frequently failures, more especially so when rats, mice, moles, woodlice, and slugs cannot readily be kept from them. I am not stating this owing to any great or repeated failures with open-air beds, as it happens we have had, and at the present time are having a fair share of success in that direction, but I mention the drawbacks in order to support my argument in favour of still utilising the regular Mushroom

house. For the same reason I may also assert, with good grounds for doing so, that much as we might desire to utilise a cellar, the temperature of which is more equable than in any house or position above ground, and therefore most favourable to the production of abundance of good Mushrooms, it, as a rule, ought not, for sanitary reasons, to be devoted to such work. There are, as usual, exceptions to this rule. For instance, at Gunnersbury House, Mr. Hudson succeeds in growing Mushrooms nearly all the year round in a cellar, but this happens to be well away from any inhabited house or rooms, and therefore admirably adapted for the purpose. Open or even ordinary closed sheds with either tiled or slated roofs, again, very rarely answer so well as does a properly constructed Mushroom house, with its thick brick or stone walls, ceiled or thatched roofs, and closely fitting doors and windows, if any. Fairly good crops may be taken from beds in sheds and other somewhat airy places, but not often during either cold or hot weather.

In order to be certain of a nearly or quite all-the-year-round supply there is a great need for a structure built with more than ordinary care, and which may be warmed somewhat at will. If currents of cold air cannot be excluded by any ordinary means, failures will frequently occur in heated houses, even oftentimes perhaps without the true solution of the difficulty offering itself. In a large garden situated in a south-western county of England what was once a useless, because much exposed and draughty, house was, by means of a thick thatching of Heath, all the walls as well as the roof being covered, converted into a most serviceable structure for Mushroom culture, failures rarely occurring. It should be remembered that what most thoroughly excludes cold winds is equally effective in respect to the exclusion of heated air, a good house for winter or cold weather crops being, therefore, favourable to their production in all but the very hottest part of the year. As before pointed out, there are times when heat of some kind must be afforded so as to keep the temperature from falling much below 50°, and occasionally it is also needed for hastening the spread of spawn. It is immaterial whether this warmth comes from either hot-water pipes, flues or heaps of fresh beds of manure, so long as it can be discontinued at will. If hot-water pipes are depended upon, then ought these to be quite clear of the main flows and returns, and in addition be properly fitted with valves to admit of the heat being regulated whenever necessary. Where, however, it is not possible or convenient to alter any present arrangements which include the taking through the house of a main flow and return pipe, something must be done to otherwise prevent over-heating. My advice to Mr. Miller and others somewhat similarly situated is to completely surround the pipes with a good thickness of shoddy, or, better still, the waste from either felt or woollen works, this being kept in position with the aid of stout canvas neatly fitted and stitched together. If this is done properly, very little heat will find its way through such non-conducting material, and if the canvas is coated over with paint of some kind it will last for many years. This is no imaginary remedy, but one that I have tried with most satisfactory results. I. M. H.

Cheltenham Green-top Beet.—I would strongly advise those who grow Beet in any quantity to give this a trial. This is a medium-sized Beet of a good colour, and is grown extensively around Cheltenham by the large market growers. I have judged it at shows when shown in a cooked state, and it has always been placed in the first

rank. This Beet was well shown at the late vegetable conference of the Royal Horticultural Society, and was certificated in all the collections. I have grown this kind for some years and am pleased to say I have always been thoroughly satisfied with it. I was fortunate enough to obtain seed from a trustworthy source, and the produce has been Beet of a good shape and splendid colour when cooked, and the flavour excellent. I find the committee of selection give the following report of this Beet as exhibited at the conference: "The Cheltenham Green-top Beet may be noted as a very excellent sort, of fine uniform size, and of good colour, the leaves almost green." I think the careful perusal of the report of this conference will be of great assistance in bringing before the notice of those interested many good vegetables not so well known as they should be. I wish it could have been published at an earlier date to enable many interested to give a trial to the different vegetables worthy of especial notice, as it would have then given time to order the seeds in the early months of the new year, when the subject was fresh in the memory, as many could not attend and judge for themselves the merits of the vegetables exhibited. Seed of this Beet should be sown early next month for an early crop, and again in a month's time for a succession for storing for the autumn and winter months.—G. WYTHES, *Syon House, Brentford.*

CARDOONS.

THESE are not much cultivated in this country, but they are excellent winter vegetables, and to those requiring a varied collection indispensable. As is well known, the quantity of different vegetables required through the autumn and winter in large establishments is considerable, and I wonder the Cardoon does not find more favour. When well grown and well cooked it is often very much liked. There were some good examples shown at the Vegetable Conference, and though early in the season, they were fairly blanched. I do not advise anyone to grow them with only a small space or with little labour, as Cardoons require a deal of attention to get good blanched ribs or leaves. There are several kinds, but for general purposes the large Spanish is most suitable, as the ribs are large, very solid, and spineless. There are other good varieties, but their strong spines are very objectionable, as they make the tying very difficult, and as far as my experience goes, they are no better than the large Spanish. This vegetable is much grown in France and other parts of the Continent. In large gardens it is one of the standing vegetables, and much liked. It is not at all difficult to cultivate, the chief part of the operation being the tying up and blanching. To get good Cardoons for autumn and early winter consumption seed should be sown about the middle or third week in April or even later for the last lot of plants. If sown at two different dates a succession will be had. If sown very early the plants are very apt to run to seed. Rapid growth is necessary to get good plants; therefore every means should be taken during the earlier stages to promote a quick growth and fine large leaves.

The seeds should be sown in small pots three seeds in a pot, and as soon as large enough the seedlings should be thinned to one in a pot and be afterwards transferred to a cold frame. Some good growers use large pots and get their plants much stronger for planting; others give only one shift, and the latter is the better plan, as the plants take readily to the new soil when put out. Good plants may be had in 3-inch pots if the plants are restricted to one in a pot. If the seedlings remain too long in the pots they become pot-bound, and never do so well as when kept growing quickly from the time of sowing till they have finished growth. Trenches, 2½ feet wide and 6 feet apart, should be prepared for the plants, and a good portion of well decomposed manure placed in them. The Cardoon is a gross feeder; therefore it is necessary to give suitable material to make a strong growth. After forking in the manure the plants should be put out in dull or showery weather, if possible, 2 feet apart,

making the roots firm. When growing, Cardoons require abundant supplies of water, and liquid manure, if it can be given, is of great assistance. If once neglected in the supply of moisture the plants will get a check and will not do well. Cardoons require little attention beyond keeping the ground clean and occasional supplies of water through the summer, but as the plants complete their growth in September or early in October they should have all loose leaves or outside growths removed and the stalks, arranged upright with a few ties, be closely bound with hay-bands. This should be done on a dry day, and the stalks should have been previously exposed to the wind for a few days, as it is very important that the foliage should be dry before tying up. The hay-bands should be put within a foot of the tops of the stalks, and then be earthed up. The soil, placed so as to first cover the haybands, should be beaten quite firm with the back of the spade to prevent wet getting to the plants. From a month to six weeks will be found long enough to blanch the stalks if they are well covered as advised. They remain good for some time, and greatly improve in flavour if allowed a longer time to blanch. If two sowings are made, it is easy to give the plants the different treatment so as to get an early and a later lot. The plants should get a covering of dry Bracken or litter during frosty weather, as if allowed to go unprotected they will quickly rot. They may also be removed to a cool, dry room and be stored for some time, and the stalks must not be exposed. We store them in a dry cellar, standing the roots as they were removed from the trenches in boxes and placing them upright, looking over them occasionally and removing the decayed leaves.

Syon House.

GEO. WYTHES.

POTATOES V. WEEDS.

ALL well-managed gardens are supposed to be fairly clear of weeds, that is to say, there is usually no necessity to resort to any extreme measures in order to clean ground badly overrun by them. There are, however, exceptions to this rule, and these, since so many employers have found it necessary, or thought it expedient, to reduce the labour bill, have considerably increased in numbers. As a matter of fact, I know there are numerous outside quarters especially, which having either been cropped with Globe Artichokes, Seakale, Asparagus, fruit bushes, and other weed-fostering crops, when broken up are found somewhat difficult to get clean. Then, again, there are plots of cultivated ground connected with an estate that are devoted to various objects, and these in time become infested with perennial and annual weeds to such an extent as to almost prevent their being properly utilised for a season or two. Sometimes these latter plots of ground are allowed to run to waste, nothing being attempted in the way either of cleaning or cropping, the natural result being an eyesore to all who are in any way interested in them. The ordinary or good old-fashioned way of clearing ground of Couch Grass, Convolvulus, Ranunculus, or other tenacious weeds with fleshy roots would be to either plough or roughly dig early in the winter, and throughout the following spring and summer to repeatedly stir the ground with either harrows or forks, bringing up and burning as many roots and plants as possible. This following and cleaning of ground answer fairly well, but unless very well done, all the most troublesome weeds are not exterminated, some of them, in fact, being too deeply rooted to be thus got rid of. When, however, any or all of them are prevented for several weeks or months from forming any top-growth, it may reasonably be concluded that the roots will make no progress, and, it may be, many will perish outright. This brings up the question, How can this smothering process be most simply brought about? Agricultural authorities recommend a crop of Vetches for the purpose of both resting over-worked ground and getting rid of weeds, and I have seen this plan tried with good results. Others have given it a trial and failed, one such case having come under my notice last season. The owner of

the ground fancied the mere fact of growing Vetches on it would have the desired effect, quite overlooking the fact that nothing short of a heavy crop could possibly smother weeds. I noticed at the time his was a very thin crop, neither the Vetches nor the Rye sown with it being half thick enough. The consequence of this thinness of crop was a marked spread of weeds, and this spring the ground was in a wretched plight.

Vetches duly cleared off and the roots either ploughed or dug in leave the ground in a more porous condition, and Potatoes succeed admirably in succession. This method of cropping just suits heavy land, the improvement lasting for years—at least such is my experience, it being part of our duty to grow Vetches for the stables and Potatoes for the house supply. We have cropped much neglected and very dirty outside quarters with Potatoes, sometimes in succession to Vetches and at others in advance of the latter, with excellent results in every way, and what we have done others may be equally as successful in imitating. Having shown that a thin top-growth is more likely to encourage rather than check the growth of weeds, it follows that the cultivation of Potatoes on dirty ground should be thorough, or else not commenced till a cleansing process has been undertaken. Not only ought the ground to be well and deeply stirred, but abundance of solid manure should be applied, at the rate of from 20 tons to 30 tons of good half-decomposed mixed farmyard manure per acre being necessary. Special manures alone cannot be relied upon, especially in a dry season, but a sprinkling of any of these, wood ashes or soot, might with advantage be given in connection with the solid manure at planting time. Such a bountiful supply of manure might be thought wasteful, but it is no such thing. The Potatoes will usually more than repay for the outlay and labour spent in the ground, and will leave it in splendid condition for a successional crop of any kind without any further manuring.

Much also depends upon the choice of varieties of Potatoes, all not lending themselves alike to the cleansing process I am advocating. Only those that form abundance of strong branching haulm, and which also are not impaired in quality by high cultivation, should be planted. Abundance, Magnum Bonum, Chiswick Favourite, and Village Blacksmith are all vigorous growers, disease-resisting, and, as a rule, of good table quality, but on the whole it is questionable if any or either of them equal the good old Scotch Champion and the improved yellow-fleshed form raised from the latter, viz, Laxton's Reward, for the purpose. These two varieties, under liberal treatment, completely cover the ground with branching haulm, and if prevented from making much headway in advance of these Potatoes, it is doubtful if any weeds would long survive the smothering process. In sheltered positions the rows of such strong growers may well be 3 feet apart, but in more exposed open quarters it is a well-known fact that vegetables generally make much less top-growth, and the rows of Potatoes ought, therefore, to be from 2 feet to 30 inches apart, and the sets 9 inches to 12 inches apart. The usual hoeing, cleaning, and moulding up must be given according as the haulm progresses, after which they must take their chance. At first, when I noticed how densely the haulm of Scotch Champion covered the whole of the ground, I was afraid only comparatively light crops would be available for lifting, and these probably of the poorest quality. As it invariably happens after the top growth has been most vigorous, and disease not very prevalent early in the season, extra heavy crops are obtained, or, say, from 9 tons to 11 tons per acre, while the quality never proves other than first-rate. The one great fault of the Scotch Champion is its deep eyes, large tubers also being hollow or otherwise faulty in the centre, but I could name grand establishments where no other Potato will meet with the same approval as this rough-looking variety, and in our case it is the only sort sent to the dining table while it keeps good, or say up to the end of February. It is, therefore, recommended as a scavenger, as well

as a reliable disease-resisting, heavy cropping, and in point of table quality most superior Potato.

I. M. H.

SHORT NOTE.—KITCHEN.

A glut of Potatoes.—There is an extraordinary glut of Potatoes in the Peterborough district, where the farmers have vast quantities on hand. The quotation they receive from the London markets is only 20s. a ton; and local prices as a rule range from 1½d. to 2½d. a stone.

AMERICAN NOTES.

Asparagus tenuissimus.—This plant has come to stay, says Mr. John B. Keller, and I believe he is right. As the saying is, "figures do not lie," so compare the quotations for the winter months on Asparagus and Smilax. The highest that Smilax has been this winter is £8 15s., and some months it has dropped as low as £2. The lowest price to which Asparagus tenuissimus has dropped this winter is £5, and at times it has brought £10, while A. plumosus has brought as high as £15. I do not understand why florists do not grow it more extensively, for it can be grown as easily as Smilax. My method of growing it is as follows: I make the bed 10 inches deep with plenty of drainage and raise the bed 18 inches from the ground, which allows the heat to circulate under the bed, thereby inducing a quick growth. I also feed heavily with liquid manure as often as once a week. This Asparagus stands well in a warm room and looks fresh long after Smilax has completely dried up.

Chrysanthemum Ostrich Plume.—The names Ostrich Plume and Mrs. Alpheus Hardy have been given to the same Chrysanthemum in one of the spring catalogues, Ostrich Plume in large type and Mrs. Alpheus Hardy in small type, and my customers are calling for the Ostrich Plume Chrysanthemum. I sell them the Mrs. Alpheus Hardy and tell them it is the same thing, but it takes much explanation to convince them, and it is very annoying. Of what use is it to add another name to a plant which already has one, and thus cause needless confusion and trouble?

* * Chrysanthemum growers in England should take note of this.—ED., GARDEN.

Winter Carnation growing.—We grow our Carnations entirely in crops—that is, we have four houses devoted to Carnations—H. White—and they are all kept at different temperatures, varying from 40° to 60°, the house in which the highest temperature is maintained coming in first, and the others following about four weeks apart at Jan. 1. All the houses are then about blooming, say one house is going out, one just beginning, and two in full crop. These four houses hold about 10,000 plants, and each plant averages about forty blooms. Each house is 120 feet by 18 feet, and holds about 2500 plants. We shall grow ten houses of Carnations next year.

Kalanchoe carnea a failure.—This novelty was figured and referred to in the *Florist*, March 1 last year. Since that time, however, it has been grown and flowered abundantly throughout the country, and in my opinion it is a failure. It is easily raised from seed, of the easiest possible cultivation, and it blooms well the first year from seed. Planted out in summer and lifted and potted in the autumn in any kind of soil, and given Carnation or Rose house temperature it gets along admirably. The foliage is large, succulent, and coarse, and there is nothing elegant about the plant; the flowers are of a delicate pink, but far from pleasing or striking in colour, and before all are fully open some begin to wither off. Its only redeeming feature is its sweet perfume.

To kill slugs.—Mr. John Mull, of Dayton, Ohio, writes me that he has found quick relief by applying cigar factory tobacco dust thickly underneath about the roots. This remedy is simple, inexpensive, and no injury arises from it. No one need be afraid of a liberal application.

The *Rural New Yorker* has been purchased by

Lawson Valentine and E. H. Libby. The former editor, Mr. E. S. Carman, will still remain as editor in chief.—*American Florist*.

SOCIETIES AND EXHIBITIONS.

THE DAFFODIL EXHIBITION.

THOSE who remember the Daffodil conference of 1884, at a time when a new love had sprung up for the flower, must have felt disappointment in the small show that lasted from Tuesday to Friday of this week—two days would have been sufficient—in the conservatory of the Royal Horticultural Society at Chiswick. The report given below will show that four trade collections occupied the space, and, save a charming group from the Royal Gardens, Kew, and a few collections from amateurs, that was all. Not a very encouraging exhibition after the large advertising the conference had received in the neighbourhood and elsewhere. For the purposes of the conference there was, of course, sufficient, as scarcely a variety of Narcissus was unrepresented, and thus enthusiasts, or those wishing to study the family closely in all its phases, would have found much to interest them in the four days' exhibition. But, unlike the Chrysanthemum exhibition held last autumn, it was stereotyped, a reproduction almost of what we have every fortnight in the spring season at the Drill Hall. Much more artistic and interesting would it have been to depart from the usual bunched style of showing the flowers, and allow each bloom to show its individual expression, light, shade, and fullness of form as we had, in some measure, in the collection from the Rev. W. Wilks. There is no art in making a mass of colour; but there is in so grouping the flowers that one shall not destroy the expression of the other. The exhibition was opened on Tuesday, at 3 o'clock, by the Duchess of Teck, and the conference commenced on the second day with an opening address by Professor Michael Foster.

UNCOMMON VARIETIES.

In glancing through the show of flowers there were many old favourites, but several newer kinds which are worth cultivating generally. A striking flower is Glory of Leyden, but approaching coarseness in the massive substance of the bloom. It is described below. Mme. de Graaff, also described, is another gem; and another fine flower is J. B. M. Camm, which is one of the white Daffodils, the flower being very lightly coloured, but not weak. It is a bold, handsome bloom, the segments almost white, and the trumpet of a pale primrose tint, as pretty as in the flower itself. Gloria Mundi is a Daffodil of the future. The flower is about 3 inches across, perianth broad and almost white, also massive, so as to make up a firm rounded bloom; the cup is pale yellow in the centre, but the other portion is as bright as in C. J. Backhouse, and cut into at the edge in a charming way. Duchess of Westminster is one of the Leedsii section, and a lovely variety, more like a bloom of Eucharis Sanderi than anything we know of. The flower is of the purest white, the cup soft primrose-yellow, deepening at the upper portion to a richer colour. The expression of the flower, its softness of colouring, and sweet scent should make it a favourite with all. Barri conspicuous and Sensation, belonging to the same section, are very beautiful. The last is a striking flower, the segments white and the cup brilliant orange-scarlet, as shown in the Kew collection brighter and showier even than C. J. Backhouse. Johnstoni Mrs. G. Cammell should be noted as a much finer flower than the ordinary Johnstoni. Another variety of delicate beauty is Burbridgei Falstaff, which is as pure as the flower of Duchess of Westminster, the purity of the perianth set off by the orange-scarlet rim to the cup. Aurantiacus is a noble flower, the segments white, and the broad cup rich orange-scarlet. As exhibited by Mr. Walker it is superb, and if it only keeps its character as thus seen, it should be in all collections, even the smallest. These were a few of the best uncommon varieties exhibited; but the seedlings of M. de Graaff, mentioned below, were also of rich promise.

The Exhibition.

The greatest show was made by Messrs. Barr & Son, of Covent Garden and Long Ditton, who won the gold medal, an award well earned for the splendid range of varieties presented by the firm. There were 200 kinds, occupying about 300 square feet of space, so that it made a feast of Daffodils of the richest kind. We have before condemned the lumpy style of placing the flowers, huddling them together so as to prevent seeing in its fulness the delightful expression, light and shade and elegance of the individual flower. To see the Daffodil in its finest phase, it must be sought for in the nursery or in a wild state. The waving masses of flowers in Messrs. Barr and Son's nursery at Long Ditton show the elegance of the leaf and flower, destroyed by the present system of staging. We were pleased to see some concession in having foliage with the blooms. As a mass of colour, nothing could have been finer than the collections staged, and in Messrs. Barr & Son's group every phase almost of the Daffodil was shown. There were several of the Hoop-petticoat Narcissi and a few new types which will be heard more of. One of the finest varieties exhibited was Mme. de Graaff, of which we hope to give a coloured plate. It is a trumpet Daffodil, soft in colour, bold and handsome in shape. The flower is broad, massive, and showy, but without a trace of coarseness, the segments white or almost cream colour, with a tinge of pale sulphur-yellow down the centre of each; the finely shaped cup is of a rich self yellow, the margin sharply and evenly cut into, but not jagged. Another distinct and handsome type is Glory of Leyden, which has a flower, however, inclining by its bulky size to coarseness. It is one of M. de Graaff's seedlings, and has a massive bloom, measuring almost 5 inches across, the segments broad, massive, and soft yellow, the trumpet measuring about 1½ inches in length, and rich decided yellow. The Daffodils were arranged in classes in Messrs. Barr's large group, and hence it was easy to seek for any particular variety, and we also had the rich effect of distinct colours massed together. There were the little Hoop-petticoat Narcissi, close by splendid bunches of that finest of all trumpet Daffodils, *maximus*, the richest self yellow-coloured variety in cultivation. Another fine trumpet kind is John Nelson, and, of course, well shown were Emperor, Golden Spur, the little nanus, and Captain Nelson, a beautiful trumpet variety, the chalice rich yellow, but the segments paler. Almost a self is Rev. M. J. Berkeley, remarkable for the width of the mouth of the trumpet, which measures 2 inches, and is cut into narrow segments. It is well worth adding to any collection. Henry Irving, an early and finely coloured Daffodil, was represented by excellent flowers, also Ard-Righ, a useful variety, and, of course, the little cyclamineus. One very distinct kind is Daniel Dewar. It has small flowers, each about the size of that of the Tenby Daffodil, but with the rich yellow colour of the trumpet taken on to the lower half of the segments. In the open ground a mass of this is as rich as any Daffodil of our acquaintance. Santa Maria, Countess of Annesley, which has been recently noted in THE GARDEN, and Johnstons Mrs. George Cammell are three good Narcissi. Johnstons varies considerably, and the form here named is one of the best. The flowers are larger and more finely coloured than those of the type, not a difference of degree only, but sufficiently distinct to warrant a name. King Umberto is another distinct trumpet Daffodil always to be recognised by each of the segments being creamy white, or nearly so, with a central line of yellow down each. Spurius was well exhibited, also Her Majesty, a finely coloured trumpet variety, the colour soft yellow. In an array of Daffodils, as shown at this exhibition and set out in such formal groups, the bicolor varieties were strikingly conspicuous; foremost, of course, was the noble Horsfieldi, king of all Daffodils by reason of the splendid substance, breadth, and colour of the flowers. Other good kinds in this section are Michael Foster, James Walker, Dean Herbert, the well-known princeps, and P. R. Barr, which has almost white segments and a rich yellow trumpet. Of the white Daffodils, *cernuus*, its varieties *pulcher*, *tortuosus*, and the nodding *moschatus* were the most familiar,

but also worth a note were William Goldring, Snowflake, a bold, almost white flower, and Lady Grosvenor, a neat flower, the segments white, or nearly so, and the trumpet tinged with the softest primrose colour. Another distinct break was made by a group of incomparabilis varieties, of which C. J. Backhouse is the brightest. We have seen this finer than the bunches shown by Messrs. Barr and Son, but the flowers were sufficiently characteristic to show their beauty. The bright orange-scarlet of the cup is strikingly effective against the pale yellow segments. Stella, the beautiful Cynosure, Sir Watkin, and Autocrat, a showy flower, the cup self yellow, and the segments only a trifle paler. Gloria Mundi, one of the finest Daffodils in the exhibition, semi-partitus, and Queen Sophia are three good kinds, fit to grace any garden. The brightest flower of all is, perhaps, that put into a group called Barri, and happily named conspicuous. It is in the way of C. J. Backhouse, the segments yellow, the cup having a jagged rim of rich orange-scarlet; the expression of the bloom is graceful and effective. Crown Prince is another good kind, also Maurice Vilmorin; and of the Leeds type we had a good show of such varieties as Gem, Princess of Wales, a lovely flower; Beatrice, Mrs. Langtry, the segments white, or nearly so, the cup pale primrose colour; Minnie Hume, white, with a rich yellow trumpet; and Duchess of Westminster. The pretty Angels' Tears (*triandrus albus*), which sometimes bears as many as seven flowers on a spike, was not forgotten, nor the little Macleai, nor representatives of such sections as Barbidgei and Backhousei. Of the former one of the finest is Falstaff, a lovely flower like that of a Poet's Narcissus, the perianth snow white, and the small cup brightened with a rim of orange. Crown Princess, with a conspicuous orange-scarlet rim to the cup, and Ellen Barr are also worth noting. The last mentioned is very pretty, the segments pure white, the cup orange at the rim, and bringing out the purity of the perianth. There were also exhibited *tridymus* and its forms, *odorus*, and such varieties as *rugulosus*, and a rich series of double Daffodils, from the old *Telamonius plenus* to a double *cernuus plenus*, a quite double variety of the same colour as the single type.

The flowers from Mr. J. Walker, of Ham, made up a noble group, unfortunately crowded and massed together, but perfect in freshness and colour, showing that at Ham the Daffodil must find a congenial home. There were 100 varieties exhibited, and all beautifully fresh; but it is almost impossible to individualise. Amongst the finest were *aurantiacus*, previously noted; Nelsoni, creamy white, the trumpet yellow; semi-partitus, a pretty flower in its delicate shading of yellow; Gloria Mundi, and conspicuous, which was grandly shown. There were four bunches of it which brought out the colour and expression of this charming Narcissus. W. Ingram is a good kind, the segments white, and the upper half of the cup bright orange. The Poet's varieties, especially *ornatus*, made a delicate show; and of all the Poet's section none is finer or more useful than *ornatus*, which is a standard market variety, and grown in large quantities by Mr. Walker at his Daffodil farm. Remarkable also was the series of double kinds, and still more so the several trumpet varieties, which included *maximus* in its purest character and Horsfieldi, which seems to relish the soil and air of Ham. In no other place have we seen finer blooms than these—the colour clear and rich, and the segments of unusual breadth. Captain Nelson has a trumpet quite 2 inches across at the mouth, and should be made careful note of as a useful Daffodil. Of course, these were not the only fine Daffodils exhibited by Mr. Walker, as many of the varieties mentioned as being in other collections were exhibited. All were in the finest condition (silver medal).

A large and representative group was that from Messrs. J. Veitch and Sons, of Chelsea, who were especially strong in the varieties of Polyanthus Narcissus, their collection comprising fifty distinct kinds. There were such well-known varieties as Bazelman major, Soleil d'Or (the richest of all in colour), Gloriosa, White Pearl (a white and

beautiful variety), Grootvoorst, and Her Majesty. But we like this section least of all, especially when bunched together, as then they are still more stiff and lumpy. Altogether there were about 180 varieties shown; and besides the Polyanthus Narcissus kinds, the best of the trumpet Daffodils already mentioned, *moschatus* in variety, Hoop-petticoat Daffodils, incomparabilis of many kinds, and Leedsi, of which Duchess of Brabant is worth a note. The flower is creamy-white and the cup yellow—a bold, handsome, and refined bloom. Other sections were represented, and all the flowers were fresh and characteristic. Messrs. Veitch also had several new varieties (silver medal).

Mr. W. Poupert, of Twickenham, a large grower of Daffodils for market, had also a large collection, comprising about one hundred varieties. This does not mean that this number of kinds is grown for market, as for this purpose the sorts are comparatively few in number, and of rich and decided colours. There is, however, at Twickenham a representative collection—from the little *Bulbocodiums* to the big trumpet varieties. *Maximus*, Emperor, princeps, the double Orange Phoenix, and the Poet's varieties were amongst the best exhibited; while many of the kinds mentioned previously were in the finest possible character (silver medal).

A small collection from Messrs. R. Veitch & Son, of Exeter, had evidently suffered in transit. The flowers were bruised and crushed out of character, especially the *moschatus* varieties.

The groups described were the trade collections; but an excellent collection came from the Royal Gardens, Kew—not to make a mass of colour, but to represent each phase of Daffodil as far as possible; thus we had a rich variety of kinds. The citron-coloured Hoop-petticoat was well shown, also Johnstons Mrs. G. Cammell and muticus, with its narrow segments and rich yellow cylindrical trumpet. There were seven bunches of pallidus præcox and the brightest flowers of Barri Sensation in the show; Mary Anderson, conspicuous for a self orange-scarlet cup; Duchess of Westminster, beautifully shown; W. Wilks, rich self yellow trumpet and broad segments of about equal width; N. Bernardi; a rich series of Poet's Narcissus, and also of odorus, Tazetta patulus, and Muzart orientalis, rupicola, tridymus, Hume's Giant, a big, pendent trumpet Daffodil, the segments narrow and the chalice bold and handsome; triandrus albus, M. de Graaff, and fine trusses of Horsfieldi and allied varieties.

Amateurs were not numerous. The Rev. W. Wilks, Shirley Vicarage, Croydon, had a collection of fifty varieties, exhibiting, for the most part, splendid flowers, especially of Sir Watkin, and arranged more tastefully than in any other collection, each bloom having sufficient space to show off its individual charm and expression. The flowers were not bunched closely, and made to face one way. The variety Sir Watkin was finer than we have ever seen it since it was first sent out by Messrs. Dickson, of Chester. He was awarded the silver challenge cup, Mr. C. W. Cowan, of Valleyfield, Penicuik, N.B., also had a good collection, and he was, except in the class for a collection, the only competitor for the prizes offered for fifty and twenty-five varieties respectively. He was adjudged the two silver medals, one of which was offered by Messrs. Barr and Son for fifty varieties.

The Conference.

This was opened on Wednesday afternoon last by Professor Michael Foster, who dwelt at some length on the naming of Daffodils, mentioning the important point that is not always taken note of, that a name should not be applied except in cases where it is necessary, and nothing should be named unless the variety is quite distinct. This was the gist of Professor Michael Foster's remarks, which were followed by Mr. Scrase-Dickins' account of the work and origin of the Narcissus committee, and whose proceedings have always been reported in THE GARDEN. He mentioned that eighty-four varieties had been registered since the formation of the committee in 1886, including eleven yesterday. One great work of the committee is to keep the

nomenclature clear and regular, an important matter when varieties increase so rapidly. They had also given careful attention to the Narcissus disease of 1887. Mr. Scrase-Dickins was followed by Mr. Burbidge, whose excellent paper we give an abstract of. The address of the Rev. G. Engleheart on "Seeds and Seedlings" was full of interest. He said that the raising of Daffodils from seed is increasing rapidly every year, and gave some interesting particulars of his own work in cross-fertilisation. The little white Hoop-petticoat Narcissus crossed with the white triandrus had given a very pretty intermediate flower. A cross between the little sweet-scented Jonquil and the ordinary trumpet Daffodil resulted in a tridymus variety. The Poet's Narcissus, the common Pheasant's-eye, and the trumpet varieties had given rise to the incomparabilis forms. As to poeticus ornatus, Mr. Engleheart thought it was a lowland early-flowering form, selected for its fine character. He also said that Daffodil seed should be sown in pots or pans in cold frames, and be allowed to stay there two years. When about the size of a Hazel nut the young seedlings are planted out in the open ground. Out of 100 seedlings only one good kind worth naming is obtained on an average. There was some discussion on the various papers read.

Narcissus committee.—At a meeting of the Narcissus committee held at Chiswick on Tuesday, April 15, 1890, the following varieties were registered: Captain Nelson, Nelson's Orange (Nelsoni aurantius), shown by Captain Nelson; P. R. Barr, Intermedius Sunset, shown by Mr. Barr; and the following seedlings raised by M. De Graaff and shown by him: Mme. Plomp, Samson, Lena, Mrs. Walter Ware, Duchess of Teck, Golden Vase, Miss White, making the total number of varieties registered by the committee fifty-four in all. Captain Nelson showed some white moschatus and self coloured yellow Ajax, raised from the same pod of seed.—C. R. SCRASE-DICKINS, *Hon. Sec.*

Besides Daffodils Messrs. Barr and Son showed a miscellaneous lot of hardy flowers. Primroses and Polyanthus of beautiful colours came from Miss Jekyll, and a box of flowers of Maréchal Niel Rose, delicate in colour and of splendid form, from Mr. H. Shoemith, gardener to Mr. Hodgson, Shirley, Croydon. Blooms of Camellia reticulata from the Society's Gardens, and of Rhododendron gloxiniaeflora, the flowers white, spotted with crimson-brown, and borne in a large truss, from Messrs. R. Veitch & Son, of Exeter, were also exhibited.

HISTORY OF CULTIVATED NARCISSUS.*

MR. BURBIDGE prefaced his lecture by quoting the sing-song lines of the children—

Queen Daffadownilly has come into town,
In yellow petticoats and a green gown—

and remarked how singularly appropriate it seemed to him this holding of a four days' tournament under the auspices of Queen Daffodil in the time-honoured and memory-haunted precincts of the Chiswick garden—a garden visited years ago by Hawthorth, Herbert, Salisbury, Sabine, Lindley, Sweet, Ellacombe, and many others of the former lovers of the Narcissus as a beautiful spring flower.

The lecturer then pointed out that a love for these fragrant blossoms was almost as old as human history itself, and gave quotations from the Homeric "Hymn to Demeter" (B.C. 1000) and from the "Edipus at Colonus" of Sophocles, both of whom mentioned Narcissus Tazetta for its glittering beauty and fragrance nearly 3000 years ago. It was next observed that the written history of this delectable flower showed the duality of human progress, since all the most noble objects of human interest had first of all obtained honourable notice (as in the present instance of the flower Narcissus) from the great poets, who were really seers or prophets instinctively gifted or inspired; hence the

bards had ever been, and were still, the true and reliable guide-posts or milestones along the great highway of human life.

Again Mr. Burbidge emphasised the fact that the best of practical workers were successful, and their best work permanent in proportion to their natural instincts rather than to artificial training, although, of course, it was conceded that apt instincts and careful training as co-existent were better than either alone. The main fact remaining that while the poets lead all progress, the practical men and the scientists follow and illustrate the truth and force of the poets' teaching. The lecturer here observed that much of the floral history must ever remain unknown. We may now-a-days, for example, never know what was the favourite flower of Helen of Troy, or that of Cleopatra, Egypt's fascinating queen, but he remarked that both these great and beautiful women must often have seen the Clustered Narcissus (N. Tazetta); and even if blue-eyed Helen did not, like Persephone, stoop to gather it from the Grass of the Grecian meadows, it was more than probable that incense-loving Cleopatra, when tired of fire-like Pomegranate buds, had often worn clusters of Narcissus in her blue-black hair, just as do the wives of sunshiny Egypt and of Arabia to-day.

Turning from poetry and speculative "guesses at truth," the lecturer next emphasised the fact that Mr. W. Flinders Petrie, the celebrated Egyptologist, had recently discovered—that is to say, in 1888—at Hawara, in Egypt, actual flowers of Narcissus Tazetta, as before alluded to. These offerings to the honoured dead are supposed to have been made by Greek residents in Egypt, and are now preserved in the collections at Kew, where they may be seen.

After the poets of Greece, however, in chronological order came the early Greek physicians, such as Hippocrates, and at a much later date Galen, both of whom recommended the usage of the poisonous or narcotic roots of Narcissus for anæsthetic and medical purposes.

Theophrastus of Eresus (B.C. 374-286) described the plant, and he appears to be the first to allude to its increase by means of seeds, which he tells us "were sometimes gathered for sowing," and he further says that the fleshy roots or bulbs were sometimes planted. As a beautiful and variable wild and garden flower in Southern and Western Europe, in N. Africa, and in the East, there is no doubt but that this flower has ever been popular, but, so far as English gardens are concerned, the Narcissus seems to have first become famous during or shortly previous to Elizabethan times, when all the greatest poets mention it, and during the same epoch both Gerard and Parkinson, the royal herbalists of their day, illustrate or describe at least 100 kinds, and of these old Gerard (1597-1633) especially writes that "all and every one of them" abounded in London gardens. No doubt the common yellow Daffodil of the woods and meadows in "Merry England" had been popular as a flower for the making of festive wreaths or garlands long before exotic kinds were introduced and cultivated in gardens, since these are mentioned by Chaucer and other early English poets, just as they were by those of ancient Greece.

When the great wave of early 17th century culture spread over Europe, choice Narcissi were imported from Constantinople and the Levant generally, as Gerard quaintly tells us was the fact, "along with other bulbous flowers," these latter including the more attractive Tulip, and no doubt the Hyacinth as well.

Mr. Burbidge next alluded to the old Dutch paintings of garden flowers, dating from 1590-1650, and in which many kinds of Narcissi find portrayal. He in particular instanced one picture now to be seen in the Louvre (No. 477), viz., "Triomphe d'Amour," the figures by Zampieri, the wreath of flowers surrounding them being by Seghers, "Le Jesuit d'Anvers," this wreath containing life-size portraits of fourteen or fifteen kinds of Narcissi and of Daffodils, some of which are the rarities of to-day. Other pictures exist in the Musée des Arts Decoratifs at Paris, in our own

National Gallery, and other collections, public and private, in which these flowers find a place, and even our English Cleopatra, Queen Elizabeth, seems to have been fond of them, since in a portrait of her by Zuccherio, hanging in the Examination Hall of Trinity College, Dublin, there is a flower of the purple-ringed or Poet's Narcissus painted in a prominent position by her side. Again, in the rare old folios and other books of the same epoch (1590-1650), many species and varieties, including several natural or wild hybrids, are illustrated either by wood engravings (mostly made at the then celebrated Plantin, or Plantin-Moretus Press, at Antwerp) or by copperplate etchings or engravings.

Especial mention was made of the works of the pre-Linnean botanists, such as L'Obel, Dodoens, L'Ecluse (who was one of the first and best of European plant collectors), Jean Robin, Gerard, and Parkinson. Mr. Burbidge also alluded to some rare works, such as De Bry's and Sweet's "Flori-legia," the "Hortus Floridus" of Crispian Passe, Junr., "Jardin du Roy" and "Theatrum Floræ," and to the ill-fated book of drawings issued by the Rudbecks in 1702, called the "Campi Elysi," of which only two or three copies exist, most of the issue, wood-blocks, &c., having been burned in the great fire at Upsala in 1702. It was stated that the only complete copy of this last work is that in the Sherardian Library at the Botanical Gardens, Oxford, but there is also a copy less perfect in the Banksian Library, British Museum, which contains all the woodcuts illustrating the Narcissi. It was also stated that portraits of two of the beautiful white Spanish Daffodils were seen by Salisbury (a noted authority on these flowers about a century ago) in the palace at Fontainebleau. They were worked in coloured silks on a fire-screen said to have been given by Henry IV. to La Belle Gabrielle. Salisbury especially tells us in the "Transactions of the Royal Horticultural Society," vol. i., that these representations were most natural and life-like, the legend worked beneath them being "Coquelourdes Blancs, 1598," or the year before John Gerard, the barber surgeon, published his famous "Herbal," which, bulky as it was, gave a great impetus to the general study of botany and gardening in England for years and years after it first appeared.

Mr. Burbidge next alluded to the history of the cultivated and wild Narcissi, and to the now numerous and ever-increasing garden hybrids and seedlings, as also to the men, like Herbert, Leeds, Backhouse, Horsfield and Nelson, &c., who have in the main enriched our modern gardens with the most beautiful forms and phases of this flower. A considerable and valuable portion of Mr. Burbidge's paper consisted of a chronological history of the genus from the days of Homer to those of Oscar Wilde. In this tabulated list mention is made under dates of all the principal poets, physicians, philosophers, and botanists who have alluded to the odour, beauty, uses, &c., of this now fashionable flower, or with whose names it has become connected.

The lecturer did not read this portion of his masterly paper, as being too long and too full of dates and detail, but as it will probably be published in the journal of the Royal Horticultural Society, which will be issued as soon as possible after the conference is over, it may then be perused by all interested in the subject on which it treats. It forms a concise and popular index to the principal men and books, and will be found handy for reference from time to time. It is needless to add that the exhibition of actual flowers of the Narcissus and the Daffodil was a most interesting one, containing as it did almost every known species and variety now in bloom.

Names of plants.—John Bennett.—Dendrobium primulinum.—H. D.—1, Dendrobium fimbriatum; 2, Dendrobium undulatum; 3, Primula cashmeriana.—H. F. T.—1, Cattleya Schroderi; the other is C. speciosissima; 2, Laelia cinnabarina.—J. Berry.—1, Dendrobium densiflorum; 2, Dendrobium fimbriatum; others next week.—A Constant Reader.—Cassia corymbosa.

* Abstract of a paper read at the Narcissus Conference, held at the Chiswick Garden of the Royal Horticultural Society on April 16, 1890, by F. W. Burbidge, M.A., F.L.S., Curator of Trinity College Botanic Gardens, Dublin.

WOODS AND FORESTS.

AMERICAN OAKS IN BELGIUM.

AMERICAN Oaks have been introduced into Belgium comparatively recently. The oldest in the country are hardly more than a hundred years old. They thrive here admirably, however, and grow with astonishing rapidity in a light sandy soil with a rather moist subsoil, the annual shoots often exceeding 4 feet in length. The Belgian Government has of late years devoted a great deal of attention to plantations of trees along the highways. Our Elm (*Ulmus campestris*) injures crops in the neighbourhood of the highways with its long superficial roots, and on this account has been largely abandoned in highway plantations; and where the soil is adapted to them, the Red and Spanish Oaks have been largely planted. In the province of Limbourg, where the soil is suited to them, thousands of these two trees have been used with the greatest success. The growth of the Red Oak is marvellous. Trees only forty-five years old have an average trunk circumference at 3 feet from the ground of 5 feet 11 inches, and an average height of more than 60 feet. The actual money value of these trees is from 24s. to 32s. In another plantation made in 1845 the trunks have an average of 4 feet 11 inches, and in still another made as late as 1852 they have an average trunk circumference of 5 feet 3 inches. If the development of the Red Oak continues to be as satisfactory in the future as it has been, we shall be able to show in Belgium trees at least 3½ feet in diameter and nearly 100 feet high.

The density of the wood of *Quercus rubra*, as compared with our native Oak, *Quercus Robur*, is: *Q. rubra*, 391; *Q. Robur*, 577. The comparison of these two totals shows that the wood of the American species is harder than that of the European. In the trials which have been made to determine the value of the wood of the American tree grown here, in carriage-building and in cabinet-making, its great value has been amply demonstrated. Where the native Oak remains dwarfed and stunted owing to a soil too light for its best development, the Red Oak grows with luxuriance; and its introduction into those parts of Belgium where the soil is light and sandy is a benefit which all landholders now recognise; and it appears evident that in a few years the American Oak will have replaced the native species in many parts of the country.

Quercus palustris seems destined, like the Red Oak, to be a very useful tree here. There are plantations in this country sixty years old, and which contain trees with trunks more than 6 feet in circumference. It appears, therefore, that this species grows more rapidly even than the Red Oak; and it is noticed that the trunk rises more rapidly than the trunks of other American Oaks. There are some beautiful plantations of this tree along the highways of Limbourg, admirable examples of luxuriant vegetation and promising the best results for the future. It is now proposed by the government to make trials with *Quercus tinctoria* and *Quercus Phellos*.—ALFRED WESMAEL, in *Garden and Forest*.

The Walnut—This is comparatively but little planted, a singular fact when the beauty and value of its wood are taken into account. For gun-stocks and much of our finer sorts of furniture, Walnut timber is invaluable. Walnut trees, moreover, are free growing on almost all kinds of soil, and the crops of nuts which they produce would pay at least the rent of the land on which they grow, while freehold might be purchased with trees of fourscore

years of age. Walnuts in a landscape, also, are trees of mark, their magnificent heads of fine foliage in parks or paddocks rendering them especially adapted for such situations. They associate well with Oak, Beech, Elm, Sweet and Horse Chestnut, as well as with various other trees, and they do not rob the land more than their companions do. Their smooth glossy leaves are washed clean by every shower, and the foliage is not so thick as to throw the rain off the Grass or to keep air currents from circulating freely among the branches. There are, therefore, no trees either in park or pasture under which herbage grows better than it does under Walnuts. Besides, Walnuts come into leaf late, make their growth quickly, and lose their foliage nearly all at once, after the first autumn frost. Thus a chance is given to take the leaves out of the way, so as not to injure the Grass, while the shining dark young wood with the greyish mature limbs are left full in view. I do not know a tree that will more quickly grow into a useful size.—J.

WILLOWS FOR TIMBER.

IN THE GARDEN, April 5 (p. 334), "J. H. D." says, "Can you or any of your correspondents tell me the best variety of Willow to plant for growing into good timber trees on a low-lying meadow in Suffolk?"

The Willow comprises a large number of species and varieties, but the following sorts are all of quick growth, attain a large size when planted on congenial soil, and may be grown either as single specimens on the lawn, or in plantations where profit is the object in view.

THE HUNTINGDON WILLOW (*Salix alba*), in favourable situations, often attains a height of from 50 feet to 80 feet, with a uniform thickness of trunk. The wood is used for a great many purposes in connection with railways, and generally commands a ready sale and a good price. When fully established it makes a fine specimen tree, the upper and under sides of its leaves being clothed with fine silky hairs of a whitish or silvery colour.

THE BEDFORD WILLOW (*S. Russelliana*) was first brought into notice some seventy or eighty years ago by His Grace the then Duke of Bedford. Like the former, it has proved to be one of the best tree Willows for general utility in the tribe to which it belongs, and all that has been said, with some slight exceptions, regarding the Huntingdon species may be applied here. As a specimen tree, however, the Bedford Willow, when fully established, has rather more of a rugged appearance than the Huntingdon species, and the leaves, although of nearly the same size and shape, have a smooth, glossy surface, destitute of the silvery hairy coating so characteristic of that variety. As both trees like a soft, loamy soil, I have no hesitation in recommending them as suitable for "J. H. D.'s" Suffolk meadow.

THE RED-WOOD WILLOW (*S. fragilis*) is another tree well worthy of the attention of the planter. Its wood is considered by carpenters to be superior to that of any other species of the tribe to which it belongs. In many parts of this country as well as Ireland the wood is used for a great variety of purposes by builders and others. I have always found country carpenters prefer the Red Willow timber to any other kind, owing to its light, tough, and lasting qualities. One great fault of the tree is, that when it attains its normal size, the top branches are apt to lose their vitality, which gives the tree an ugly appearance and renders it unsuitable for planting as a single specimen in the park or lawn. The appearance of the tree when in perfect health is very similar to that of the Huntingdon Willow, the leaves being coated on both sides with a silvery downy substance in the same manner. The Red-wood Willow will grow in any soil of ordinary texture, but prefers a damp cool soil in hollow places free of stagnant water.

THE GOAT WILLOW (*S. caprea*) is a hardy native tree of medium size, and grows in all classes of soil and situations, from the boggy swamp to dry rocky places in the fastnesses of the hills at an elevation of about 2000 feet above sea-level. I have

cut some very good timber of this species growing upon dry soil resting upon limestone rock in the natural forest at an elevation of upwards of 1000 feet. Its wood when clean grown is of excellent quality, and capable of being utilised for a great many purposes. It forms a beautiful round-headed specimen some 40 feet or 50 feet high, the dark brown glossy bark of its branches and twigs affording a fine contrast with its prominent white buds and golden coloured catkins in spring.—J. B. WEBSTER.

—In Austria we plant for timber trees *Salix alba* and *S. vitellina*. *S. caspica*, which I find to be a very ornamental tree, is also used, as it produces fine upright stems.—LOUIS KROPATSCHEK, Vienna.

The Austrian Fir.—I fully agree with what "Y." says (p. 236, GARDEN, March 8) on the excellent qualities of the Austrian Fir. In this locality (Liphook) the trees beat Scotch Fir as a shelter. It is always a remarkably healthy vigorous tree with me, forming a dense screen and never losing its good shape or dwindling off with a shabby appearance. Eighteen years ago its good qualities were not so well known as they are now, but fortunately I fixed upon putting it in the most exposed and windy situation I had to plant in where it was necessary to hide out a road and building, and I have always rejoiced that I decided on it for that purpose.—M. R.

Fencing.—This is an indispensable operation in the preparation of ground for planting. It ought never to be considered a point of minor importance, but ought to be attended to immediately after the clearing of the ground, lest the future operations of making roads, drainage, and pitting might suffer damage from stray cattle or other causes. In selecting a fence for a plantation the first object to be aimed at is durability; next, the least possible ultimate expense. In some cases a necessity for ornament may guide the selection, but in all other cases, and where the requisite material can be obtained, a stone dyke is to be preferred, both for durability and ultimate cheapness. In many situations, however, it may be difficult, or altogether impossible, to obtain stones; in such cases a wire railing with Larch posts offers a good substitute; and, if economical considerations extend beyond the present, a little extra labour and expense in charring the ends of the posts or dipping them into some solution to resist the decomposition which inevitably ensues from contact with the soil, and coating the part exposed to the atmosphere with boiling coal tar, or other solution suitable for the purpose, will eventually pay, by increasing the durability of the paling. Where cheapness guides the choice, a dyke and ditch, with a hedge of Whins on the top—the materials of which the dyke is built being taken from the outside—will form a fence of considerable efficiency, although this is, at best, but a clumsy and not very certain protection to the plantation, especially for the first three or four years, when the trees are young. In such places as require an ornamental fence, a hedge is, no doubt, the most suitable; Beech, Hornbeam, Holly, and Thorn are the more common materials, but the two former do not offer such resistance to animals as may, in many instances, be desirable; the two latter will, in time, make an excellent fence, especially Thorn, which offers greater resistance to animals than Holly, and is also much cheaper. Holly, being an evergreen, may be preferred in some instances; still, as a general rule, Thorn is the best. Hedges, however, require to be protected for a number of years by a paling. Care should be taken to select such material, and to give it such treatment as will make it last till the hedge is a sufficient fence. Hedges also entail considerable expense, not in the original laying down merely, for continued yearly attention must be paid to them, and they amply repay it all by the charm they give to the landscape.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

WEEDS.

WHAT is a weed? It is generally easier to ask a question than to answer it. If we say, of course, every wild flower is a weed, it would evidently be a great mistake; for, on the one hand, many wild flowers are cultivated with the greatest care in some gardens. The yellow Toad-flax (*Linaria vulgaris*), which in some parts of the country abounds on the top of many a hedge, thrusting its beautiful yellow spikes high up above Brambles and Grass, and known commonly by the name of Butter and Eggs, will in other places be carefully cultivated as anything but a weed, rather as a treasure which brightens the summer garden. On the other hand, there are many plants which are grown only in gardens, but which deserve most distinctly the name of weeds, because of their inveterate habit of defying all your efforts to get rid of them. In the west country such plants are said to "wrestle," that is, their long, tough, fibrous roots run underground, and the leaves re-appear in all directions just where you do not want them. I suppose that nasty weed, Couch Grass, is the most flagrant instance of this. But the Japanese Anemone is almost as bad, and once you let it gain a footing in a rockery, because of its fine autumnal red flowers, it will give you some trouble to keep it in order. It is like the famous Hydra, which only Hercules was able to destroy, and even he could not do it without help, because as soon as one head was cut off, two immediately appeared in its place. Another plant, *Tussilago fragrans*, is even worse than *Anemone japonica*. Many have been tempted to plant the *Tussilago* on a sunny bank, because of its peculiar flowers, which come in mild weather in the very depth of winter, and are, as the specific name denotes, very fragrant. It has acquired the name of Winter Heliotrope, and it deserves it. On this account many are pleased to have it, but as years go by they repent of having established an enemy which no mere hoeing or weeding will kill. In the kitchen garden the Jerusalem Artichoke has the same habit, so much so, that some say you may dig your Artichokes in autumn, and next year they will give you a crop again without any further trouble.

Yes, there are weeds and weeds. "Take away that nasty weed," I heard a lady say once; "let me see no more of it in the shrubbery." I went to look at the nasty weed, and found it was the very pretty *Geranium pratense*, or Meadow Crane's-bill, which has large, lovely blue flowers in the summer-time. This plant grows wild in many of our sunny pastures, and lines the railway as you go from the Stroud valley towards Swindon, and it was probably just because it thus grows wild that it was called a nasty weed, and was ordered to be thrown away as speedily as

possible. It has a place in my garden, and is one of the most beautiful of the many fine things in the herbaceous border.

How beautiful many of our genuine weeds are! The wild single Daffodil, which has now just passed away, is, I think, a weed, but it can hold its own with its aristocratic cousins, which get such grand names as Emperor and Empress, Her Majesty, Autocrat, Gloria Mundi, &c. This beautiful Lent Lily grows abundantly in orchards and wild sunny waste places, but it looks quite at home on the gilded tables of our drawing-rooms, where it may be seen in company with Orchids and exotics which have never known the breath of our English air.

Another weed in flower at this time, and almost equally useful for gathering and decorating our rooms, is *Caltha palustris* (Marsh Marigold). It is often hard to get at this on account of the wet places in which it likes to grow, but its golden cups are wonderfully bright and beautiful. A weed which often makes itself troublesome in our gardens and shrubberies is the wild Garlic or Ramsons. I must confess to a certain liking for this plant, though it has such a very strong smell. On one part of the road between Saltash and Callington, in East Cornwall, the smell is so strong in June, that it seems for a quarter of a mile as if Onions were being rubbed just under your nose. But the flower in itself is beautiful and even sweet. We all know how useful the near relation to this wild Garlic, *Allium neapolitanum*, has proved itself to be as a plant to force for winter nosegays, and Ramsons would be almost as good were it not that its leaves and stalks smell more powerfully than the neapolitanum.

A GLOUCESTERSHIRE PARSON.

ORCHARD AND FRUIT GARDEN.

FRUIT PROSPECTS.

ALTHOUGH the winter on the whole has been a mild one, fruit trees at the present time (April 18) are very backward, and will continue so unless we have a speedy change from the dark cold sunless weather which has prevailed now for some days, the only redeeming point being the absence of rain or snow, with which the atmosphere seems loaded to depression. If this impending fall from the north-east overtakes any part of the country, a return to sharp frosts may be expected, when the prospect among Plums, Pears, and Cherries will be a very poor one. If, on the other hand, the wind veers round to the west and the black fog passes away, I see no reason why standards and bushes as yet safe may not yield good crops of fruit, and although at the present moment most decidedly late, the difference at midsummer may be trifling. Apricots, the earliest in flower in many places, have been hard hit by the severe, but dry frosts which prevailed a fortnight ago, and Peaches in some gardens are causing a certain amount of anxiety, but here, where well coped and sheltered by double-ply fishing nets, not a petal has been discoloured, and the fruit, I believe, has set profusely. The trees, moreover, quite free from aphids, are breaking into excellent growth and are quite forward enough for disbudding, but this operation most certainly will be delayed until we have a change and the flow of sap be-

comes more active. Our movements, then even, will be regulated by great caution, the cardinal point in spring management being the avoidance of the slightest check by the removal of too much foliage until the weather becomes genial and settled.

Pear trees are carrying a magnificent lot of bloom; the flowers of good average size, but not so abnormally large as those which did not produce fruit last year. All the midseason flowering varieties on walls with us are safe so far, but the extremely early sorts, including Jargonelle, have suffered. Pyramids and standards as yet are not in flower, a tree here and there just bursting; whilst the others are waiting for a blink of sunshine to convert them into masses of delicious inflorescence. Taken individually and collectively, Pears in this district are wonderfully promising, and all that we now want is a mild, genial time, made up of the sunshine and shower which should characterise the dying days of a dry, but so far biting April.

Common Plums have produced more bloom than was at one time anticipated; but the frost must have left its mark upon the trees in the Vale of Evesham, whence the stereotyped cry for Divine help may soon be expected. A full crop of Pershore and Victoria Plums means good times for middlemen, much waste in the producing district, and a great deal of grumbling. The "God help us" cry, I have often noticed, is followed by fair crops, which pay for picking and sending to market, where consciences know very little about glut or scarcity, the difference in price in good and fair seasons being out of all proportion. Choice dessert varieties with us on walls as well as upon standards and bushes are thinly flowered; but this, I believe, is the only hitch, as Cherries are simply magnificent—so good, indeed, that Nature, according to modern theory, will have a busy time in selecting her fertile blossoms.

Apples look very promising, and west country Blenheims, if left alone by the grub, may produce crops which will gladden the hearts and line the pockets of rich and poor, including of course the small section of gentlemen who do not think it worth growing. Late-flowering many people think favourable to a good set of fruit, and some insist upon the raising of extra late-flowering varieties, but if the crops from that latest of all Apples, Court Pendu Plat, may be taken as a test, there is nothing in it. I am not prepared to say the general flowering this year will be unusually late, but when in past seasons it has been, the foliage has got too far in advance of the fertilising stage, and crops have proved unsatisfactory, not perhaps altogether owing to the lateness of flowering, but partially, if not entirely, to the imperfect maturation of the wood of the preceding season.

Bush fruits look well, especially where the busy bullfinches were kept off them early in January, and the foliage being well advanced we may reasonably hope for a profitable crop. Of Strawberries it is as yet too early to say much, but judging from the appearance of the very early varieties and the way in which plants generally are throwing up fresh young leaves and swelling their hard red crowns, the blossom will be abundant and good. So far Nature has done her best, and superstitious theorists will say, Leave her alone; she has made her selection of certain flowers, which by and by she will set and swell into fruit. The practical man who believes in the help which comes of helping himself will lighten her load by thinning the flowers where he can, and will regret his inability to go over the whole of his trees. One thing, however, he can do: he can top dress

and mulch, for the subsoil on heavy lands is none too wet, and later on he can ply soap-suds amongst the branches and liquid over the roots. —W. COLEMAN.

—Plums, Damsons, and Pears, have so far found anything but pleasant weather for the fertilisation of the bloom. Should there be a good set of fruit on these trees after all, it will be conclusive evidence that the bloom is much harder than credit is usually given for. Whilst we have had almost without cessation cold sweeping winds from the north and east, just the sort of thing to promote fly in abundance, we have had few showers so far, and these generally cold. One day, that of the 16th, was such a remarkable exception to the rule, being so warm, soft, and genial, that it stood out a real summer's day in a desert of cold wintery gloom. The long prevalence of the wind in the east during the spring months constitutes one of the greatest difficulties of the fruit grower, for it seems useless to expect that bloom exposed to weather of that kind for several weeks can in the end prove fertile and produce healthy fruit. It is too early yet to tell what has been the effect of the wind upon the bloom. The harm is usually most evident after the fruits have slightly begun to swell, then they fall thickly, and what is left are perhaps few indeed. We are almost universally suffering from the lack of shelter from the east at this season, and it is almost useless for anyone to embark in the cultivation of hardy fruit without making some provision for protecting the trees from the fierce sweep of the enemy. Apples generally are now showing their bloom-buds, and the report is that the promise is far less than was at one time expected. On the whole, the bloom promise does not exceed one-third of what was looked for, although, should we have a more favourable time when that bloom is open, the bulk of it may set, and if so, then the fineness of the resulting fruit crop will largely compensate for the lack of quantity. Cox's Orange Pippin seems to give better promise than almost any other tree, and if we get a good Cox's season some satisfaction will be provided. Cox's Orange Pippin has, however, of late on standard trees not been a heavy cropper. It doubtless is fastidious as to its seasons, but then good average Apple seasons are rather rare than otherwise now. Various reasons have been given for the comparative thinness of the Apple bloom on older trees. I hear that on the nursery trees it is remarkably good, but these, of course, exist under very diverse conditions from those in market gardens and orchards. Amongst other reasons given for the lack of bloom is the cold ungenial weather of the latter portion of last summer. That may be a valid reason. Still, on the whole, the year did not seem to be a bad one for the general production of bloom buds, as is evidenced in the appearance of all hardy trees other than fruit trees, which promise a very fine bloom. Apple trees doubtless mature or ripen their wood later than do probably any other of our hardy trees, and there can be little doubt but that failure to fully mature growth in one season is felt during two or three succeeding years. Apples, of course, fruit on the wood made two seasons previously; hence we are this year looking for an abundant crop of fruit upon the growth of the wet season of 1888, when it is notorious all wood was indifferently ripened, and Apple wood, because it is late in maturing, worse than most other. I regard that as the cause of the present somewhat unlooked for paucity of Apple bloom. It is quite open for others to contest the position, and if it is wrong let it be exposed. In any case I see no other sound reason for this comparative failure to bloom on the part of our Apple trees, because generally, although there were defects, yet, on the whole, last year was not unfavourable to Apple wood maturation. —A. D.

Vine leaves unhealthy.—I have enclosed one Vine leaf. Could you tell me through the columns of your paper what is the matter with it? I have several Vines, and all the leaves are blistered like the one sent. I have also got thrips on the leaves. Could you kindly tell me how to

get rid of them? There is a good prospect for Grapes, and the berries are nearly all set. —J. YOUNG.

** I have carefully examined the Vine leaf, bruised and discoloured in transit by post, but have not succeeded in finding a blister. It is, however, covered with warts on the back, brought about by confinement in a close, warm atmosphere too heavily charged with moisture. Give more air to the house by night and day, but avoid cutting draughts, and whilst steering clear of an opposite extreme, be less liberal with the damping-can through the hours of darkness. The leaf, of full average size, is deep green, of good substance, and in all other respects healthy, strong points in favour of speedy recovery, and perfect finish of the Grapes now setting. Mr. W. Thomson in his excellent remarks upon diseases says: "This is a sort of conglomerate of little green warts that form on the lower surface of the leaf, as if the result of extravasation of the sap through its epidermis or skin. Some say this is not a disease. If it is not such, strictly speaking, it is at least organised matter in the wrong place, and I am confident it seriously impedes the perfect functions of perspiration, digestion, and respiration, so that if not in itself a disease, it leads to functional derangement, which is nearly the same thing." He undertakes to produce or cure it at any time between the first expansion of the foliage and the stoning of the fruit by following your course, or adopting the more air and less moisture system I have just laid down for your guidance. If properly cleansed and the vine kept for the Vines, thrips should not yet put in an appearance. It is as yet too early and risky to venture upon fumigation with tobacco paper, an operation which must be performed three times within a fortnight, that is, when the Grapes and foliage are well matured; therefore your only preventive measure for the present is sponging with tobacco water. If dirty plants are in the house remove them at once, and look over the foliage from day to day, otherwise the thrips will gain the upper hand and spoil both bunches and foliage. Thrips are not really Vine insects, but once they get thoroughly established they are almost, if not quite as persistent and obnoxious as bug, and more troublesome than red spider. Why not invest a few shillings in a good work upon Vines, read carefully, and so avoid this worry and risk in the future. —W. COLEMAN.

THE GOOSEBERRY.

MUCH has of late been written respecting the culture of various fruits, such as the Apple, the Peach, and the Apricot. The Gooseberry, too, which naturally divides itself into four distinct sections, viz., varieties producing respectively red, white, yellow, and green fruit, is also worthy of attention. It is by no means particular as to soil or situation, but will generally be found to succeed best in moderately rich ground which has been drained, if found necessary, trenched and properly prepared for the reception of the plants. In the comparatively moist and cool atmosphere of the north of England and Scotland, the Gooseberry is generally considered to succeed better and to be of better quality than is the case with the same varieties in the drier atmosphere of the south and east of England. With ordinary care, however, there is hardly any locality in which this fruit will not succeed. The bushes, placed in lines some 6 feet or 7 feet apart, should be subjected to an annual system of pruning, and in order to admit light and air to the fruit it is advisable to keep the plants somewhat open in the centre by a careful thinning out of the branches. In some gardens of late years this annual pruning appears to have been discontinued and the bushes are left to grow as they may, or at most to have their young shoots, where they may encroach upon walks or other adjoining objects, shortened by the hedge shears. The result of this obvious neglect is, that the bushes soon become so crowded with superfluous shoots that it is next to impossible to gather the fruit, even if it should become ripe, and such fruit is generally, as might be expected, inferior to that produced by bushes which have been subjected to a judicious system of

thinning or pruning. In most cases, however, it is advisable to delay the pruning until the spring is somewhat advanced and the buds are about to unfold, as the crops of fruit very frequently fail from late spring frosts; the buds are also apt to suffer from the attacks of the bullfinch and other depredators, which will strip off the buds and thus frustrate all hopes of a crop of fruit, more particularly when this attack is made after the pruning has been performed, and consequently fewer buds to spare.

The Gooseberry is also amenable to various other methods of training, such as in the form of a standard, or a pyramid, or trained against a wall, where such varieties as the Red Warrington when grown upon a north aspect will succeed admirably, and the fruit will ripen, and has been known to keep in good condition until as late as the middle of November. The plants may also with advantage be grown in the form of pyramids some 6 feet or 8 feet in height, or even higher if desired, and will in this manner furnish fruit of the finest quality. When it is intended to grow the Gooseberry in this form, the posts or stakes, after the lower end or the portion intended to be fixed in the soil, has been well charred, should be securely fixed in the ground; a healthy young plant should then be placed against each stake, from which should be trained four shoots as leaders, and from these lateral branches should be allowed to grow in order to form the pyramid. Some varieties from their natural style of growth are better suited to this purpose than others, and possibly no variety is better adapted than that which has been already mentioned, viz., the Red Warrington, which may be regarded among Gooseberries as the Ribston Pippin among Apples, the Moorpark among Apricots, or the Green Gage among Plums, &c. At all events, it will be found that varieties whose lateral branches naturally form a curve can more readily be made to form a graceful pyramid than sorts of more upright growth. Pyramidal Gooseberry bushes, or trees such as I have endeavoured to describe, will, particularly when carrying a fine crop of fruit, be found to be objects of interest, if not of considerable beauty, and the fruit can be readily gathered.

The bullfinch has been already mentioned as a deadly foe to the Gooseberry crop, as indeed he is to the crops of most out-of-door fruit trees. Some of his friends have more kindly than correctly suggested that he only removes fruit buds in his search for noxious insects, which would be equally, if not more injurious to the crops of fruit. The bullfinch is, however, by no means insectivorous. There is, however, yet another fatal enemy to the Gooseberry, and about which no scruples need prevent the waging of a war of extermination. I, of course, mean the caterpillar, and for this pest a careful watch should be kept upon all plantations during the early spring months. There is possibly no more effectual remedy for this evil than the application of Hellebore in the form of powder, which can be obtained from all chemists, or in the form of a decoction; if used as a powder, the bushes should be well dusted with the same on a still evening. If the decoction is preferred, it should be about the strength of one pound to ten gallons of rain water, and should be allowed to stand at least twenty-four hours before being applied. A still evening should also be selected for the purpose, and the mixture applied with a garden syringe. Seldom more than one or two dressings will be found necessary, and by neglect of this very simple remedy the crop is often ruined, and the plants seriously, if not fatally injured.

The fruit of the Gooseberry is useful in all stages of its development; in a green and unripe condition it is highly appreciated and much used for cooking, and when ripe some of the sorts form the most delicious preserves; while for the dessert table there are varieties in each of the four sections which some people will prefer to almost any other kind of fruit. What are known as the Lancashire varieties are celebrated for their immense size, and are highly valued for exhibition, but the quality of such fruit is generally found to be inferior to that of the small or medium-

sized varieties, and they are consequently seldom extensively grown in ordinary garden establishments. P. G.

PROPAGATING FRUIT TREES.

THE relative value of the different methods of propagating fruit trees is frequently discussed, but often from a too narrow and local experience. In Southern Maine, for instance, nearly all the fruit-growing farmers habitually denounce root-grafted and low-budded trees as worthless; and "New York trees," even from the best nurseries, are looked upon as frauds all over Northern New England. It is needless to say that this is unjust; but the feeling, nevertheless, exists, is very widespread, and has its basis on what is supposed to be a general experience.

The approved method of propagating Apple trees in Southern Maine is to grow seedlings in a nursery up to four or five years, to select the most thrifty for planting in the orchard, to set them out, and three or four years later top-work them by grafting or budding in the limbs. This produces a tree that satisfies the requirements of that region, and the same process is in vogue in all Southern New England, though low-worked trees are not much objected to in Massachusetts, Connecticut, or Rhode Island.

In Northern New England and the eastern provinces of Canada the case is again quite different. Here experience has shown that not one Apple seedling in a hundred, grown from seeds of fruit brought from lower New England, will survive the test winters. In these sections root-grafted or very low-budded trees have exclusive preference, upon quite as solid grounds of experience as top-worked trees in Southern Maine. If top working is ever successful in the "cold north," it must be a double working—the stocks being first root-grafted or low-budded to some "iron-clad" variety and then re-worked in the branches after they have been established in the orchard.

It may appear strange that such diverse views should prevail over what may seem not a very wide extent of country. This extent is greater, however, than many suppose—the extreme distance between the St. Lawrence River and Long Island Sound covering between 7° and 8° of latitude, with a difference in winter climate as great as that between New Jersey and South Carolina.

In the Apple-growing region of Maine, extending but little more than fifty miles back from the seacoast, Apple seedlings from home-grown seed are usually hardy enough to be used in the orchard for top-working successfully such varieties as the Baldwin, Rhode Island Greening, Northern Spy, and Roxbury Russet, which are the leading commercial Apples of that section. Not one of these Apples, nor of such autumn varieties as Gravenstein and Porter, are hardy enough, except quite near the coast of Western Maine, to endure the climate when worked low. So grown, the young trees suffer in the trunk from the hard winters, and become unsound and unprofitable in a very few years. This explains why "New York trees" have so bad a name there; and the same is the case with the strip of country of about equal width extending west from Maine to Lake Champlain.

South of this belt, in Southern New Hampshire and Vermont and in the three lower States, low-worked trees are again available. The only other section where the conditions of Southern Maine are encountered is in the upper Champlain Valley. Here, again, the great commercial Apples named must be top-worked to be enduring; but elsewhere in Northern New England and in the provinces a climate is reached in which not even top-worked Baldwins, Greenings, &c., can endure the winters. Here an entirely different class of Apples is called for, and the ill repute of "New York trees" is due, not to the way in which they are worked, but to the tenderness of the varieties offered. Root-grafted or low-budded Oldenburgs, Wealthys, &c., succeed well; and were it not for the misrepresentations or the ignorance of those nurserymen who are sending out such insufficiently hardy kinds

as Mann, Pewaukee or Wolf River, root-grafted trees of the "iron-clad" varieties would find a large market there. In fact, considerable quantities of New York grown Oldenburgs, Tetofskys, Wealthys, Scott's Winters and Yellow Transparents are now sold there, although the dealers, well aware of the old and strong prejudice, declare them to be home grown.

As all this ignorance, and consequent prejudice, is injurious alike to the growers and planters of trees, it well behoves all those of the former class to inform themselves thoroughly about the hardness of every variety they grow. As their location deprives them of practical experience on the subject, they ought to study the reports of the local horticultural and pomological societies. There is a rich mine of knowledge to be found in the reports of Iowa, Minnesota, Wisconsin, Ontario, Quebec, and Maine; and every commercial orchardist in those sections, as well as every nurseryman desirous to supply the "cold north" with trees of a quality that will enable them to hold their trade, has need of it. It is quite as necessary to know what will not as what will answer to plant in every county where a sale is sought. There are no better trees than those grown in the New York nurseries, but a sort of supercilious attitude in a few of them stands in direct antagonism to their own interests as well as to those of their patrons.—T. H. HOSKINS, *Newport, Vermont, in Garden and Forest.*

NOTES OF THE WEEK.

Grouping Rhododendrons for colour.—I am rather impressed with "West Surrey's" ideas re the grouping of Rhododendrons. As we are just commencing in Rotten Row, I will plant two beds as near as I can after that arrangement of colours.—ANTHONY WATERER, *Knaphill.*

Ribes sanguinea.—I send you some flowers of this which I have found in an old garden. The flowers strike me as being larger and finer in colour than any I have seen before.—T. SMITH, *Neurby.*

*** The racemes of bloom are certainly larger and the colour richer than usual.—ED.

Veitch Memorial medals.—At the usual general meeting of the Fellows of the Royal Horticultural Society, on Tuesday last, Sir Trevor Lawrence, Bart., presented a Veitch Memorial medal to Mr. David Thomson, Drumlanrig Gardens, and to Mr. Bruce Findlay, curator of the Botanic Gardens, Manchester, for distinguished services to horticulture.

Chrysanthemum Mrs. A. Hardy.—By this post I send you a flower of the well-known new Japanese Chrysanthemum Mrs. Alpheus Hardy, which comes from a plant about 2 feet high grown in a 4-inch pot. It was a small branch about 8 inches long, broken off last autumn by accident, and I put it into a 2-inch pot, and paid no more attention to it, until I saw it coming into bud; then I shifted it into a 4-inch pot and kept it well watered. This flower has been on the plant nearly three weeks.—A. J. MANDA.

Spring Starflower in masses.—In the garden at Betteshanger Rectory are some of the largest masses of *Triteleia uniflora* I have ever seen, covering from 1 yard to 2 square yards of ground. They are so thickly matted together that no weeds can possibly grow, and a few days ago were a perfect mass of waxy-white, starry flowers, abundant evidence that they will not suffer, but rather gain if left to themselves for several years.—W. H.

Early Sweet Peas.—I forward five varieties of Sweet Pea flowers to show how beautiful they are when forced under glass, and how delicately the various colours are developed. The varieties—Black, White, Purple, Scarlet Invincible, and Princess Beatrice; this last variety a beautiful pink, will, I anticipate, be greatly sought after as it becomes better known. We cut the first blooms on March 10.—J. T. EBBUTT, *Winstade Gardens, Exeter.*

*** Very fresh and welcome.—ED.

A remarkable plant in flower now at Kew is *Aristolochia Goldieana*, a rare species, found by Goldie in the jungles of Old Calabar. The flowers are of immense size, measuring over 1 foot across, and with the end of the tube dilated so as to resemble a huge trumpet. The brown colouring on the expanded portion is very deep, and the odour decidedly unpleasant. The bands of brown alternated by bright yellowish green in the tube are very striking, and seem to light up the whole flower.

lowish green in the tube are very striking, and seem to light up the whole flower.

Rose Niphetos.—I have sent you a bloom of a *Niphetos Rosa* growing in an 8-inch pot. There were five other flowers on the plant, one equally fine, the others in different stages. The plant, now crowded with buds, is growing in good loam mixed with clay and manure. The bloom sent was cut yesterday (Tuesday) evening. Is it not unusually fine for that variety?—SUNNYSIDE.

*** A large and handsome bloom.—ED.

A fine form of *Odontoglossum Andersonianum* comes to us without a name; the flower is finer than that of any variety we have seen, broad, excellent in form, and beautifully flushed in the petals with rose, giving way to creamy white at the margin; the petals are wholly of this colour, and together with the sepals richly spotted with chestnut-brown, the lip having a blotch of the same colour at the base, the centre bright yellow.

Chysis bractescens.—This beautiful Orchid is flowering profusely in the collection of Mr. C. E. Brotherton, The Elms, Beckenham. The plants have been well rested, and during the dormant season placed close to the glass to receive full exposure, the result being that some of them carry a large quantity of bloom. When thus seen in excellent condition few Orchids have the beauty of the none too common *C. bractescens*.

The Hanbury Institute.—Mr. Thomas Hanbury, of the riches of whose garden at La Mortola we have so often had occasion to speak, has founded, in connection with the University of Genoa, a botanical laboratory and museum, which will be placed under the direction of Professor Penzig. The botanical institute will be open to all properly accredited students, whether connected with the University or not. It is expected that the buildings will be finished so as to be utilised for the Botanical Congress, to be held at Genoa in 1892, in connection with a Geographical Congress and the Columbus festival.

Cattleya calummata.—This beautiful *Cattleya* was shown by Messrs. J. Veitch and Sons at the Drill Hall on Tuesday last, and ranks amongst the finest hybrids yet produced in this genus. It was raised by M. Alfred Bleu, in France, from a cross between *C. Aclandiae* and *C. intermedia*, and it resembles the first mentioned in growth, while the leaves are like those of *intermedia*. The flowers are richly coloured, the sepals and petals tinged with a flesh shading, and freely spotted with magenta; the side lobes of the lip being white flushed with purple, and the front lobe entirely self-rose-purple, and finely toothed at the margin. The flower which measures about 4 inches across resembles that of *C. Aclandiae* in shape.

Hybrid Narcissi.—The Rev. G. H. Engleheart Appleshaw, Andover, writes as follows:—

Among my *Narcissus* seedlings here a most beautiful thing, to my mind, has appeared this year, the result of a cross between *N. ornatus* and *N. tazetta*—Bazelman major—a three-flowered tall stem of flowers, approaching poeticus in size, creamy-white, with orange-tinted centre, like a glorified *Tazetta*. I have but one bulb as yet, and am in terror lest it should die, my experience having been that *Narcissus* seedlings often exhaust themselves in their first effort to bloom. It is a new departure in the way of *Narcissi*. This interesting and charming flower was exhibited on Tuesday last at the Drill Hall, and named George Engleheart. It is as described by the raiser, and is as fragrant and pretty as the Pheasant's eye itself. Besides this novelty, there were several other hybrid *Narcissi* from Mr. Engleheart, showing the beautiful things that can be raised by cross-fertilisation, and usually having for one parent a form of poeticus. In his Andover garden, however, Mr. Engleheart has other crosses, one of the *Ajix* types surpassing Emperor in size, but in its bigness of form approaching to what we wish to avoid in the now graceful flowers of the *Narcissi*—coarseness. These poeticus crosses are as graceful and refined as any variety of *Narcissus* in cultivation, one especially deserving a word of comment, namely, Garnett, being a hybrid between poeticus ornatus and Mary Anderson. It is a lovely thing, the perianth flat, firm, well shaped, and of the purest white, with each segment as broad as in ornatus itself; but the cup is in the centre pale yellow, the

margin brilliant vermillion—quite a distinct and telling shade, and not orange-scarlet, as in *C. J. Backhouse*. Then we have another gem, having also for one parent *ornatus*, and the other the incomparabilis form *Hudibras*, thus obtaining a flower with a pure white perianth and a pretty shallow self canary-yellow cup, deepening in colour at the margin. A cross between poeticus and tortuosus has given a refined flower, in which we have the creamy-white shade of tortuosus and a pale brownish-tinted chalice. It is not so distinct as the others described, but it is a lovely flower in its way. A few notes on Mr. Engleheart's interesting lecture at the Narcissus conference, in which he gave an account of his work amongst hybrid Narcissi, will be found on p. 378.

Tacca artocarpifolia.—Those in search of a remarkable stove plant should be gratified by this *Tacca*, now a feature of interest in the stove at Kew. *Tacca* is a small genus comprising some nine species, three only of which, we believe, are in cultivation, the largest of the three being *artocarpifolia*. It has a tuberous root, and many leaves produced on stems each from 3 feet to 4 feet high, while the erect flower-scapes are about 2 feet taller, each having a whorl of bracts around the cluster of brownish-green flowers, which have an additional interest by reason of the thread-like brown filaments that hang down and give the plant a remarkable and peculiarly distinctive character. *T. artocarpifolia* comes from Madagascar, and wants plenty of heat throughout the year, also an abundance of water and a rich soil. Though some may regard it from this note as more curious than beautiful, it is fit to grace any stove, as it has a stateliness of habit besides its curious and distinctive features.

Hardy Orchids at Chiswick.—Amongst the exhibits at the Daffodil conference were some unusually well grown spikes of the pretty and rare *Orchis Robertiana*. Rarely have I noticed such dense, long, and deep-coloured spikes of flowers, some of the individual specimens measuring 7 inches in length and as much as 2½ inches in diameter. It is a pretty Orchid, but one that I could never manage satisfactorily out of doors, although I have coaxed and coddled it in every conceivable way. Our two native species, *Ophrys aranifera* and *O. arachnites*, were also shown in excellent form, the blooms being numerous, well formed, and richly coloured. The Continental *O. bombylifera* charmed me with its big, showy metallic-hued flowers, and which, judging from their size and substance, were well grown, and showed that whether in this country or at home the plants that produced them must have been in very suitable quarters. Would some one who has seen *Orchis Robertiana* growing in its native wilds tell us what are the conditions under which it is most happy—soil, site, and aspect—for so showy and distinct a flower is well worthy of being established in one's garden.—A. D. WEBSTER.

Clanthus Dampieri and its varieties.—There can be no doubt that there are at least three distinct varieties of this most beautiful species of Glory Pea known to horticulturists, and of which coloured portraits have been published, which can be seen and referred to in any horticultural library. Herr Louis Vieweg, of Quedlinburg, Prussia, is also quite right in his assertion that the name affixed to the variety recently figured in THE GARDEN, and which was raised and is now being distributed by him, is incorrect, as the true *C. Dampieri marginatus*, which is well figured on plate 274 of the 5th volume of the *Floral Magazine*, is a pure white flower, with the exception of the conspicuous black boss in the centre, similar to, but rather smaller than that in the type form, and a narrow scarlet band, which evenly surrounds the upper and lower petals of the flower, and also the two narrow scythe-shaped petals which occupy the centre of the flower, the points of which overlap one another. This most beautiful variety was raised by Messrs. E. G. Henderson and Sons from seed imported from Australia, but from the difficulty, amounting almost to impossibility, of successfully cultivating it on its own roots, it soon dropped out of cultivation, and is now in all proba-

bility lost to our gardens till seed can be again got from Australia or New Zealand, where it seems also to be indigenous. Now that it has been discovered that this beautiful plant can be successfully grown in the open air during the summer months when grafted on *C. puniceus*, it should be seen in many gardens during the coming summer. The extremely moderate price at which grafted specimens can now be obtained should put them within the reach of every lover of curious and handsome plants. It has been asserted by some authorities that *C. Dampieri*, being a biennial, will not live longer than the second year even when grafted on to its perennial cousin, and it will be most interesting to see whether this is the case or not.—W. E. GUMBLETON.

Miltonia Warszewiczii.—The colouring of the flowers of *Miltonia*, although often rich, and even brilliant, does not in any other instance produce the bizarre effect seen in this species. A great variety of shades, and even colours, has been noticed in cultivated plants, but the same curious and striking combination of colour is apparent in all. A fine form is now flowering at Kew. The flowers occur on an erect spike 1 foot high, each flower being over 2 inches across. The narrowly oblong sepals and petals are very much undulated at the edges—almost frilled, and are chiefly of a brownish purple, the margin being white. The lip is an inch wide and rather deeply notched at the end. The centre of the lip is bright brown, and surrounding this is a large patch of soft brownish purple; the margin is white and the crest bright yellow. By many this singular association of colours is not considered handsome. The species, which is a native of Peru, has at different times ranked as an *Odontoglossum* and an *Oncidium*. The general appearance of the flowers and the thin, flattened pseudo-bulbs indicate that the above name is the most appropriate.

Bouquets.—I send you a few photographs of hand bouquets, or posies as they are now called. They show some of the more modern styles, which are certainly a great improvement on the much-abused circular flat bouquets. Foliage is now extensively used, and the flowers are so arranged that they stand up among the foliage in a most attractive manner, every individual flower being free and shown off in a natural style. A feature in floral arrangements of the present time is the great variety of coloured foliage used. As will be seen in one of the photographs, brightly coloured *Croton* leaves, *Begonia* leaves, and a variety of other foliage, including *Asparagus plumosus*, are arranged with a few *Roses* and *Azalea mollis*, these being of a soft delicate shade of colour. The arrangement of *Tulips* and *Acacia mimosa* with plenty of foliage is another very pretty posy. Ribbon is not only used as a finish off at the stem of the bouquet, but is often mixed in with the flowers, as shown in arrangement of *Lily of the Valley*. I cannot say that I am an admirer of this style; it is, however, very effective in its way. There appears to be no orthodox fashion for floral arrangements at the present time, variety and distinctness being the great aim of the florist. The large circular bouquets are by no means extinct, and although they may be frequently seen of great size, the flowers are not crowded together—at least, not when they are arranged by those who understand their work.—F. H.

** The photographs sent are not sufficiently clear for engraving. The arrangement of ribbon with *Lily of the Valley* is quite out of character. Every flower as nearly as possible should be used with its own foliage. What can be prettier than a few sprays of *Lily of the Valley* lightly arranged with its own leaves?—ED.

Rhododendron Falconeri.—Even when not in flower this Himalayan species is very striking. The thick oblong leaves are larger and of more substance than those of any of its allies, frequently measuring 1 foot in length by 6 inches in width. The flowers are produced in densely-packed heads, measuring 8 inches to 10 inches across. The corolla is bell-shaped, nearly 2 inches in diameter, and of a purple-tinted white with a purple blotch at the

base. *R. Falconeri* may be grown outside in this country in unusually sheltered localities, but near London it is not a success, unless provided with some protection during late winter and spring. At Kew it is grown in the temperate house collection, where a plant 10 feet high is now in flower. Sir Joseph Hooker, in his Sikkim travels, noticed trees 30 feet high with trunks 2 feet in diameter at the base. It was originally discovered in the Eastern Himalayas, on the summit of the Tonglo Mountain, at an altitude of 10,000 feet. It appears to have flowered for the first time in Europe in Standish's nursery at Bagshot in 1856.

DAFFODILS FOR MARKET.

At the Narcissus Conference on Thursday, April 17, Mr. James Walker, of Ham, read an interesting and practical paper on "Daffodils for Market," dealing with the subject as only a man can who has grown Daffodils for profit by the acre. Want of space prevents a detailed account of the paper, but the following points will be valuable to those who want to know all about the flower.

Mr. Walker said he questioned very much whether any flower gave more profit in proportion to the acreage than the Narcissus, but the point is will it pay at the present rate of increase in cultivators? From 1884 to 1890 there has been a fall in price of 50 per cent. The minimum price obtained for twelve market bunches has been as low as 9d., while as much as 12s. has been obtained for the same quantity. The season of the Narcissus is now from January to May. Mr. Walker then gave a list of the best varieties to grow. In the yellow trumpets he mentioned *Empress* as the best on his soil, then *Horsfieldi*, but *maximus* would be the finest if it would grow. *Golden Spur*, Countess of Annesley, *spurius*, *Tenby*, and *Edward Leeds* for its lightness of colour; *bicolor grandis*, now to be called *Grandee*, to get rid of the Latin name, *Dean Herbert* and others were also named. *Empress* at Ham, he said, multiplied faster than *Horsfieldi*, and the flowers are especially valuable for cutting, for if he misses a market morning the flowers are nearly as good in two days' time. The white Daffodils do not, unfortunately, stand well. *Mme. de Graaff* may be an exception, but it has not yet been tried in sufficient quantities to warrant anything being said about it. Of the incomparabilis forms, *Sir Watkin* was the best, being of good constitution and increasing fast. *Lady Watkin* was also of good constitution. He obtained it in 1884 from a batch bought for *Sir Watkin*, and mentioned as to its freedom of flowering. Of the *Barri* type, *conspicuous*, *Maurice Vilmorin* and *W. Ingram* were described as the best; and in the *Leeds* division, *Duchess of Westminster*, *Madge Matthew*, *Katherine Spurrell*, and *Beatrice*. All the *Nelsoni* varieties are good and stand well. The *Burbidgei* section is not popular, but of the poeticus, *ornatus* and *grandiflorus* are to be recommended, also *odorus* and *rugilobus*. Of the doubles, *Sulphur Crown*, *Orange Phoenix*, and the double poeticus were the finest; and if the double poeticus could be forced it would make one of the most valuable of all market flowers; but hitherto the attempt to force it has failed. *Cernuus plenus* and *capax* would be good market flowers if they would grow well. What is wanted for a market variety is one with a good constitution, a long stem, and with flowers of decided colours and of good substance, so as to stand well when cut. He said he did not plant all his varieties at the same time, but finished off the planting, if possible, by the end of September. *Ornatus* is the first to root. As a rule, it is better to open the flowers under glass, and those of poeticus recurvus may be cut even before they are out of the sheath.

Two very important points were then mentioned, viz., the replanting of the bulbs every year, and that Daffodils could be grown in England as well as in any other part of the world.

The Rev. Wolley Dod said that with him the reverse is true with regard to *Empress* and *Horsfieldi*. Mr. Jenkins said that with him *Empress* was best.

TREES AND SHRUBS.

KNOLE PARK AND ITS TREES.

To the tree-lover, few places in the south of England are of greater interest or can boast of finer or more remarkable specimens of our

Yew stems are both curious and interesting specimens of tree growth. What interests the lover of trees, however, quite as much as these famous specimens is the unusually heavy crop of timber produced on every part of the estate, the quantity of wood produced per acre being almost incredible; in fact, I may state without



The King Beech in Knole Park, the seat of Lord Sackville. Engraved for THE GARDEN from a photograph.

forest trees than Knole Park, the Kentish property of Lord Sackville.

Everyone in the county at least has heard of the famous King Beech, King John's Oak, the Beggar's Bush, and the great Silver Fir, whose giant head towers upwards for fully 120 feet, while the Horned Oak and gnarled old

fear of contradiction that in very few places in Britain is there an equal amount of timber per acre with that in the park at Knole. Here I refer particularly to Beech, Spanish Chestnut, and Oak, these three seeming to be quite at home and to grow with unusual vigour on the free, gravelly, or sandy soil, of which most parts

of the park are composed. In The Wilderness the Beech trees average nearly 90 feet in height, with beautifully clean and well-rounded stems, which, in the majority of instances, contain fully 100 feet of wood each. The Spanish Chestnut, of which, however, there are fewer specimens, are not one whit behind in size of trunk, the great cylindrical and lightly fluted stems rising straight and branchless for fully half their height, and containing in most cases fully a greater quantity of wood than the Beeches. Judging from several trees that had been felled recently, and which I had the chance of examining, the wood appears to be of very superior quality, nicely grained and rich of tint, but in some cases the trunks were rotten at the core.

The King Beech, herewith illustrated, is not only the largest, but is also the most picturesque and shapely tree of its kind in Britain.

In many of the remarkable Beeches that I have seen throughout the country the stems are ill-formed and short, the girth at a stated distance up giving one but a very vague idea, and in many cases a very erroneous one, too, of the full contents of the tree; while in not a few cases these stem girths as recorded are sadly exaggerated, they being taken at the thickest point, often where protuberances occur or where the limbs diverge from the main stem, and at which point the girth is frequently one-fourth greater than it would be at the standard heights for tree measurement, viz., 2 feet and 5 feet from ground level.

I wish that recorders of the dimensions of old and remarkable trees throughout the country would adhere rigidly to the rules laid down by the Scottish Arboricultural Society, that is, to take all girths of tree trunks at 2 feet and 5 feet from ground level, unless good reason—owing to a swelling or protuberances—for departing from these can be adduced. The reasons for so doing are obvious and need not be repeated, while a certain standard or uniformity in measurements is all important.

The King Beech, as measured by me on Feb. 12, 1890, has a stem girthing 32 feet and 31 feet 7 inches at 2 feet and 5 feet respectively, the greatest spread of branches being 96 feet in diameter. In Knole House there is a well finished and I should say very accurate drawing of the tree, dated May 16, 1829. The measurements then taken were as follows: Height, 87 feet; circumference of stem, 27 feet; greatest spread of branches, 127 feet 6 inches; and contents of tree 1096 feet. How valuable this record would have been had the height at which the stem girth was taken been given. In any case the tree has increased in stem bulk about 5 feet in sixty-one years. Loudon in his "Arboretum" also gives measurements of the tree, but these are so far valueless, as no height at which the trunk was girthed is stated. The King Beech is, however, a noble tree of giant proportions, and one that I feel sure has no rival in the British Isles. It is growing in a very sandy soil and in a fairly sheltered situation about midway between the house and Sevenoaks. As is usually the case with old and remarkable trees, the stem is literally covered with initials of visitors, but now, by the aid of a spike fence, such vandalism has been put a stop to. To prevent the heavy limbs falling asunder, stout iron girders bind these as in one, while to prevent decay every hollow in the stem has been carefully filled with a suitable cement.

Not far distant from this is the Witches' Oak, or King John's Oak, as it is also called. It is as gaunt and gnarled a tree as I have

ever seen. It is not quite 300 yards west of the King Beech, and stands a little within the wood on the right of the footpath leading to Sevenoaks. Two and a half centuries ago it was known as the Old Oak.

The Horned Oak seems to have excited a good deal of curiosity in the neighbourhood, and it is certainly in every respect a remarkable tree, especially when viewed from the lawn in front of Knole House. The tips of many of the upper branches are dead and dying, and when in full leafage the tree has a peculiar appearance, the white and horn-like branches giving to the upper portion an appearance as if the antlers of deer were interspersed with the living foliage. No one suggested this explanation of the name of the tree, but in my opinion it is by far the most likely.

The Beggar's Bush resembles more the Banyan Tree of India than anything else that I can recall to mind at present. It is a Lime of giant proportions; the tips of the branches have from time to time been pegged down, so that now the tree covers a great extent of ground, and is when leafless a most curious and interesting object.

Some of the Silver Firs at Knole are of great height, one that was blown down recently being exactly 120 feet high, but there are several others now standing which cannot be far short of that size. Amongst the new and rarer Conifers, the Douglas Fir (*Pseudo-tsuga Douglasii*) and the Weeping Spruce (*Picea Morinda*) have attained to a good size; indeed, I cannot remember having seen a larger or healthier specimen of the latter than that at Knole. Some of the rarer Pines also do well, including the Austrian, Weymouth, and Bhotan (*Pinus austriaca*, *P. Strobus*, and *P. excelsa*), and would seem from their bright foliage to be quite at home and growing rapidly.

As showing how sheltered the front side of Knole House is, I may state that when there on February 12 the Camellias were in flower out of doors, as were also two giant specimens of the Strawberry tree (*Arbutus Unedo*). Magnolias on the house front promise well for flowers, the fat, silky buds being thickly studded over the trees. Many other fine old-fashioned shrubs and trees might be spoken of as occurring in the grounds at Knole, but sufficient has perhaps been said to prove my previous remarks, that for the arboriculturist, at least, Knole Park is a place of unusual interest.

A. D. WEBSTER.

Berried Aucubas.—The plants grow well on the heavy soil in the neighbourhood of Streatham and in the gardens of Mr. Coulthurst, Streatham Lodge, the plants are full of berries, which show up well, and thus demonstrate what fine shrubs these are when bearing fruit in abundance. The berries are in thousands, stand up well, and are not hidden by the foliage, as they mostly are. These have all been produced by natural fertilisation, the male plants having been put into the borders in various parts of the grounds. I also recently noted some plants in Messrs. Williams & Son's nursery at Upper Holloway bearing large berries, which were set well up above the leaves. This is a feature I have always longed to see the Aucuba take on, as it shows off the plant so much better and renders it very much more valuable for decoration.—W. H. G.

The Pearl Bush (*Exochorda grandiflora*).—Where protected by a wall this handsome shrub flowers much earlier than it does when planted as an open bush, for a specimen here sheltered as above indicated has already several spikes of its charming blossoms fully expanded, while without

that protection the entire plant still wears its winter garb. It is certainly a very desirable wall shrub when allowed as far as possible to display the graceful character of its slender arching twigs and partially drooping clusters of blossoms, but if trained too stiffly to its support, much of the grace and beauty of the entire plant is lost. When in not too exposed a position and where the soil is a fairly good loam, this *Exochorda* or Pearl Bush forms a large rounded bush, plentifully supplied with branches, which in their turn are well furnished with slender, partially drooping twigs. The pure white blossoms make a dense mass of white. It is very uncommon, but may be associated with the choicest of subjects. It is by no means easy to propagate, perhaps the most effectual way of increasing it being by means of layers, which take a long time to root. Notwithstanding its beauty, there is, I believe, very little demand for this *Exochorda*, and consequently it is kept in stock by only a few of our tree and shrub nurserymen.—T.

PLANTING TREES IN PARKS.

THERE is not much done in the present day towards adding to the beauty of our fine tree-adorned parks, and those who have gone so far as to plant trees in them have not, as a rule, made the best possible choice of subjects. It may be very interesting to try and acclimatise trees of doubtful hardiness, but most of the half-hardy Pines that are seen in exposed parks have a poor appearance. When isolated specimens of *Wellingtonia* were dotted about, not always in the best positions, their foreign aspect did not harmonise with the simple grandeur of our own native monarch Oaks, Elms, or Chestnuts. Our gardens and the grounds we lay out about them are, even at their best, mainly artificial creations, and we please ourselves as to what we plant in them; but many of our fine parks, in all their simple beauty and grandeur, have been handed down through several generations, and although the trees decay and fall through age and weakness, yet, as a rule, nothing is done to replant other trees in the place of those that have died. But there is room for a lot of interesting work of a permanent character, and even if those who carry it out do not live to see the results, others may, and posterity will thank them for what they did. There are now to be seen in nurseries varied and beautiful forms of our own native trees which are rarely planted in gardens. These should be planted in the park in association with the typical forms. The Oak, Elm, Lime, Poplar, Beech, Chestnut, Ash, Maple, Hawthorn, and other trees which adorn our parks are now but types of varied families; and it would be a very good thing to take the different members of a family, those best suited for the purpose, and plant them close to the common forms. As they grew up we should enjoy the contrast, and could conveniently acquaint ourselves with the points of difference in them. But even this improvement, desirable as it is, must not be carried too far, as we must be very careful how we plant trees in the park, lest we destroy its best features. The prettiest parks are those in which the trees fall into large natural glades, groves, or groups, with broad expanses of turf between. It would be very wrong to indiscriminately dot about trees all over these fine expanses of turf. I have seen this done with disastrous results, and some parks which I know now look little better than half-cleared woods, because well-meant improvement by the planting of trees was carried altogether too far. There are too many examples of absurd tree planting to be seen in both parks and pastures; but a little thought will show how absurdities may be avoided, and yet leave room for intelligent tree-planting on a smaller scale, but to better purpose. There is no easier way to spoil a park than to dot about those meaningless clumps of Scotch Larch and Spruce Firs which one often sees, and in which a dozen trees are often starving where one would thrive. Those who contemplate planting trees might with advantage visit some good tree nursery or consult a catalogue. They would then perhaps be surprised at the great variety there is of things fit to associate with our native trees

without detracting from their unique and dignified aspect.—A. H., in *Field*.

SHORT NOTES.—TREES AND SHRUBS.

Willow blossoms.—We like the delicate scent of the white Willow catkins in spring. The colour of the flowers is so soft, and very like that of the tender green of the young leaves. The Palm Willow, too, has a delicate odour, and probably a number of other kinds; but if there were only the white Willow and its forms, they are worth remembering for their delicate odour when in bloom. They often occur about ponds or in moist places in woods, and are worth planting where they do not grow naturally.

Cupressus Lawsoniana in bloom.—Lawson's Cypress has its dark green, Fern-like branchlets so heavily laden with bright crimson male catkins, as to render the branchlets more drooping than usual, and even at some little distance to impart quite a glowing red colour to the entire specimen. A closer inspection also reveals the great beauty and bright tints of the male catkins. I find they retain their colour for some time in water and are much admired.—T.

Seedling Deodars.—I should advise everyone to have seedling Deodars, as they grow faster and make much more handsome trees than those produced either from grafts or cuttings. Trees from grafts or cuttings seldom make good well-branched trees. Most of the Coniferae can be propagated in this way, but the plants are generally disfigured; and to give them a tree-like appearance, they require great attention in pruning and tying their branches, and often then without effect. Therefore, if good, fast-growing, well-branched trees are the object, by all means have seedlings.—J. T.

A succession of Magnolias.—Before the last blossoms of the Yulan (*Magnolia conspicua*) are over those of *M. Soulangeana* are rapidly unfolding, so by planting these two a succession is kept up for some time, and it may be further extended by *M. obovata* or *purpurea*, as it is often called, which comes into flower still later. The Yulan is of quite tree-like habit, and *M. obovata*, even when large, is seldom more than a huge bush, while *M. Soulangeana*, which is usually regarded as a hybrid from the two, is in all particulars about midway between its reputed parents. *M. Soulangeana* is rather more spreading than the Yulan, while the flowers, which are not quite so large, are flushed on the outside with purple. They also do not open so fully, partaking somewhat of the closed character of those of *M. obovata*. Though but a little later in expanding than those of *M. conspicua*, the blossoms of *M. Soulangeana* often escape when those of the other are injured by spring frosts, though at times both suffer. In mentioning these Magnolias Messrs. Veitch's variety, known as *M. Soulangeana nigra*, must on no account be omitted, for the exterior of the blooms is very deeply tinged, and it is on this account a very striking Magnolia. It seems nearest to the Italian *M. Lenné*.—T.

Genista Andreana.—This most distinct, beautiful, and perfectly hardy Broom, which was beautifully figured so long ago as August, 1886, in the *Paris Revue Horticole*, is now being distributed for the first time at a comparatively moderate price, in good strong three-year-old plants just showing their bloom-buds, by M. J. Sallier, successor to the well-known firm of Thibaut and Keteleer at Sceaux, near Paris, from whom I have just received it in excellent condition by parcel post. This Broom is unlike anything hitherto known in this family, the upper half of the flower, which is about the same size as that of the ordinary Spanish Broom, being deep golden yellow, while the two centre petals are a beautiful deep red, forming a most charming contrast. It originated some four or five years ago in Normandy as a chance seedling in the midst of a field of common Broom, and was as soon as noticed grafted by inarching on low stocks of the common Broom, but took a long time to get sufficient of it to send it out. It is, I believe, quite unknown as yet in this country, but once seen, I am sure every lover of hardy ornamental flowering shrubs will forthwith desire to add it to his collection. An-

other French nurseryman, who offers this plant at a much higher price, describes it as a sensation novelty.—W. E. GUMBLETON.

THE AUSTRALIAN IRRIGATION COLONIES.

WHILST the younger sons of gentlemen of standing are going west with the view to the acquirement of cattle ranches, others of a horticultural turn of mind might find the investment of moderate capital on the South Australian irrigation lands not only profitable, but an opening to a most delightful occupation. The one great drawback to the colonies under the Southern Cross has been the long periods of drought, and this on the high lands no doubt will continue, but in a modified form, as the irrigation of thousands of acres of soil in the valleys will soften the atmosphere, if it does not actually increase the fall of rain. Water, indeed, is plentiful enough, for the river Murray, which runs through Victoria, is 1300 miles in length and 100 yards in width; but until Messrs. Chaffey, who have done so much in South California, took up the irrigation scheme, the whole volume of this noble river was allowed to flow unmolested to the sea.

From a beautifully illustrated book now before me, published at 35, Queen Victoria Street, London, E.C., I gather that these gentlemen have obtained upon satisfactory terms an estate of 250,000 acres at Mildura, in Victoria, and another of equal extent at Renmark, in South Australia, both of them watered by the Murray, and admirably adapted for irrigation purposes. The river is navigable, the railway arrangements when finished will be very complete, and the climate being equal to that of the south of France and the north of Italy, the horticulturist who knows the value of the sediment from our warp rivers in Yorkshire will at once see and appreciate the splendid advantages which these gentlemen have placed within his reach. Already the scheme is in operation, land in small lots being obtainable at about £20 an acre, but when worked they double in value at the end of every second year. Purchasers for horticultural purposes are limited to 80 acres, and for agriculture to 160 acres, an arrangement which prevents "exploitation," or buying and selling again for gain, the main object being the full development of the deep red loam in a climate adapted to the culture of all the fruits grown under glass in England and in the open air in the south of Europe. Purchasers of blocks of 10 acres are entitled to all the advantages of irrigation, the water being conveyed to the highest point and then over the surface upon the most approved principle.

Only a few short years ago Mildura was a sheep run; now it is laid out in gardens, capable of producing enormous crops of vegetables of all kinds and magnificent fruits, including Grapes for wine, the Raisin and Currant Grapes, Apricots, Peaches, Almonds, Oranges, Olives, Figs, Guavas, Apples, Pears, Plums, Cherries, bush fruits, Strawberries, Nuts of various kinds, Loquats, Persimmons, Sultana and table Grapes, Lemons, Citrons, Shad-docks, and other products, not only acceptable, but essential to health in a hot climate.

The air is most salubrious, and the ground, as may be gathered from the foregoing imperfect list, is good for almost anything, the incessant sunshine being turned into a positive advantage by irrigation, which is better for the ripening fruits than rain. Where the market will be found for all the fruit that will be raised is an important question, but it is some answer to point out that Australia at present imports £750,000 worth of fruit annually, and England, exclusive of adjoining colonies, is capable of taking all our relations can spare to us. Mildura by rail is 350 miles from Melbourne, and once the fruit is there we have ample proof of the shipping facilities for transporting all save the soft kinds to our shores. Now, at the time I am writing, the month of April, when our fruit rooms are empty, old Grapes are over and our new ones are not ready; when Pears cannot be obtained for love nor money, the Australian produce is beginning to arrive. The flavour, some

persons say, is faulty, but this difficulty will be got over as growers and shippers gain experience; indeed already there is an improvement, some remarkably fine Apples I have lately tasted being greatly superior to the best samples from the west. To the emigrant whose proclivities are decidedly horticultural, these irrigation lands offer grand facilities. To the agriculturist with moderate means they are not less promising, but before they set out as cultivators of vineyards, Orange groves, and fruit farms they should invest in this cheap and beautifully illustrated work, which is literally teeming with invaluable and highly interesting information. To stay-at-home readers this 3s. 6d. volume, fit for any drawing-room table, will prove a source of pleasure and profit, for not only will it portray an Eldorado which has all the natural advantages of a sub-tropical garden, but it will help them to elucidate the question, "What can we do with our boys?" W. C.

RUSTIC BEDS AND BASKETS ON THE LAWN.

IN gardening there is or should be suitable places for everything, *i.e.*, every special feature introduced should fit in and harmonise with its surroundings. Rustic beds or baskets should not be brought into unnecessary prominence. By this I mean they should not occupy a central position, as they associate best with quiet surroundings. When placed in some open spot against a background of shrubs, they are always admired if suitably planted, as they constitute a break away from the usual formal flower bed. There are often positions on the lawn where a little more garniture is desirable. Sometimes the want may be appropriately met by dropping in a choice tree or group of shrubs or Roses, or a rustic bed or basket as the case may be. The size of the bed should bear some proportion to its surroundings. A very large picture hung in a very small room always has an incongruous effect, inasmuch as it dwarfs everything near it; so the rustic bed should be of the right size for the position. The outline should be simple; a circle or oval lends itself naturally to effective planting. Larch poles with the bark entire, sawn into lengths each 2½ feet long, and buried half their length in the ground make a good edging to rustic beds. Place them close together and ram them firmly in the ground in a perpendicular position, or with a very slight leaning outwards. The diameter of the bed may be anything from 12 feet to 20 feet, but it will be better not to exceed the latter size. Fill in the bed with good soil, or at least make it suitable for the plants which are to grow in it. A coping of short pieces of Larch poles sawn down the middle should be nailed on the top of the poles fixed in the ground; these will hold them together and give the needful support, and add a finish to the margin of the bed. There are many ways of planting such a bed, but whatever is planted in the centre, the rustic work should be covered with creeping or climbing growth. Jackman's Clematis planted just inside the bed and trained over has a very rich effect. The Canary Creeper also will be at home in such a position, and seeds sown now or plants set out later on will quickly cover up everything that requires covering and form a very tasteful margin to almost any other plant. A group of Cannas, or Indian Shot, is very effective inside a margin of Canary Creeper, and the combinations which may be made are endless, and all more or less suitable. A rustic bed for Ferns may have an edging of old picturesque stumps of trees, over which Ivy may climb; but formal work is always objectionable, and above all things do not stick in anything merely for the sake of ornament. A short time ago I saw a rustic Fern bed built up with hewn-out logs, into the interstices of which at regular distances were inserted black glass bottles; the designer of the bed considered he had hit upon a rather novel and happy idea. There is no accounting for taste, and, fortunately, such barbarisms are rare. Rustic beds afford scope for the employment of much variety in hardy climbers, which are naturally suited for the work. Besides the Ivies and Clematises there are the Cotoneasters, Honeysuckles, Jasmines, and

numerous summer flowering annuals. Such a bed would have a charming effect filled with Tea Roses. The soil should be specially prepared for them, and the margin composed of a neat growing green-leaved Ivy. But for Roses the position should be sheltered, as Roses are always unsatisfactory in a wind-swept situation. E. H.

FERNS.

BEAUTIFUL ADIANTUMS.

THE various beautiful shades of colouring for which this genus is remarkable are never seen to greater advantage than at the present time, when the plants are full of new growth. It is very remarkable that while some of the species have such bright tints of colouring in the young fronds, others under the same treatment retain the deep sombre green, the young fronds being only a shade lighter than the older ones, and with no trace of bright colouring. Of the richly tinted sorts *A. Veitchi* is one of the most conspicuous, the young fronds being of a bright, almost crimson tint. Another richly coloured variety is *A. tetraphyllum gracile*. It is a pity that this charming Fern should be so rarely met with. This, however, can be accounted for from the fact of its being one of the most delicate and difficult to manage of all the genus. *A. rubellum*, as its name implies, has a bright ruddy tint, and, unlike the last mentioned, it is of free growth, and should be found in every collection. *A. tinctum* is nearly allied, but has rather broader fronds and of a more rosy tint. *A. rhodophyllum*, of dwarf compact habit with broad pinnules, has a deep purple-crimson shade, which contrasts well with *A. Victorice*, which has young fronds of a pale bronzy brown. The beautiful *A. farleyense*, when well exposed to the light, has a soft delicate pink shade in the young fronds, as also *A. tenerum*, while *A. scutum* has a pale, almost amber tint. *A. macrophyllum* is one of the most conspicuous, the broad pinnules showing a great variety of shades, varying from light rosy purple to deep green. *A. m. bipinnatum* has a slightly different shade, being of a more bronzy tint. Among those of a paler colour may be mentioned *A. grandiceps*, which when grown in suspended pots develops beautifully tasselled fronds which droop over the sides, and when young have a peculiarly delicate shade. *A. elegans* is another beautiful variety of the old favourite *A. cuneatum*. *A. fragrantissimum* is also of a pale tint, especially in plants confined to small pots. Of the deep green varieties, *A. Mariessi* is one of the most distinct, the young fronds being only a shade lighter than the older ones, which are a rich deep green. This belongs to the *Capillus-veneris* section, of which there are several very distinct varieties. All of these, even under the most favourable conditions, show no colour in the young fronds, and it is worthy of note that while the brightly tinted sorts succeed better in a light, open position, those of a more sombre hue delight in a cool shady nook. F. H.

Leucostegia immersa.—This is a very pretty Fern, especially for baskets; the slender rhizomes spread under the surface, and as soon as they reach the sides of the baskets young fronds are produced. In a very short time the whole surface will be covered with fronds. Even when grown in pots the rhizomes will find their way to the bottom, and I have seen young fronds coming from the bottom of the pots. The fronds are each about 9 inches in length and about 6 inches broad at the base, tapering off to a point and finely cut. When young they are of a deep bronzy brown, changing to a very pale green. When much exposed the fronds are of almost a straw colour and form a pretty contrast

to the other tinted varieties. This useful Fern will thrive well in any light open compost, and should be grown in an intermediate temperature. It loses all its fronds in the winter, but starts into growth again quite early in the spring. We now have it in fine condition.—F. H.

KITCHEN GARDEN.

TEMPERATURE FOR MUSHROOMS.

AFTER reading the experience recorded by "Caledonicus" (p. 351), I am induced to record my own. When I first entered upon my present charge some years ago I found a large amount of cellar-room, which was not then, neither had it been for several years, turned to any practical account. These cellars, I might state, are those that belonged to the old mansion, long since removed, and when it was pulled down the cellars were left intact. A thick layer of soil was placed upon them and trees and shrubs planted, many of which are now of considerable size. I saw at once that I could turn these cellars to a good use in Mushroom culture. I took advantage of the first opportunity to make experiments, and I have succeeded to the entire satisfaction of my then employers and even beyond my most sanguine expectations at the time. (Through circumstances over which I have had no control I am at present discontinuing my usual practice, but shall at once adopt it again the first opportunity I have to do so.) In the growth of Mushrooms, success, I find, is best attained where an equable temperature and moist atmosphere can be sustained at all times. Any sudden or extreme fluctuations should be carefully guarded against. During the winter season these cellars strike one as being comparatively warm, yet they are not heated in any way. As the season advances and hot weather sets in, the opposite is the case. During mild winters I have maintained a good supply throughout; when, however, the temperature fell below 45°, the beds ceased for the time being to be productive. At other seasons of the year there has never been any trouble to maintain a supply. On one occasion there was not a break for more than two years, owing largely to the winter being mild, when at a temperature of 55° I found the best results to be attained in growth and quality. This, of course, was in the hottest weather, when Mushrooms from beds in the open air could not reasonably be expected of superior quality, and the cultivation in the usual Mushroom house not at all reliable. Under these conditions I generally found the beds to come into bearing in about eight to ten weeks after spawning, and they would continue bearing for nearly as long a time. As a contrast to this mode of culture, I will record my experience in an ordinary Mushroom house heated by hot-water pipes, where a temperature of 55° to 60° was usually kept up. Here I found the beds to come into bearing in about six weeks, but they never lasted in that condition nearly so long as in the cellars, nor were the Mushrooms of such good quality. This I proved by having a bed in bearing at one time in each place, the produce from the cellars being preferred as long as there was any to be had. It might be asked, Why did I adopt the usual kind of house at all? It was simply to have a bed to fall back upon in extremely cold weather and to have a place for other things, such as Seakale and salads, that required to be blanched for use. I do not for one moment call in question the practice of "Caledonicus" with higher temperatures, but my own conviction is that the best results as to durability and general utility from a gardener's point of view are in favour of the

lower temperatures as generally adopted. The higher temperature would probably result in a larger quantity at one given time, but for private consumption this is not usually desirable, for a stale Mushroom is not a thing to be desired.

In making the beds, preparing the manure, &c., I do not depart from the custom generally laid down and adopted, with the exception of securing a depth of 16 inches at least when made up in the cellars. These beds are at once covered with the long litter previously shaken out in order to conserve the heat. When the young buttons commence to grow the litter is removed and the beds left clean, otherwise the moisture would be too excessive and cause the Mushrooms to damp off in an early stage. I have never tried the spawn from old beds, as mentioned by "Caledonicus," but the first opportunity I have I shall do so. I have often noted it when the old beds were being removed, and only lately a small quantity of spawn that was in some old fermenting material was placed amongst some soil intended for French Beans, resulting in some Mushrooms a few weeks afterwards.

J. H.

CARROTS AND THEIR CULTURE.

THERE has of late years been a considerable addition of names to the list of Carrots, though, unless I am much mistaken, several of these ought to be expunged in favour of those originally given by their Continental raisers. This rather ticklish proceeding, however, must be left to properly constituted authorities, private gardeners, whatever they may think, having no warrant to act in the matter. That there have been great improvements effected in the several

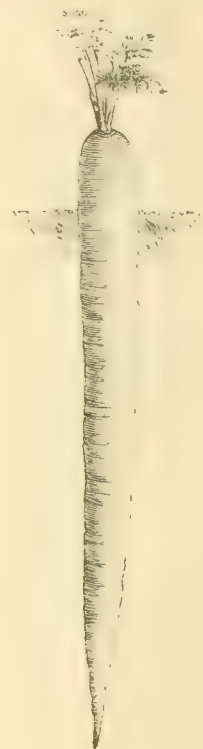


Carrot, Intermediate Scarlet.

distinct types of Carrots, there is no denying, and especially would I direct attention to the great value of the Stump-rooted or Horn varieties. Too often these are only grown for affording early supplies of tender roots, when in reality they are well adapted for any crop, or quite as much so as either the Intermediate, Altringham, or Long Surrey types. In addition to keeping well they can be grown much more thickly and yet attain a good size, while the quality is always superior. For a quick crop in frames or on a warm border, the small Parisian Forcing is to be commended, this also being good for late summer and autumn sowing under glass, but for successional main crop and late supplies for small gardens especially there are none to surpass Nantes Horn. Guerande, which Model and Early Gem much

resemble, is scarcely so long as the preceding, but the roots are much thicker and the quality is quite as good. Long red without core also belongs to the Stump-rooted section, the roots not being so thick as those of Nantes Horn, while the colour is good right through. Matchless, New Intermediate, and Scarlet Perfection are also improvements on James' Intermediate, and one at least of these might well be sown. Altringham keeps better than any of the Intermediate forms, but it is usually far too coarse, and for the latest supplies the preference might well be given to Long Red Surrey.

In all probability before these lines are in print the greater portion of Carrot seed will have been sown in most parts of the country, but in many instances if the seed is got in much before the third or fourth week in April, either patchy rows of plants are the result, or else the



Carrot, Altringham (one-fifth natural size).

longer period of growth accorded ends in the roots becoming far too coarse to be of any use in the kitchen. Not only are large roots the least economical, but, as in our case, a great percentage of them crack badly before they can be lifted and stored, and not many gardeners can afford to grow Carrots for horses and cattle to eat. If, then, from any cause there is a likelihood of a thin plant resulting it will be no loss, but rather a gain to hoe these over and re-sow, this time, perhaps, giving more preference to the superior Stump-rooted forms. It is to be hoped none of my readers have dug much solid manure into the ground intended for Carrots, as the tap roots of these ought not to come into contact with anything liable to cause them to either fork badly or to attain a great size. Ours will shortly be sown on ground previously occupied by Celery, levelling and a subsequent forking over, so as to have all well dried and pulverised to a good depth, being all the preparation needed. In some seasons it has been an impossibility to get the ground into a sufficiently finely divided state, in which case the drills after the seed is sown are filled with sifted light sandy soil. Wood ashes,

where available, ought always to be freely sprinkled along the seed drills, this being considered the best preventive of Celery maggot. I consider frequent sowings of seed also necessary where either the maggot is very troublesome or the roots keep badly from other causes, and also most desirable in all cases where a regular supply of tender young roots is appreciated. By frequent sowings, I mean at intervals of about one month from now to August, the latest being made either on a warm border where they can be covered by frames, or else on beds already covered by frames. Late-sown Carrots are very hardy, and continue to increase in size whenever the weather is not frosty, but they are often much preyed upon by small slugs. But for such pests they would be available till the earliest forced are ready to pull.

Supposing the rows of the Horn varieties are about 10 inches apart and the seed sown rather

apart, and the plants finally and early thinned out to about 6 inches apart, this being ample space unless extra large roots are desired. Carrots do not transplant well, and if there are any blanks in the rows sow more seed directly they are observed, first, however, watering the drills if the ground is at all dry. Much the cleanest and best roots are obtained from light sandy soils, and that, too, without much trouble. In dry, hot seasons, or it may be during a hot time after a long spell of very wet weather, heavy clayey ground is liable to crack badly, this being most detrimental to the Carrots. To prevent this and for other good reasons it is advisable to use flat hoes frequently among the crops, and a mulching of either fine peat, leaf soil, spent tan, or the fine Grass from lawn

severe weather. If stored in a warm place they soon grow out, and are not so good when required for use.—G. WYTHES, *Syon House*.

THE WEEK'S WORK.

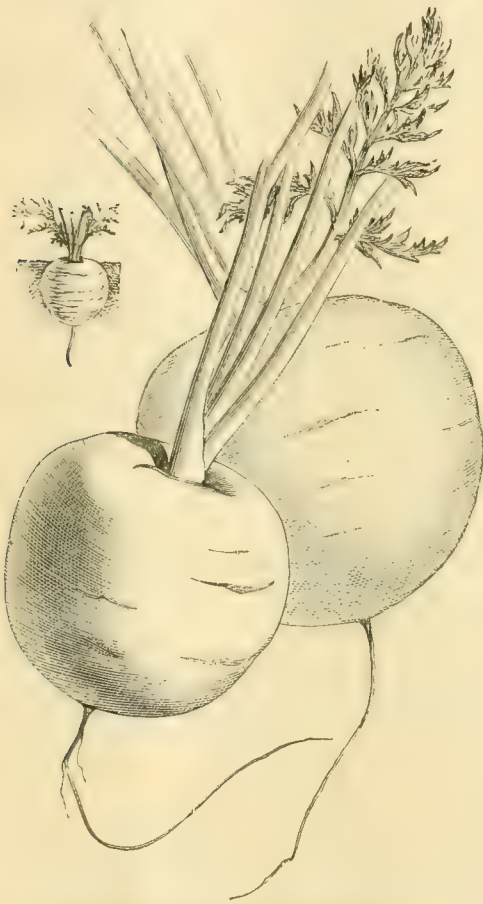
THE KITCHEN GARDEN.

BEEF.—The earliest raised in boxes or pans ought now to be large enough and sufficiently hardened off to transplant to the open. The roots will be most quickly fit for use if firmly planted on a sunny border 6 inches apart, in rows 12 inches apart. The Turnip-rooted forms are the best for these early crops, and if more seed is sown now if not already got in, a close succession will be had. These Turnip-rooted forms are also the best on hot shallow soils for the main crop, often succeeding where the long-rooted varieties fail. On rich deep ground they attain a great size, and are then of no value. The end of April, as a rule, is also the best time to sow the main crop of the long-rooted forms, those got in much earlier being liable to grow far too large and coarse. On somewhat light and poor soils the stronger growers do well, while for fairly strong ground there are none that I have tried to surpass Dell's Crimson, or one of its many synonyms. If the roots come into contact with fresh solid manure they are liable to fork badly, and in any case it is advisable to sow the seed on ground that was well manured for the preceding crop, digging this up roughly in time for it to become well pulverised being all the preparation needed. Too much room is also conducive to coarseness, and in most instances the drills may well be drawn not more than 15 inches apart, and the seed sown thinly.

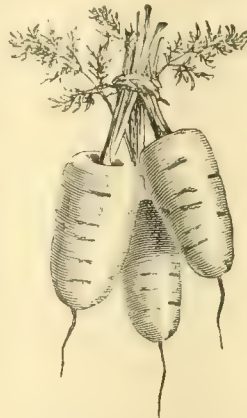
SALSAFY AND SCORZONERA.—Much that has just been advanced concerning early sowing and preparing the ground for Beet also applies to these root crops. I find that if the seed is sown much before the end of April the roots obtained are not so clean and tender as they ought to be, and not unfrequently premature running to seed results, when the plants experience a check or from some other cause, but principally owing to their being raised too early. These crops are not so indispensable as many others that could be named, but during the winter and early spring months they can be turned to good account by a fairly experienced cook, and are appreciated where a variety of vegetables is constantly needed. There is no necessity to devote much ground to them, 2 ozs. of seed of each being ample for quite large gardens. Sow thinly in shallow drills 12 inches apart.

CHICORY.—Now is a good time to sow a fairly long row of Chicory, the aim being to secure a supply of stout roots for storing, and from which abundance of well blanched leaves can be forced next winter. These will be found very useful for mixing with Lettuce and perhaps Endive in the salad bowl. Ours are grown alongside the Beet and other root crops, and one sowing is sufficient. New seed germinates quickly and surely, and as there are few or no enemies to this plant thin sowing ought to be practised.

BROCCOLI.—The plants of Veitch's Autumn Protecting, raised under glass in order to have a supply of heads in close succession to Autumn Giant Cauliflower, ought now to be pricked out on a sheltered border, the soil of which is fine and light and from which they will transplant readily. A distance of 4 inches apart each way is none too much space to allow the plants, and they ought to be sunk up to their seed leaves and firmly fixed. Being well hardened off, there will be little or no necessity to shade or protect them in any way. More seed of this useful variety, and also of such good successional sorts as Michaelmas White, Snow's Winter White, Spring White, Backhouse's Winter White, Adam's Early, Cooling's Matchless, Dilcock's Bride, Leamington, and the later Perfection, Model, Cattell's Eclipse, Carter's Summer, Late Queen, Latest of All, and Champion Late White should now be sown in the open. The sprouting forms ought to have a rather longer period of growth than the foregoing, but it is not yet too late to sow seed. An open piece of rather poor ground answers



Carrot, Early French Forcing (natural size).



Carrot, Early Scarlet Dutch Horn (one-fifth natural size).

mowers, if given some time in June, will usually effectually enclose moisture, and thus prevent cracking.

October is generally quite soon enough to lift and store all fully grown Carrots, and this ought to be done very carefully, especially where the roots are liable to decay prematurely. The tops should not be cut off too closely, and the roots packed in dry sand or fine mould in a cool shed will usually keep well.

I. M. H.

Chicory, Large-leaved or Witloof.—This is a useful vegetable at this season, and may be used when nicely blanched instead of Seakale. It is readily forced from well-grown roots, and this variety is much better for salads than the older and more commonly grown, large-rooted kind. It is useful as a mixed salad, and as is well-known during the early spring months if a large quantity of salad is required, there is a difficulty in keeping up the supply of mixed salads, the Chicory is useful for that purpose. To force it for use, much the same treatment is required as for the Seakale and similar vegetables, simply placing a tie round the leaves as they get large enough, and forcing in a warm, dark place. To get good roots for this purpose, seed should be sown at the end of April in late gardens, and early in May in southern or warmer places. The drills should be about 15 inches apart, and the plants 6 inches. I find Chicory does best on ground well manured for the previous crop in a moderately light soil and an open place. The ground should be kept clean, and during dry seasons a good soaking of liquid manure is very beneficial. The roots should be lifted and stored in October, if a cool shed or other suitable place can be spared; but this is not absolutely necessary, as they do well if stored thickly in the ground and covered over with litter or Bracken. When the latter plan is adopted, the roots should be given a dry place free from stagnant water and be placed thickly together in rows just under the soil, and covered with plenty of protecting material during

thinly, 1 ounce of seed being sufficient for one or several rows equal to a length of 60 feet, little or no early thinning out is needed, this being delayed till the most forward roots are large enough to cook. A very noticeable point in favour of Horn Carrots is the fact that quite small roots that have been overgrown by others will start swelling to a great size directly sufficient room is given them. We have repeatedly drawn good bunches of Nantes Horn Carrot from a single bed from June to the following March, but this might not happen in gardens where the soil is naturally light and poor. If good sized roots are required for storing, then ought the plants to be early thinned out to about 4 inches apart. The rows of the larger varieties may well be 12 inches

better than rich sheltered borders for rearing Broccoli and the Brassica tribe generally, and if the seed is sown thinly, a capital lot of sturdy plants will be ready for their final quarters by the time they are wanted. When raised earlier, more thickly, and on a sheltered rich border, the plants soon become leggy and are altogether unsuitable for putting out, only the sturdiest plants passing safely through a severe winter.

BORECOLE.—There is less risk attending, and more to be gained, by the plan of raising the stock of these earlier than Broccoli, but we sow the seed late in April, and the plants are usually ready quite as soon as they are wanted. The Curled Scotch forms, including the comparatively new Read's Hearting, are perhaps the most appreciated, and they are fairly hardy, though not so much so as the Cottagers' and Asparagus, or Buda Kale. The latter is exceptionally hardy and very late, while the young shoots are very succulent and mildly flavoured. In some seasons it is of good service when other greens are scarce, or, say, up to the middle of June, if it is kept closely gathered; but this spring, Cabbage is both plentiful and good, and there is, therefore, much less need for greens of any kind. Either of the Borecoles or Kale may, if the site is at liberty, be sown where the plants are to grow, the drills being drawn about 2 feet apart, and the plants duly thinned out or made good so as to have all about 18 inches apart in the rows. We frequently sow the Asparagus Kale where it is to grow as late as the first week in June, but the plants are only lightly thinned out.

BRUSSELS SPROUTS.—All required of the plants raised in either frames, boxes, or pans must be early pricked out on sheltered borders, as advised in the case of early Broccoli. Here they may remain till they touch each other, by which time a good open quarter ought to be ready for their reception. They should have a rather long period of growth and good room, though there is less likelihood of any raised in the open ground failing to produce abundance of close firm sprouts than was the case prior to the introduction of superior forms. It is not yet too late in all fairly warm localities to sow seed where the plants are to remain, the drills in this instance being 30 inches apart, 2 feet or rather more being eventually allowed between the plants, and, provided the ground is moderately firm and rich, heavy and by no means late crops will result. For affording late supplies, plants are sometimes raised from seed sown now in the open, and transplanted when of good size, but in all cases where the ground is naturally strong and well manured the earliest raised plants will continue to produce sprouts as long as they are needed.

SAVOYS.—In all southern districts especially, very early supplies of these are rarely appreciated, and it is unwise therefore to have large breadths ready for use long before there is any demand for them. If the seed of Tom Thumb or other dwarf early variety, Early Dwarf Blue, Gilbert's Universal, and Drumhead is sown now with the Broccoli, and the plants got out on good ground as soon as they are fit, a close supply of tender hearts may safely be anticipated from the late autumn to the spring months.

CHOU DE BURGHELEY.—Now is also the best time to sow seed of this desirable winter Cabbage. Raised and planted early the plants attain a great size, and the hearts are far too early and coarse to be of much service; whereas if the seed is sown late in April or the first week in May, and the plants grown on without a check, they will form medium-sized hearts, which are much appreciated after mid-winter especially. Early raised plants are also the most liable to have their hearts injured by frost.

W. I.

PLANT HOUSES.

CORDYLINE INDIVISA.—This is one of the best of the fine-leaved subjects that do not require more heat than that of an ordinary greenhouse. Its propagation is mostly confined to the trade growers, as seeds are not easily obtained. It requires to be carefully watered, especially during the winter when a little growth is going on. At no time must

the soil be in a soddened, saturated condition, or the roots are certain to perish. Even in the spring and summer the soil should be allowed to get drier before water is given than is necessary with any other ornamental-leaved plant I am acquainted with. Like other delicate rooted things, it will not bear to be over-potted, but the opposite course of keeping the roots too much confined must be avoided, especially during the earlier stages. Thriving examples that have the pots they are now in well filled with roots should have a shift. Good yellow loam and sand answer well for it. Be careful that the drainage is thoroughly secured; if it gets foul through the soil washing down into it, or through worms, the roots will die, and after this happens the plants are beyond recovery. Pots about two sizes larger than those they have been in will in most cases be sufficient. Use the potting lath freely, so that the material may be quite solid. Give no water after potting until the soil is so far dry that it would not be safe to longer withhold it. From this time forward until the end of August it will be necessary to use a thin shade in the middle of the day in bright weather.

CASSIA CORYMBOSA.—Plants that after flowering last summer had their branches shortened in should be repotted. This Cassia is a somewhat spare rooter; consequently a portion of the old soil can be removed without harm. A large shift is not desirable; pots two sizes larger will be enough to give. Though not particular in the matter of soil, the plants usually flower the freest in loam; a fair amount of sand must be mixed with it. All through the spring and summer they should be kept where they will have a full amount of light, so as to prevent the shoots getting long-jointed and weak. No shade is required, and the more sun the plants get the better they will flower. Large specimens that are already in pots as big as it is desirable to use should have manure water once a fortnight during the summer. Young stock may now be struck from cuttings. Plants that were cut in towards the end of last summer will have made shoots 5 inches or 6 inches long; these should be taken off with a heel. Several may be put together into a 6-inch pot filled with sand. Keep them moderately moist and close enough to prevent the leaves flagging. An ordinary stove heat is sufficient for them, and shade from the sun. The cuttings usually take a little longer to root than those of some things. As soon as they are well established move them singly into 3-inch or 4-inch pots. Keep them in heat similar to that in which they have been struck, with a little air in the middle of the day. When a little top growth has been made pinch out the points. The plant is inclined to be straggling in its growth, and a second stopping will be necessary during the summer.

CASSIA CORYMBOSA PLANTED OUT.—This Cassia does well when planted out and trained to a pillar or on a wall where it is not much shaded by other plants or too far from the glass. The present is a good time to plant. The bed or border should not be so large as is required by stronger-growing things. The bottom must be well drained and have means for carrying the water away that drains through the soil. If, in addition to the usual quantity of sand, a good sprinkling of broken charcoal or potsherds is mixed with the soil of which the bed is composed, it will be better. The bed above the drainage should be about 10 inches deep. Grown in this way the plants attain a large size.

BOUVARDIAS.—Young stock that was propagated from cuttings put in at the beginning of the year and that has been kept growing freely in a moderate stove temperature, and has had the points of their shoots pinched out two or three times, should be sufficiently furnished to require little more stopping. It is better to have a limited number of strong growths than a thicket of weak ones. The plants will soon need moving into the pots in which they are to flower. Six-inch will be large enough for the small-flowering sorts, the stronger kinds having a size larger. To the loam, which ought to be of good quality, add sufficient rotten manure and leaf-mould to make it rich. Keep the plants until towards the middle of next month where

they will have enough fire-heat to maintain them in free growth. Where young plants of Bouvardias are at all backward, nothing should be left undone to get them on. In their case, it will be necessary to use a little fire in the night in cool weather for a longer period, for until the end of May the nights are often cold when the days are hot. Old plants that, after being out in, had broken into growth and were for a time in pots no larger than those in which they had been last summer will shortly require a shift. In most cases 8-inch pots will be large enough. These also should be kept sufficiently warm to enable the growth to move freely. Plants of this description should not require stopping more than once. As soon after potting as the soil gets moderately full of roots, manure water ought to be given at short intervals.

BOUVARDIAS PLANTED OUT.—Bouvardias make more progress when planted out. Large frames or pits, where they will not be too far from the glass, are better than ordinary houses. The beds which they are to occupy should be prepared at once, as by the middle of next month they may be planted. Raise the bed sufficiently to keep the plants near the glass, or through the high temperature that follows shutting up early whilst the sun is high, the plants will be drawn. See that the plants in their various stages are quite free from insects, and syringe overhead freely once a day; the afternoon at the time of closing is the best for this operation.

VALLOTAS.—Amongst the various species of bulbous plants there are few that make such a display as Vallota purpurea. It is rapidly increased and of free growth. The annual crop of leaves will now be in course of formation. Where the bulbs are too much crowded larger pots may be given, but there should be no attempt at disturbing them, for the disturbance of the roots that inevitably takes place in separating them would interfere with the growth. All that should be done is to transfer the balls to new pots with all the roots they contain intact, with no more interference than by removing the crocks. The small offsets which are produced in quantity when the plants are strong and well treated should be put six or eight together into a 4-inch or 5-inch pot. Ordinary loam, with enough sand to keep it in condition, is all that the plants require. Ram the soil so as to make it moderately firm in the pots. Large specimens require plenty of water when the growth is moving freely, and in the case of those that are not repotted manure water should be given at times between now and the blooming season, towards the end of summer or in autumn, according to the way the plants are treated in the matter of warmth. No more heat is necessary than is given to the generality of greenhouse subjects, but if a portion of the stock is kept a little warmer than ordinary during the spring they will flower several weeks before those that are in cooler quarters.

T. B.

FRUITS UNDER GLASS.

PEACHES.—Follow up disbudding and thinning in general and late houses, as future crops in a great measure depend upon the liberal hand which performs these operations. A percentage of fruit, as a matter of course, must be left to compensate for dropping, a trifling matter at this time of year. Trees confined to inside borders will take abundant supplies of water, especially if they be old and the balls have become hard and solid. When this is the case, a dam should be formed 3 feet or 4 feet from the stem, when water, say a barrel per day, may be poured into it, with the certainty of its softening the most obdurate calcareous compost. Make the final thinning in early houses and elevate all pendent fruits by the introduction of short pieces of lath where practicable. Feed well with generous liquid or pure water through a thick mulch of manure, and henceforth be most careful in the choice of pure soft water free from all sediment for syringing purposes. Keep the shoots thin and regularly tied down, stopping some in front of the fruit, especially if they can be dispensed with after the crop is cleared. Ventilate very freely on fine days, but avoid draughts by a free admission

along the front and careful management of the openings at the top, otherwise warm air will rush away and a constant stream of cold air will pass through the house. The management of ventilation and firing are very much akin, for if we open the dampers the cold air forces the bulk of the heat up the chimney, but by keeping them partially closed this rapid rush is checked, and if air could be seen in motion, precisely the same escape would be found going on in our forcing houses when the egress ventilators are opened too wide.

FIGS.—If the fruit in the early house has commenced swelling for ripening, reduce direct syringing, but do not discontinue the moistening of the walls, floors, and stems of the trees. Also moderate the strength of the liquid, as Figs, like all other fruits, are not improved in flavour when overdone with rich animal manure. Turn or tie aside the foliage and young shoots to let in sun and light, and keep the pipes warm to facilitate the circulation of fresh air. Figs really worth eating, unlike all other forced fruits, are improved by hanging after they are dead ripe, but for convenience and safety they should be gathered when they begin to open at the eye. If laid on a hair sieve in a dry, warm room they will then keep for a few days. Pinch the strongest shoots to encourage the swelling of the second crop of fruit. Keep the roots properly, but not excessively moist, as just now it will be necessary to follow a middle course for the benefit of the tree. Large trellis-trained trees growing in confined borders will now take heavy supplies of tepid water, which may be fortified with liquid, a dash of guano or soot. The latter, too, put into a bag and dropped into the tank will greatly improve the water used for syringing purposes, independently of the fact that it will be found a most excellent preventive and destroyer of scale. If stopping is practised, the shoots should be pinched when they have made six leaves, but space being plentiful, all the leading growths should be allowed to extend until they reach the extremity of the trellis.

STRAWBERRIES.—Plants as far as possible should now be removed from Peach houses and vinerias into pits, where a little spider can do no harm. The plants, moreover, will do better, as they can be kept close to the glass and receive treatment in accordance with their wants. Plants swelling fruit must be well fed with warm liquid and vigorously syringed twice a day, that is, until the fruit begins to change colour, when pure water only must be used. If first quality is imperative, a change to a light, warm, airy house for a few days will not only prolong the season of use, but completely change the character of the fruit.

Late plants now setting their fruit in pits must have an abundance of fresh air, not only by tilting, but by drawing off the lights for a few hours on bright, mild days. Thin off all inferior flowers and tie up the trusses, if not before, certainly immediately after the crop is set; also fumigate, syringe copiously, and shut up pretty early with sun-heat.

POT VINES.—If all has gone on well, the fruit upon Vines started in November will now be colouring, if not actually ripe, a condition which will render necessary the admission of more warm air. Discontinue the use of stimulants, but give liberal supplies of pure tepid water, and syringe where practicable when there is no danger of moisture condensing on the fruit. A little fire-heat will still be necessary, especially through the night, but once the Grapes are fit for use the mean temperature may be gradually reduced. When cut-back Vines which were shaken out last month have filled their pots they must be transferred to the fruiting size, the main point being an early start and early to rest. Bone-dust or Thomson's Vine manure having superseded animal manure in the formation of sustaining composts which must be kept sound and sweet for many months, all good Grape growers are now alive to the fact that the materials should be put together some weeks before they are wanted for use. Sound turfy loam, the highly-concentrated food I have named, old lime rubble, and rough charcoal will make a compost which cannot be surpassed, especially if it be used in a dry and warm condition and be firmly rammed. See

that the balls are moist at the time they are turned out, liberate the crocks and coiling roots, and sink them until the surface of the compost is on a level with the base of the young cane. Defer watering, but shade lightly for a day or two, moisten the foliage with the syringe, and keep the pit close. When recovered from the check, the Vines may be watered and gradually inured to sunlight and air.

CHERRIES must be kept in a steady temperature until the fruit is stoned, but once this critical stage is overcome they will stand a slight increase after closing with sun and moisture on bright afternoons. Maintain 50° through the night, open the ventilators at 58°, and run up to 60° or 65° with back and front air. Watch closely for grub and fly; hand-pick the first, and fumigate or dip when the first insect appears on the point of a shoot. Mulch with good rotten manure trees in pots and confined borders, and see that the roots do not feel the want of liquid food.

PLUMS started with Cherries will now be setting their fruit, and, being very prolific, they must be liberally thinned. Top-dress frequently, little and often; give trees in pots plenty of warm diluted liquid, and syringe freely twice a day. If sharing with the above the same house, they should be kept in separate blocks, as the Plums must be syringed after the Cherries are ripe. W. C.

CHRYSANTHEMUMS.

NEW VARIETIES.*

THIS subject to most amateurs is a perplexing one. When I say perplexing, I do not mean that it is so exactly in the cultivation of the plants, but in the selection of new varieties that will be the most likely to give satisfaction, either as show flowers fit for exhibition, or as decorative plants bearing a number of fairly good blooms. I seldom procure new varieties the first season they are offered for commerce, for this reason—nearly all such varieties are limited in numbers, and consequently in cuttings, and therefore are placed in heat to force them to produce a good supply for the market. This is the cause of weak, elongated cuttings, which will certainly not produce exhibition blooms or anything approaching them. Take, for instance, Mrs. Alpheus Hardy, which, according to the flattering accounts given in the horticultural papers, was the best Japanese variety which had made its appearance for some time. This variety was largely sought for, and the result, at least in the north, has not been very satisfactory, as only a few very medium blooms have been seen. The cost of this variety, which was of American origin, amounted to something like £300, and I think it will most likely turn out disappointing to English growers. The hair-like growths (which are stated to be its great feature) on the surface of the petals are by no means new. Mr. Tunnington, of Liverpool, one of the most experienced growers in England, assures me he has had the same thing occur with such varieties as Chang, Hero of Stoke Newington, and Princess Teck, under good cultivation, although perhaps not so much so as in Mrs. A. Hardy.

I believe never before in the history of Chrysanthemum culture were new varieties so numerous or so elaborately described as in the present season. Years ago we complained of the French raisers each season sending us such a large number, all with very high-flown descriptions, but very few of which turned out equal to existing varieties. Every catalogue now teems with new American varieties, the descriptions of which are enough to drive an enthusiast crazy, especially if his pocket is not

too well lined. Mr. Owen catalogues no fewer than sixty new American varieties for 1890, and almost as many for 1889. Messrs. Canuell, Davis, Laing, Boyce, and Morton have long lists, differing in many varieties. Mr. Holmes has another list, which he calls the "Messina collection," being a collection sent over to a New York lady by a young Japanese gentleman, and out of which came Mrs. A. Hardy, of which I have previously spoken. This collection comprises eleven varieties—Bella Hickey, Emma Ricker, Kioto, Kabayama, Lilian B. Bird, Medusa, Mrs. Fottler, Messina, W. H. Lincoln, Nippon, and Mrs. A. Hardy. The best of these I think will be Kioto, Mrs. Fottler, and Mr. W. H. Lincoln; they are certainly the most likely candidates for public favour. The demand for Mrs. A. Hardy this year is, I believe, very small, and is attributable to one of two causes. First, the American firm who introduced it appear to have then scoured the country in search of buyers, and thus distributed it very extensively; and secondly, there appears to be an almost unanimous opinion amongst exhibitors, and those who have either themselves flowered it or seen it flowered, that it will not make a successful exhibition variety. I am not favourably impressed with the American descriptions of a flower, as they either do not know what the English standard of a good bloom is, or they are exaggerated. One of the largest of northern growers grew eighteen of the newest American varieties last year, all with a glowing description, but only to meet with the keenest disappointment, and to consign sixteen to the rubbish heap. Of those new varieties which have upheld their reputation and which have produced first class blooms, Sunflower is a splendid grower. The same may be said of Etoile de Lyon, although a little coarser than that previously named. Florence Percy, a good bloom, though small if produced from the crown bud, is a fine flower. The same may be said of Gladiator, Marsa, Mme. Louise Leroy, Condor, with very broad florets, George Daniels, a light pink remarkable for its width of petal. Mme. A. Carnegie, scarlet-crimson, is sure to come to the front, as is also W. W. Coles, a bright red. These two last named are sure to take a foremost place.

JAPANESE VARIETIES.

I may safely say that the best Japanese variety of the year will be W. W. Coles. It is now greatly in demand, and there is likely to be some difficulty in obtaining it, as I understand all the leading raisers have considerably more orders on their books than they have plants to meet them with. This variety was exceedingly well flowered by Mr. Pearson at the Chilwell Nurseries, and he has a high opinion of it. Next in order comes Volunteer (syn., Mrs. Irving Clarke) and Beauty of Castlewood. The last named is very scarce; the first named is a fair bloomer, and will no doubt become a great favourite and useful variety; its build and style (those of Belle Paule) are of a most pleasing and effective character. L. Canning will also become a popular variety, for its close compact habit of growth, in which respect I think it surpasses Avalanche; it is a pure white and said to be a deep, well-built flower if well grown. A few new varieties, which have been discarded by a well-known northern grower, are Moonlight, Mr. and Mrs. H. Cannell, Ceres and Pelican, none of which will prove satisfactory so far north as Sheffield unless we have a most exceptionally fine hot summer. These require more heat to properly develop and open the flowers successfully than any others, although at the same time most Japanese varieties de-

* Paper read at Sheffield by Mr. W. Housley.

light in a gent'e heat, and expand more freely if so treated.

INCURVED VARIETIES.

Of the new incurved varieties only two call for any special comment—viz., Mr. T. Coleman, sent out by Mr. Owen, of Maidenhead, and John Lambert, raised by Mr. J. Lambert, of Shrewsbury. The first named is a sport from Princess of Wales, and has received six first-class certificates. It resembles its parent in every respect except colour, the lower part of the flower being a bright golden bronze, shaded rose, the upper portion often bright yellow, inside the petals of a pale yellow. This is one of the most valuable acquisitions ever obtained, and should certainly become a favourite. John Lambert is a magnificent flower both in build and solidity. It is a sport from Lord Alcester, but superior in form. It was also exhibited at Sheffield, and, although it did not obtain a certificate, it was not the less deserving of one. The fact that the flowers had been shown at a previous exhibition had certainly somewhat militated against what must have been an exceptionally good trio of blooms when cut from the plants. Mr. Molyneux has rather decried this variety in some of the horticultural journals, giving it as his decided opinion that it will not be found equally valuable as an exhibition variety with the two new ones sent out last year—viz., Violet Tomlin and Miss Haggas. John Lambert sported with the raiser (Mr. Lambert) of Shrewsbury in 1886 or 1887, since which time it has continually been shown by Mr. Lambert on his incurved stands, and has no doubt contributed largely to his success. No Golden Queen of England or Emily Dale can approach it for build or colour, and it is a much stronger grower than its parent. Ada Spaulding, one of the new American varieties, has been grown by Mr. Owen, who has successfully flowered it, and who considers it an excellent variety. It is a splendid grower, making large, stout, fine-looking foliage, and as flowered last autumn was quite satisfactory in every respect, and should be seen in a conspicuous position on most winning boards this coming autumn. John Doughty, a sport from Queen of England, colour a rosy fawn, a decided improvement on the Bronze Queen, is also good. Violet Tomlin, a bright violet-purple, a tall grower, good foliage, and a good solid flower, is one of the newest and best as a show variety. Miss Haggas, a bright soft yellow, is also a tall grower, and is equally good with the last named. They are, however, both rather taller than the majority of amateurs can conveniently house.

ANEMONE VARIETIES.

Of new Anemone-flowered varieties which will no doubt become acquisitions may be named Mrs. Judge Benedict, Mrs. Chas. Pratt, Mr. E. C. Jukes, and Gladys Spaulding. Of the early or summer-flowering varieties, Golden Shah, an English-raised seedling, is likely to become popular, from its dwarf, compact habit, good foliage, bright yellow flowers, and earliness.

CHRYSANTHEMUM NOTES.

THE present is a very busy time for growers of Chrysanthemums, no matter for what purpose the plants are cultivated, and as numerous other duties press at the same time, some of the necessary details of culture are rather apt to be neglected. A most important matter needing attention just now is to allow sufficient space for each plant, so that one does not crowd its neighbour. The result of a lack of room just now will be weakly growths, which induce a greater height than is either necessary or desirable. It is much better to cultivate a smaller number of plants well than to

spoil a lot for want of the necessary means. This is an important point for beginners to study, and one which I would impress upon them strongly as a means of ensuring success.

Another matter which needs urgent consideration at this time of the year is that of potting the plants on as they require it, never allowing them to become root-bound. This defect in the proper treatment often prevents success. When plants have filled the pots in which they are growing with roots and cannot advance further, they must of necessity be crippled by a stagnation in the progress of the roots. Such a mass of roots as the pots contain when overcrowded must naturally exhaust so much more quickly the moisture in the soil, and if this be not doubly supplied to them, the plants must surely suffer a check. When plants become what is known as potbound, directly the roots exhaust the moisture in the soil a check takes place, and ultimately shows itself in a loss of the lower leaves of the plant, causing a disfigurement, which, if it was only for appearance sake, would be best avoided. Directly the pots are full of roots, the plants should be shifted into larger ones; it is the initiatory stages of growth which must be attended to. The third point which I have here to mention is that of watering plants regularly and thoroughly. In bright sunny weather, accompanied with drying winds, as has been the case during the last six weeks, plants need a regular supply of water to ensure a healthy tone. The plants should be examined twice daily; only those dry or approaching it should be watered. The next examination will probably find the remainder in a state requiring water, which should then be supplied. Although Chrysanthemums are water-loving plants, a sodden state of the roots, caused by excessive supplies or defective drainage, is most injurious, and quickly asserts itself in sickly-looking foliage and weakly growth, which can hardly be too strong if produced under favourable circumstances.

E. M.

GRASS WALKS.

I THINK all who have had any experience of Grass walks in kitchen gardens must agree with "R. C. H." in all that he says about them (p. 321). Undoubtedly they are beautiful when well kept, and I should be sorry, on that account, to see them done away with here or in any other place where they are a feature, or where the kitchen garden is as much a pleasure ground as anything else. Their utility is, however, doubtful, and in laying out a new kitchen garden, where economy is to be a consideration, I should strongly advise that Grass walks be avoided. Every practical gardener knows that Grass is one of the worst of weeds, as it seeds freely, is harder to kill than almost any other shallow rooting weed, and in dry summers the finer Grasses seed so closely to the ground that it is impossible for the mowing machine to gather it all or to prevent a quantity from ripening and blowing on to cultivated quarters.

All our walks in the kitchen garden proper here are of Grass, and very nice they look, but it is not too much to say that ever since the dry summer of 1887 we have been continually battling, and not too successfully, with the produce of seed then ripened. Had "A. D." these walks to keep in order he would soon find that seeding is quite possible; in fact the impossibility is to prevent it. As to economy, these kitchen garden walks and Grass borders take a man, a boy, and a pony nearly one whole day to mow about once a week from April to October (inclusive), and to say nothing of the pony, or the wear and tear of the machine, or the edging and clearing up, I should expect the same amount of manual labour to keep gravel walks of the same extent in thoroughly good condition, and with a little forethought, the bulk of the work might be done at a time when other work did not press very hardy. Mowing, however, must be done within a day or two of the right time, or the scythe has to precede the machine, thereby more than doubling the labour, for the machine that will cut long Grass nicely has yet to be invented.

For comfort in walking when the weather is wet,

or after heavy fogs, gravel is distinctly the best, and after all this is the great thing with walks. Here fogs and heavy dews are very prevalent, for our kitchen garden lies below the fog line and very close to water, so that one may as well walk through a shallow pool as to go over the walks in early morning before the sun has dried them. I find that dew is worse than rain for wetting the boots. One more objection is that nothing can prevent the Grass from wearing out in spots that may have a little extra traffic over them, especially if such places be in any way shaded or overhung, or not thoroughly open. Of course, such places can be relaid, but newly-laid turf wears worse than that which is established, so that either the main walk must be very wide, allowing room to vary the track, or bare spots will occur. Planks, of course, might be laid down at exceptional times, but the extra labour and expense entailed would be too heavy in most cases.

Suffolk.

CORNUBIAN.

GARDEN FLORA.

PLATE 750.

URSINIA PULCHRA VAR. AUREA.*

It is a curious fact that by far the greater proportion of hardy annual Composites produce flowers in which some shade of yellow or orange is the predominant colour. Such, however, is the case, and the same might also be said of the hardy perennial section, notwithstanding the large numbers of Michaelmas Daisies now in cultivation in our gardens. Against these, however, one might place the Golden Rods (*Solidago*), the Sunflowers (*Helianthus*), the Inulas, the Hieraciums, the Senecios, and many others, quite sufficient to outnumber all the purples and other shades found in this huge order. The tendency of the perennial section to flower towards the middle and end of autumn enhances their value considerably as decorative subjects, the Asters, Erigerons, &c., carrying us on to the beginning of winter. This late flowering tendency is not imitated to any appreciable extent by the annuals, most of which flower all through the hot summer months. The Composites have at least one advantage over many other summer annuals in that of the flowers being lasting, not fugitive, as is the case with Poppies, &c. The fugitive character of the blooms is a glaring fault in a good annual, however delightful the flowers may be while they last. In this huge order (*Compositæ*) we have many of the very choicest and freest flowering summer annuals, their period and time of blooming depending to a large extent on the time the seeds are sown. We have often been struck with the want of thought in this simple question of successional sowings, many people apparently thinking that by sowing on a certain date annually they have done all that is required of them; this, however, is far from being the case, as with many beautiful annuals one sowing gives a month's flowering, so many successional sowings give many months' bloom, and by management and a little scheming a few of the hardiest of these very convenient flowers may be had in bloom from late spring until late

* Drawn for THE GARDEN by H. G. Moon at Gravetye Manor, August 9, 1889. Lithographed and printed by Guillaume Severeys.



URSINIA PULCHRA VAR. AUREA.

autumn. Seed-sowing in autumn should be practised with all species capable of withstanding our winters in the open air, as by their presence the mixed borders and beds may be made interesting; whereas by their absence the chances are that the amount of bloom will be very meagre indeed. Most of the American and many of the Cape annuals may be sown with perfect safety in the open border in autumn, covering the seeds to the depth of a couple of inches with soil and leaving them to take care of themselves. The often unusually long, tedious, and strict injunctions one yet meets with on seed packets deter rather than advance the popularity of these charming simple flowers, the instructions about sowing on a gentle hotbed, &c., not being by any means in their favour. A few years ago no one would have thought of growing the lovely *Portulaca grandiflora* and its varieties unless possessed of a hotbed or pit in which to raise the seedlings, and it has now been fully demonstrated that the only royal road to success with the *Portulaca* is to sow the seed as thinly as possible in the open border, and not on any pretext whatever to disturb the seedlings. These *Portulacas*, like many other annuals of similar constitution, are very impatient of disturbance. By sowing in the open air in the bed or border where they are intended to bloom all this loss is avoided, and the plants will be found better in every way. A case analogous to the above is presented with the near allies of the subject of our coloured plate, the *Venidium*, *Gazania*, &c.; these also we find give infinitely better results when sown in the open than in pots.

U. pulchra, better known, perhaps, under its old name of *Sphenogyne speciosa*, as will be seen by our plate, is a very charming hardy annual, introduced, it is said, about 1836, and ever since it has been a general favourite in gardens. It seems to have been almost unknown to botanists, having been first described and figured by Knowles and Wescott in the "Floral Cabinet," 1838, vol. ii., p. 131, fig. 77, and by Paxton, "Magazine of Botany," 1839, vol. vi., p. 77, both of which works give the name of *Sphenogyne*. It is, perhaps, a pity that botanists did eventually find it, as it has had to go through the fire, and have the name changed from *Sphenogyne speciosa* to *Ursinia pulchra*. Its native country is not known with any certainty. It is not mentioned in Harvey and Sonder's "Flora Capensis." Paxton states that it is asserted by some to have been introduced from South America, and by others from South Africa; the latter is doubtless nearest the mark, and very possibly from Namaqualand, a district which has not yet been fully explored. However this may be, we have the plant in cultivation, and it proves one of the prettiest and most useful of border flowers. Paxton in his remarks, 1839, says that "it cannot prove otherwise than an acquisition to any collection; whether in its finely cut foliage, graceful and undulating, or its large and handsome blossoms, it is eminently worthy of admission

to all well-arranged flower borders." It fully merits now all that may be said in its favour, standing, as it does, conspicuously amongst all the later introductions. The flowers of the type are of a rich orange, with a circle of black at the base, and a dark purple disc. *U. anthemoides*, introduced in 1795, and figured in the *Botanical Magazine*, t. 544, as *Arctotis anthemoides*, differs from *U. pulchra* in having the under side of the florets purplish instead of yellow. Though an exceedingly large and varied genus, these are the only species to our knowledge in cultivation at present.

D. K.

FLOWER GARDEN.

THE FINEST DAFFODILS.

THE Daffodil has for about 300 years flowered in English gardens; but never in the history of the bulb has it aroused the same interest as at present, when for the second time within an interval of six years a conference and an exhibition have been held to illustrate the remarkable development of the flower in England. There is also a *Narcissus* committee, a useful institution in an age when varieties increase rapidly, and are each given a name, whether distinct or beautiful enough to deserve it. Then the committee steps in to judge the novelties and to register only those that have distinguished merit. Of the usefulness of the Daffodil in the garden and as a cut flower there can be no two opinions. We may protest against the naming of every flower that shows a degree of difference from something else, but that does not shake the popular love for the Daffodil. A visit to the markets at Easter would show that there is an increasing demand for distinct varieties as the noble *Horsfieldi*, for which we have to thank a humble Lancashire weaver, or the somewhat tender *maximus*, admired by all for the intense richness of its golden colouring and the bold expression of the bloom. Then there are *Emperor*, the early-flowering *Ard-Righ*, one of the first to greet us with its golden flowers; *Golden Spur*, *princeps*, *Nelsoni*, and such exquisitely beautiful incomparabilis forms as *Stella*, *Cynosure*, *C. J. Backhouse*, brightened by a true scarlet cup; *Princess Mary*, and *Sir Watkin*, a noble flower of large proportions, especially when in the perfection shown by the Rev. W. Wilks at Chiswick last week. The sweet-scented *odorus*, *Jonquils*, and *Poet's Narcissus* never fail to bring a good return when offered for sale. Those intermediate forms and the white Daffodils, which differ in degree only from each other, are for the collection of the enthusiast rather than for the man who means to turn his treasured flowers into money. But we must not overlook the importance of this increasing Daffodil industry, for such it has truly become. It is a trade, and likely to develop. We have expressed before our belief that England may be made to produce its own Daffodils, Tulips, and other bulbs besides, now imported from the Continent, and thus save parting with capital which might be kept at home. Those who have seen the *Narcissi* at Long Ditton or Ham would feel convinced of this. At Ham, where the picturesque nursery of Mr. Walker is placed, there are 14 acres of Daffodils, waving fields of foliage, that bends before the breeze as a slender Grass, and shows by the vigour of the growth and strength of the flower that the Daffodil loves the pure air, sandy loam, and culture supplied it. It may appear

incredible, but for the most part the bulbs are lifted each season, and in this annual lifting both Messrs. Barr and Son and Mr. Walker place great faith. The bulbs are taken up when ripe in July, stored carefully in a shed, and replanted again in September, and in both nurseries they are grown in beds raised about 6 inches above the surface to prevent the accumulation of moisture, as dryness is one of the great conditions essential to success. Those who have never seen the large breadths of bulbs that supply countless bunches of the finest flowers, should take a peep at either or both of the nurseries mentioned. There they will discover the remarkable variation not only in the flower, but in the leaf, from the thread-like foliage of the pretty *Bulbocodiums*, or *Hoop-petticoat Narcissi*, to the broad, strong leaves of the trumpet varieties, or the slender and graceful habit of the many incomparabilis forms, and will be convinced that there are the germs of a great national industry in the growing of bulbous flowers in England.

Few men have done more for the *Narcissus* than Mr. P. Barr, and in his nursery at Long Ditton he has at the present season hundreds of varieties in bloom, and there is much to be learnt as to the variability of the Daffodil in such an immense variety of kinds as here presented. Every section in which it has been thought fit to split up the genus is there, and the best kinds belonging to it, a few of the very finest of which will be pointed out as a guide to those who are puzzled by lengthy lists, but yet wish for a good collection. The name of Mr. Barr is inseparably connected with the *Narcissus*, and his new nursery at Long Ditton, just outside the little rural village of the same name in the valley of the Thames, and to which he migrated from Tooting last autumn, happily suits the fair flower that covers many broad acres of light sandy loam. The best station to reach Long Ditton is Surbiton, and from whence the nursery is about fifteen minutes' walk.

Those who visit Mr. Barr's nursery of Daffodils must be prepared to view hundreds of varieties, each arranged in distinct sections to prevent confusion, the white varieties of the *moschatus* type in one division, and the yellow trumpets or *Ajax* in another, and so on through the whole family. The pretty little *Hoop-petticoats* offer interesting variation, and except, perhaps, the very small-flowered kinds, as *nivalis*, should not be grown only in pots, as too often seen, but in the open ground exposed to wind, rain, and sunshine. They are blooming freely without glass protection at Long Ditton, and in the Royal Gardens, Kew, recently we were pleased to see a long break of the citron-coloured form, while in the same gardens the yellow *Hoop-petticoat* clusters at the foot of an old wall, making a delightful little picture of flower beauty. When thus in some measure sheltered, the basket-like blossoms are shielded from the heavy rains that beat up the soil against the flowers, which are, by reason of the dwarf habit of the section, near the surface of the ground. The large-flowered yellow variety was in bloom a few days ago, and is about the same size as *conspicuous*, and of the same rich golden colour, but, of course, much earlier; *citrinus* was in full bloom, and this is one of the most useful of the *Hoop-petticoats*. The pretty white *monophyllus* is another good kind, and for pots the small yellow-coloured *nivalis*. Although we never like to grow a hardy flower in a pot, the *Corbularias* make pretty pot plants, the delicate beautiful flowers amongst the grassy leafage having a dainty appearance in the drawing-room or greenhouse. The finest of the *Johnstoni* type is Mrs. George Cammell; the flowers are not only larger

in both cup and segments than the type, but the colour is richer. It was found in the north of Spain, and should be grown even in preference to the type illustrated in *THE GARDEN* July 21, 1888, as it seems to have just the same hardy constitution with the advantage of finer flowers.

The trumpet Daffodils are the greatest favourites. The colours are for the most part rich and decided, or of two shades of yellow blending softly one into the other. *Maximus* is one of the finest as regards colour, but it is tender, and absolutely refuses to do well in some gardens; it is, however, worth a good trial. Nothing can approach it for intensity of colour and boldness of shape. Then we have a new kind, one of M. de Graaff's seedlings, and named *Glory of Leyden*. It is, unfortunately, rather coarse, but the segments are broad and creamy-white and the trumpet rich yellow. It is of the same type as *Emperor*. *Golden Spur*, *Captain Nelson*, M. J. Berkeley, *Countess of Annesley*, *Henry Irving*, *John Nelson* and the little neatly-shaped *obvallaris* are all Daffodils worth growing; while of the bicolors—that is, those of two distinct colours—none are finer or more distinct than *Horsfieldi* (King of Daffodils), *Michael Foster*, *Dean Herbert*, *James Walker*, and J. B. M. Camm, a prettily-coloured variety, very distinct from those mentioned above; the sepals are white, and the chalice delicately tinted with primrose colour. A very distinct flower is *Daniel Dewar*, and a mass of it, as at Long Ditton, is as rich as almost any Daffodil, especially when the sun shines on the flowers. These are compact like those of the *Tenby* Daffodil, and the trumpet is intense yellow, a colour that also appears on the lower half of the segments, the other portion remaining creamy-white. *Mme. de Graaff* is a trumpet Daffodil to which special reference should be made, and which will be found described in the report of the *Narcissus* exhibition at p. 378 of last week's *GARDEN*.

The white varieties have many admirers, but the colour is weak. It is not true white; rather of a cream shade, or with a trace of primrose in it. *Albicans* is one of the best known of this division, and to which also belong *cernuus* and its variety *pulcher*. We hope to publish a coloured plate of the white forms, and attention will then be drawn to the best of this section, the several varieties of which so closely resemble each other, that care is necessary in making a selection.

The section called *incomparabilis*, and which has leafage as graceful as any Grass, contains some rare gems, as *Autocrat* and *Cynosure*, a variety which has been used to advantage in the Royal Gardens, Kew, this season in beds filled with this kind alone. The soft colouring of the flowers, their elegance and beauty are delightful, but we prefer to see such types in the Grass planted as naturally as possible, as then the elegant expression and gracefulness of leaf and flower are brought out in all their fullness.

Every lover of the Daffodil should have the bright orange scarlet tipped *C. J. Backhouse* and such gems as *Beauty*, *Gloria Mundi*, described at page 377 of last week's *GARDEN*, as one of the Daffodils of the future. *Sir Watkin* is a good kind; but since it was sent out it has not proved altogether the great *Narcissus* it was said to be. The flowers have become smaller, and lost much of the vigour that stamped them when the variety was first brought to public notice. It is, however, worth a place in every collection of Daffodils. *Queen Sophia* is a good variety; it has a large, handsome, orange-coloured cup and pale sulphur segments. Of

the Barri group *Sensation* is the brightest, and one of the finest varieties in cultivation by reason of the rich orange-scarlet cup, intensified by contrast with the yellow perianth. *Maurice Vilmorin* is an excellent variety, the perianth creamy white and the cup lemon, stained with orange-scarlet. Then we have the *Leeds* group, and nothing in the Daffodil is prettier than *Duchess of Westminster*, a flower that should be valued for cutting, as the perianth is of the purest white—true white, and the cup of a soft and charming canary colour. Very pretty also is *Madge Matthew*, the perianth white and the cup pale yellow. *Duchess of Brabant*, *Gem*, *Grand Duchess*, *Beatrice*, and *Katherine Spurrell* are all worth growing for the beauty of the individual flowers. Such forms as these are the most graceful of all Daffodils, and the best to plant along by the margin of the shrubbery, in the meadow, or in wild spots that one wishes to grace with beautiful flowers.

It is scarcely necessary to refer to the *Poet's* group, as everyone knows of their beauty and the value of such kinds as *ornatus*, but there is another section called *Burbridgei*, which is very like the Pheasant's-eye and might be grouped with them. *Falstaff* is a beautiful variety, the perianth snow white and the lip lemon, with a rim of orange. Then we have the pretty race of sweet-scented *Jonquils*, the *Campernelle* and *odorus* varieties, besides the little *Macleai* and such types as *Nelsoni*, also the *Polyanthus* *Narcissus* types, which make gay blocks of colour in the garden, but are better for flowering early in the year in pots, and the double varieties, known to all who love the Daffodil.

The few remarks we have made show the variety of *Narcissi* obtained by seed and introduction, as the little cyclamineus from Spain and Portugal, through the efforts of Mr. Tait, of Oporto, and Mr. P. Barr. If there is the same progress the next six years as since 1884, we shall have a still greater list, but there need be no confusion nor naming of worthless or indistinct kinds if the raisers will honestly destroy those not worth cultivation. Many kinds now in cultivation are not worth growing simply by reason of their close alliance to types already in our gardens. This point was especially alluded to by Professor Michael Foster in his address at the conference last week, and it is to be hoped that the advice given by him and others will bear fruit. We have the *Narcissus* committee, and that should be a check to over-zealousness in the effort to name mere variations. It is one certain way to create distaste in a lovely flower that can be used in many charming ways in the garden. The remarks made by the Rev. G. H. Engleheart at the Daffodil conference were eminently useful to those who intend to raise seedlings. His more important points are noted in *THE GARDEN* at p. 379. Those who want an interesting pursuit could do worse than raise seedling Daffodils, even if only one kind in a hundred of any value is obtained for the seven patient years of waiting from the sowing of the seed until the bulbs bloom.

Anemone apennina.—I have grown this in pots for many years, also the white variety of it, but to do them well and keep up their free-flowering habit they must be annually repotted, and require more attention than one would think. I grew them for the purpose of exhibiting them at a flower show in March, but never could get them into really fine bloom, and had to fall back on other things. I do not differ greatly from "R. D." (see p. 341), except that I do not think it worth while to grow the blue wood *Anemone* in pots if there is a

garden of any kind, for the plant will grow anywhere in sunshine or shade, and the variety *alba* is as free as the other. They are now charming in the rock garden. The blue *Winter Windflower* (*A. blanda*) is not nearly so free in growth with us either as a pot plant or set out in the rock garden or borders.—J. DOUGLAS.

SHELTER FOR HARDY FLOWERS.

In his excellent paper on spring flower gardening, read at the Drill Hall on the 8th inst., Mr. W. Ingram laid great stress upon the value of overhanging trees for the giving of shelter to hardy flowers during the winter. There seems plenty of evidence of the same good results, but probably Mr. Ingram has found, as most others have, that the trees or branches must not shut out the sun. It is not merely that shelter is needed from above, but behind also, and with such a wealth of shelter as Belvoir affords with its slopes and terraces it is not difficult to understand how effectually both shelter and the sun's rays may be utilised for the protection and promotion of early hardy flowers. Only the other day I noticed a singular example of the good protective effects of overhanging trees at Messrs. Hawkins and Bennett's at Twickenham. Looking along over one of their fine beds of *Lilies* of the Valley, I observed at the back two small breadths of unusually precocious growths, the earlier leafage standing out like a green oasis in the desert of crowns just protruding through the soil. These precocious growths were immediately beneath the overhanging branches of a couple of Pear trees, showing that were such very moderate, but overhead shelter given throughout, the *Lilies* would have been generally much more precocious in growth. In another bed where the back side of the frame was left standing the growth the entire length of the back part of the bed was fully a fortnight earlier than was the growth in the front, showing again the value of back shelter. One of the features of spring gardening at Belvoir would seem to be found in almost unusual precocity. That to some extent was said to be to Mr. Ingram having, as it were, schooled his plants by selection from seed, &c., to come earlier into flower than was the case formerly. That is doubtless true to some extent, but it is also a fact which must not be overlooked that just as shelter and sunny aspects promote early blooming, so does the repetition of that early blooming tend to make plants in suitable aspects constitutionally precocious. Those who would set about imitating, even in a small way, what is so grand and beautifully done at Belvoir, should take stock of their surroundings. A cold clay or otherwise uncongenial soil may be corrected somewhat by excavating the subsoil and replacing it with rubble, old turf rubbish, or decayed garden refuse. Slight elevations in the shape of mounds or slight slopes present more base warmth than do flat beds; indeed, it is possible, as Mr. Ingram showed, to utilise the refuse of the garden when got into a semi-decayed state by flattening it out a foot or so thick, covering it with a few inches of soil and planting it with early-blooming hardy flowers, especially carpeting plants, and also with bulbs, and thus produce a beautiful mass of flowers early in the year. But with all these provisions it is evident that shelter is indispensable, and shelter which, whilst not interposing between the plants and the sun's rays, will yet break the sweep of cold biting winds. Practically, where spring gardening of this kind is to be made a feature, sites should first be selected which are naturally undulating, and shelter should be specially planted if none be otherwise provided. Throughout the flat district of West Middlesex, where the trees have been hard trained, and hedgerows destroyed so that the cold winds sweep over the land without check, all kinds of hardy spring flowers with few exceptions are late. *Pansies*, *Violas*, *Daisies*, *Aubrietias*, and many others of the hardy spring blooming section are scarcely at this moment showing bloom. *Polyanthuses* and *Primroses* are early, but they will bloom in spite of the weather. Even the hardy *Wallflowers*, *Honesty*, and *Forget-me-nots* are later than usual, so that spring gardening for very early

displays would not answer in this unsheltered district, and in our rather cold soil, on gravelly or peaty soils, much earlier blooming invariably results. As in embarking upon any new form of gardening a good model is desirable, a visit to Belvoir would prove most useful to the novice.

A. D.

The Wood Anemones.—Mr. T. Smith, of Newry, in his note on the varieties of *A. nemorosa* in *THE GARDEN*, April 19 (p. 363), omits one of the best, viz., *A. trifolia*. It grows most vigorously at Brockhurst, both in shady and open situations, and has done so now in the same places for six or seven years. It was figured in the *Botanical Magazine*, t. 6846, from specimens forwarded from this garden. It has a much simpler leaf than our English *A. nemorosa*, being simply ternate or trifoliate. The flowers have much more substance, and the petals are less transparent and of a creamy white. They will last in water, which our English Wood Anemones will not. It is curious that this variety is so little known; our florists would do well to offer it in their lists.—W. BROCKBANK, *Brockhurst, Didsbury*.

Crown Imperials failing to flower.—I like to see these showy border flowers in the garden, although the perfume is not quite agreeable to some people. We have six varieties, amongst them four with variegated foliage and one with clear yellow flowers. We have also to complain that they did not flower well last year, and they are not flowering more freely this. I fancied that last spring, owing to the wet, cold season of 1888, the bulbs failed to ripen well. The year 1889 was not a good season for them either, as the weather was unfavourable up to the time the leaves became yellow, and the stems decayed. I fancy this has something to do with it, but our bulbs have not been removed for six years; therefore I hope to have time to replant them next year. This will undoubtedly give the plants more vigour, and with warmer springs we may hope to see our Crown Imperials flowering more freely.—J. DOUGLAS.

The great label question (p. 362).—Your notice of the new labels now in use at Kew induces me to say that on a visit to Kew last week I was quite pleased to see that they have adopted this plan, which I have used here for more than twenty years. I still use the old T labels made of cast iron, and having a large stock of them, most of which have been here for at least seventy years, I am not likely to change them. If I did I should certainly adopt the zinc label of Kew. It is inconspicuous in itself, yet the name is easily read. But my object in writing now is because I think many will like to know the particular paint that must be used, for everything depends on that. I give the recipe as given to me by Mr. Green when he was gardener to Mr. Wilson Saunders, in whose garden I first saw the process. The coat of white paint should be of good ground paint, and it is well to do it some days or weeks before the lettering is done, so that the paint may be completely hard. The black paint is made of vegetable black, turpentine, and gold size—no oil, or this will cause a blur. When required for use the black is laid on thin over the white, and the name written with any pointed instrument. A beginner will probably make one or two failures, but he will soon learn the knack.—HENRY N. ELLACOMBE.

Hollyhock diseases.—So much has been said about the true Hollyhock disease (*Puccinia malvacearum*, Mont.) that it is only fair to call attention to another one. Last year, in and around New Brunswick, New Jersey, it was almost impossible to find a single healthy Hollyhock among the thousands of plants. At first the lower leaves began to exhibit large circular brown patches, sometimes bounded upon the side toward the centre of the leaf by the veins, thus giving an angular outline. Soon after, the largest leaves of all suffered and fell, and by the middle of August whole rows of the plants exhibited leafless stems. Few gardeners now have any plants, but one enterprising propagator has a long row of fair-sized seedlings in pots. When I first saw these seed-

lings they were—a few hundred of them—in a box under sash, and so badly infected with the blight that there seemed at first to be no hope for them. Perhaps one plant in five was saved and pricked out in a fresh box, and the following remedy was applied almost daily: Three ounces of carbonate of copper were dissolved in a quart of standard ammonia, and afterwards diluted to twenty-two gallons with water. At the same time the older leaves which developed the spots were removed and burned, until a comparatively healthy condition has been reached. The disease is due to a *Cercospora* and probably *C. althæina*, Sacc., a species which in its various forms grows upon the common Mallow (*Malva rotundifolia*), Velvet-leaf (*Abutilon Avicennæ*) and a species of *Callirhoe*. As said in the beginning, too much credit should not be given to the Hollyhock rust (*P. malvacearum*) that has come to us from abroad while we have a blight of our own to attend to, even if it is one that can be kept in check perhaps if taken in time by using a compound of copper.—BYRON D. HALSTED, in *Garden and Forest*.

THE PINK.

THE Carnation and Picotee have won their way to high honours during the last few years, and the beautiful sweet-scented garden Pink has been left somewhat in the shade. As a hardy border flower the Pink is more to be depended upon than the Carnation. It was a garden favourite years ago, and ought to be grown much more than it is for its sweetness and beauty. In my early gardening days many amateurs made quite a speciality of the Pink, and its improvement was the end and aim of many of them. Dr. Maclean, of Colchester, was a notable raiser of Pinks, several of the varieties produced by him being still cultivated in our gardens. Forty years ago Mr. Charles Turner, of Slough, was also a raiser. I found the Pink a most useful flower for small gardens, or gardens where professional skill, or glass houses and frames could not be obtained. The Pink is hardy and easily cultivated if ordinary care is bestowed upon it, but some persons seem to be unable to get up any enthusiasm about their plants unless they are in flower; such persons must expect to be disappointed. The Pink plants may want looking over during winter to see whether slugs or the leather-coated grub is not devouring them, or frosts have not thrown them out of the ground altogether. The plants are now throwing up their flower stems freely, and will require to be supported with neat sticks after the surface of the beds has been stirred with a hoe. The plants of the forcing kinds in pots are easily managed, and make a most interesting feature in the greenhouse and conservatory in the early months of the year. The varieties with white flowers and those with purple ground colours are the best for forcing. The forcing kinds require special preparation to get them into large flowering specimens by the end of the year, but this is a matter of mere routine garden work. There are always plenty of nice young cuttings to be obtained on the plants that have been forced, and if these are put in over a gentle hot-bed or in a forcing house during the months of March and April, they do not take long to form roots, and when this occurs they should be planted out again in boxes in fine soil, 3 inches or 4 inches apart. About the end of May or early in June plant them out in a bed of fine rich soil a foot apart, and they will form fine large clumps by the end of September, and can then be potted up into 6-inch pots at that time. The plants may be placed in cold frames until they are required to be removed in successive batches to the forcing house. The border varieties do not require the aid of glass, or flower pots or boxes. In June the cuttings or "pipings," as they are termed, should be taken off; if on a dull cloudy day, all the better. Prepare a piece of ground in a rather shady place, and plant them in rather firmly, say 3 inches apart. When they are well established plant them out in beds where they are to flower, about 9 inches or 10 inches apart. I find they do best if planted by the end of August in deep rich soil; the roots have thus a chance to push deeply into the ground, and the

plants having a firm hold, they pass through the winter without any injury from frosts or excessive wet. In wet, cold districts it is very desirable to raise the beds or borders about 9 inches above the surface of the ground. We do this by trenching the ground and putting in a good dressing of decayed manure, and as our soil is heavy, an inch or two of fine sandy soil (siftings from the potting bench) is spread over the surface, in which the plants are put out. The plants require the kindly interest of the cultivator in winter when so treated to see that no evil befall them from slugs, grubs or caterpillars. Seedlings are easily raised.

J. D. E.

BROAD-LEAVED SAXIFRAGES.

THIS section of a large and varied family is of great importance in the garden, as the various kinds are handsome the whole year round, but particularly so when in flower. They will grow in almost any soil or position, in sun or shade, and associate well with the nobler types of hardy herbaceous plants, or they may be arranged with admirable effect beneath thinly planted choice shrubs, or in broad masses in the foreground of shrubs, &c. Upon the rockery, too, they may be used with good effect, and nowhere can one better enjoy their distinct and rich green foliage. They are, however, so bold and magnificent when in flower that they ought to be well treated, or at least some of them, in order to induce them to flower freely and strongly. One of the best known species is *S. crassifolia*. It is now throwing up its flowers, which are borne in a branched or panicle cyme upon a stout footstalk. They are of a pretty rose colour and contrast well with the rich green leaves. There are several varieties of *S. crassifolia*, the best of which is one named *orbicularis*. It is a small-growing form, much less coarse than the type, and with broad leaves and freely branched spikes of light rose flowers which are borne well above the foliage. Another variety named *rubra* has flowers of a much deeper shade of rose.

S. cordifolia is a bold and handsome kind with great heart-shaped leaves borne on thick footstalks, and dense spikes of rosy flowers which open in March, and cluster, as if for protection from biting winds, beneath the ample leaves, but as warmth increases the footstalks lengthen, bearing the flowers in rich branched arching masses high above the leaves. A variety of it named *purpurea* is very handsome and valuable as a foliage plant even if it never flowered. Considerable progress has of late been made by intercrossing some of these best kinds, and the results are to be seen in seedlings that are vigorous and very variable, some kinds having flat leaves resting upon the ground, others with erect leaves, and a few having the foliage wavy, fringed, and deeply corrugated, the flowers clustering amongst, resting upon, or rising high above the foliage. In the kind named *purpurascens* the leaves are of a distinct liver-coloured hue, whilst others have bronze, or rose, or crimson-stained foliage; moreover, it is in winter and early spring, when the garden generally is dull, that the *Megasea* leaves are brightest and most charming, as even some of the normally deep green-leaved kinds take on quite a brilliant crimson hue during the winter months. Less useful than the above named kinds, because a little tender, is *S. ligulata*. It is, however, an extremely pretty kind with rosy-tinted white flowers. It grows and flowers so early in the spring that it rarely escapes injury from frosts, except in favoured spots or localities. It is worth, however, providing it with a sheltered, and even partially shaded situation. As a pot plant it is extremely beautiful and may be had in flower without forcing very early in the year. In a cool house it opens its delicate coloured flowers, and they last a long time when thus protected from biting winds and frost. It might also be mentioned that even the hardier kinds before enumerated make excellent plants for pots and tubs, and if planted where they can make a good growth and complete it early they may be lifted in October and potted, and will flower grandly from Christmas onward. Another beautiful kind, but which like *S. ligulata* needs a sheltered

position, is *S. Stracheyi*. It has large leaves and branched cymes of pale pink flowers, which open in March and consequently are damaged by bleak winds—hence the need of a little shelter. As a class, however, these broad-leaved Saxifrages have a greater value and importance in the garden than many are aware of. They are extremely beautiful, variable and long lasting, and both in large or small gardens they should be put to a variety of good uses.

A. H.

FLOWER GARDEN SPECIALTIES.

UNDER this heading may be included not only new plants, but also many old and tried favourites employed in some special and novel manner for the summer embellishment of the flower garden. Foremost among the novelties, which, although not new are of comparatively recent introduction into many flower garden arrangements, are the cones or pyramids built up of *Geraniums*, *Fuchsias*, or *Heliotrope*. I do not defend these or advocate their use, holding rather that they are out of place and inconsistent with natural surroundings, but it is oftentimes the duty of the gardener to carry out instructions rather than make suggestions, and if showy pyramids are required, he has to build them up. An average size for such pyramids is a height of 6 feet and a base diameter of 5 feet, and the skeleton frame is usually made with hoops of three-quarter-inch round iron about 6 inches apart, with "curved uprights" to hold the hoops in position, the diameter at top being about 1 foot. If *Geraniums* are employed in their construction, either tall, old, or young spring-struck plants may be used, the method of operation naturally varying with the material, as old plants are plunged and tied to cover the framework, whilst young plants are simply built up from base to summit. I think the latter make the brighter and more lasting pyramids of flower. Not much special soil is required, as the centre of the cone can be filled in as the work progresses with such rough stuff as chopped turf or even partially decayed leaves, a thorough soaking of water being given from the top when the pile is finished. It is advisable to work in a little rough Moss for the face of the pyramid, as this not only prevents the soil from drying, but hides any little bare patch that may show from loss of foliage. Only pot stuff should be used for this particular work, as there is then no dropping of the leaves, and the plants come away very quickly. *Lucius*, *Amaranth*, and *Flower of Spring* are three capital *Geraniums* for the purpose in their respective colours; *Lady Plymouth* is also admirable, and makes a grand mass of colour by the end of the season. If *Fuchsias* or *Heliotropes* are to be used, old plants are preferable; a big umbrella-shaped plant can be plunged in the centre and trained downwards from the top, and others plunged round the base and tied in to form the sides. I may mention that such cones or pyramids of flower should only be allowed where the natural surroundings are stiff and formal, such, for instance, as gardens abounding in closely sheared hedges, straight paths and walks, geometrical designs, and abundance of statuary.

If there are plenty of big old plants of *Heliotrope* in hand, they should be started in a little warmth to allow them to break freely, be gradually hardened off, and then be used to summer clothe any low walls or objectionable fence that may exist in the flower garden. For a permanent evergreen covering for such a purpose there are few better things (where it will retain in perfection its variegation and bright colour) than *Hedera maderiensis* variegata. Having to clothe a low fence round a large basin of water, I used this Ivy for the purpose. There are a number of vases at intervals round the basin which are kept filled with plants, some creeper being used until a couple of seasons ago to cover the sides, when finding the Ivy was inclined to do this I gave it a little assistance in that direction, and now fence and vases are so completely covered that it is difficult to tell the latter are there at all, save for an occasional protuberance in the wall of foliage, and all we require for them is some good centre plant that will show off against

the Ivy. A special feature of some of the older gardens is the raised beds sometimes of two or three stages; they are very pretty when tastefully planted, although, unfortunately, they often have to follow formal lines and are panelled or ringed in special colours. One rather pretty arrangement for such beds is a carpet of *Gnaphalium lanatum* thickly studded with a large-flowered dark scarlet *Begonia*. Some good plants of *Gnaphalium* should be used as an edging to hang well down over the circle of piles used to keep up the soil, and if something bolder is required in the centre the *Gnaphalium* may here be dispensed with, and some bushy plants of *Eucalyptus globulus*, or better still *Galtonia candicans* be used in conjunction with the *Begonias*. This *Galtonia* is a great acquisition to our flower garden plants. Once planted it should not be disturbed, but allowed to occupy a permanent position, as under these circumstances it is much more vigorous, and, I find, lasts considerably longer in flower. *Fuchsias* also show to great advantage in such raised beds if some dwarf plant be employed as a carpet in such colours as to form a pleasing contrast to the larger plants. Sometimes these raised beds are planted with Ivy, and in this case some flowering plants grown on in pots and plunged amongst the creeper at intervals, so that the spikes show well above the foliage, have a very pleasing effect. The above-mentioned *Galtonia candicans* is useful for this purpose, and so is the old greenhouse plant *Francia ramosa*. *Humea elegans* is quite a speciality in some gardens; grown to a height of 5 feet or 6 feet, and planted or plunged among dwarf plants it is at once novel and pleasing.

Claremont.

E. BURRELL.

SHORT NOTES.—FLOWER.

Italian Squill (*Scilla italica*) is a pretty early dwarf bulb, introduced long since to our gardens, and now very beautiful in Messrs. Barr and Son's grounds at Long Ditton. It is bright and handsome in a mass. There is a more robust form known as *purpurea*, which has also deeper coloured flowers.

Collecting Cyclamens.—The Prefect of Savoy has recently prohibited the gathering of the *Cyclamen* in the woods of his department. Notwithstanding its abundance in the locality, this beautiful plant had been threatened with total extinction, from the enormous numbers gathered each year for sale in the markets of Chambéry and Aix-les-Bains.

Anemone fulgens.—Mr. Cannon's garden at Merton is now very gay with clumps of this gem amongst hardy plants, its bright scarlet flowers being very attractive amongst the many yellows of our spring-flowering plants. I strongly recommend it to those having a small garden as well as to those with more space at their disposal. It is a plant never out of place.—W. H. G.

Scarlet Windflower in masses.—The brilliancy of *Anemone fulgens* when the flowers are massed, as at Long Ditton, is remarkable. There are twenty-five beds, fifteen of which are together and sheeted with bloom. The deeper coloured *græca* is also in flower, and the variety *annulata*, which has a ring of yellowish white at the base of each of the segments. The bulbs are planted in autumn, and flowers have appeared since January last.

The Daffodils at Chiswick.—If I were writing about the show of Daffodils from the aspect of the general public, I should say at once there are far too many varieties, and they are thus most bewildering. To the lay mind distinctions are found in name only, and not in form. Doubtless the Daffodil expert can find the distinctions, but they are trivial and minute. What we badly need in the case of the Daffodil is a sort of select list into which only really distinct and first-class ones are placed, the list of those omitted forming a kind of *index expurgatorius*, showing what to avoid. I am quite certain that the greater portion of these inferior forms are kept alive by a few traders solely for trade purposes. The layman or woman who looked over the large collections at Chiswick ruthlessly whittled down that selection to about a score, and it would have been found, I am sure that in the majority of cases these outsiders had chosen nearly the same varieties. Cannot we have

a "garden" selection of the best forms cut down to twenty, or at the most twenty-four? The lists would perhaps be most useful coming from those who do not grow for sale. Their object should be to aid amateurs to purchase the very best, and not rubbish. It would be specially useful were the select forms taken from each section into which Daffodils are divided. In any case we should most assuredly find Emperor, Horsfieldi, Sir Watkin, maximus, Duchess of Westminster, Barri conspicuus, and ornatus coming into every selection. Very special selections of kinds to grow for market would also be useful. Looked at from the connoisseur's point of view, doubtless every variety, no matter how small or infinitesimally it may differ from others, has attractions. The expert is welcome to his fancy, but the non-expert wishes for the recognised best only.—A. D.

SLUGS IN THE GARDEN.

THERE is no difficulty in getting rid of slugs in gardens either in winter or while plants are growing, and the cost in either case need be but trifling. To capture them, however, is an important question with many people. The quickest and surest way to do this is to place on the ground round about the plants they are injuring, for the time being, some materials which are too light for them to pull themselves away from after they have stuck to their slimy surface. Barley and Oat chaffs, malt combs, or the dried radicals of Barley from malt kilns, and particularly the more soot-like quality of them that are the result of making black malt for porter, are well adapted for this purpose, and each one is about as effective as the other. If belts of one of these materials are placed round or about the plants being devoured, the slugs, in attempting to pass over them, will get more and more lopsided and turn over on their sides, when it will be all over them; and they may easily be seen and picked up by a boy any time the next day. They will then come in well for poultry, and all the better for young birds if the bucket or sieve in which they have been gathered has been held under the pump or water-tap to clean them of most of their fatal burden. The belts of materials should not be less than 3 inches or 4 inches in width, nor 1 inch in depth. The above plan will pay its way, or thereabouts, apart from clearing the ground of its enemies, for the above materials will make an excellent mulch for keeping the surface porous and letting in and preserving moisture, while all of them will yield excellent plant food as they decompose.

Bran and soot have been sometimes recommended as serviceable for the above plan, but both of them are comparatively unsuitable. Bran will stick together after the slightest rain or a heavy night's dew, when the slugs will pass on if they do not stop to eat the bran. The scent of the soot is repulsive to the slugs, but it will form a glazed surface after rain or dew that they can freely travel over. Even the suitable materials recommended will need gently and carefully lightening up with a rake after a night or two, unless the weather should be warm and favourable for the slugs to turn out for feeding and all of them get clogged the first and second nights—a thing not at all unlikely.

Lime is a sorry remedy for slugs when plants are large or required to grow quickly. For, to say nothing of its unsightly appearance, to be effective it must be applied when the foliage is damp, when it forms a paste, and thus probably closes as many breathing pores of the leaves as the slugs would eat away. Lime, however, may be effectively applied in the autumn after the summer crops have been gathered. To encourage the slugs to come to the surface in still, open weather to feed, some such a crop as Rye, Wheat, or Oats should be sown thinly when the ground has been dug after Potatoes, Peas and other crops. The slugs may thus be well dusted early in the morning after each fall of rain, or till all of them have been killed, while the appearance of the lime at that season is of no consequence, and it will surely recoup its full value as a solvent of organic substances, and as a mineral

plant food, in any highly cultivated and closely cropped garden.

If anyone will keep a few gulls according to the size of his garden, he will not have any cause for complaining about an excess of slugs.—*Field*.

ORCHIDS.

LYCASTE SKINNERI.

For a long time it has been well known that this is a very variable plant, no one description being sufficient for two plants as to colours and markings. All the varieties are beautiful, and the flowers last a remarkably long time. Some of the largest plants which I have ever seen were in the collection of Mr. Buchan, Wilton House, Southampton, where they were well grown, and they used to flower most profusely.



Lycaste Skinneri.

I saw a remarkable sight of these plants recently, about 150 flowers being in full beauty, from those with very deep coloured petals and lip up to the pure white flowers. No two plants were bearing flowers of the same hue, the great differences requiring varietal names to ensure being able to purchase particular kinds. This was indeed a perfect show of itself; although the plants were not so large as those of Mr. Buchan, the variety was much greater. Even the pure white form appears to be varying so much that now there are different named varieties of it. This white form first flowered with me at the Kingston nurseries, when the Messrs. Jackson and Sons went largely into Orchids, now upwards of thirty years ago. I observe that Mr. Measures does not keep his Lycastes so cool as I used to at Kingston; neither

did Mr. Buchan at Southampton; and I think the result proves them to be correct, for I see that the flowers arise more numerous from the bulbs than they did with me when I treated them to the plan suggested by Mr. Skinner. That they will grow freely and blossom profusely when grown in this manner there cannot be a doubt, but I now incline to a slightly warmer temperature for these plants in the winter months, that is to say, a house slightly warmer than the *Odontoglossum* house, and not so warm as the *Cattleya* house. The atmosphere, too, may be kept a trifle moister than that of the *Cattleya* house, and the temperature should never fall below 50°; this, I think, will be low enough for them, and treated thus there is greater likelihood of their flowering freely than if they are grown colder. In the summer months the *Odontoglossum* house is warm

strongly urge its cultivation upon the rising generation, as it lasts in flower fully two months or more. It should be potted in good fibrous peat and be well drained; the bulbs are stout and compressed, light green ringed with red, the leaves being large and fleshy. The spike is some 2 feet or 3 feet high, much branched and many-flowered, forming a dense panicle; the flowers are bright clear yellow in front, white behind and thick and fleshy in texture.—W. G.

CULTURE OF DISA GRANDIFLORA.

No Orchid has had a more curious history than this beautiful denizen of Table Mountain, for this, as at present known, is its only habitat. I have heard, however, lately of a probability of its being found on the Drackenb erg range in Natal, and is also an instance of the necessity of the accurate knowledge of the natural conditions of growth. It had, of course, long attracted the attention of horticulturists, for it was discovered in 1825, but no successful attempt was made to flower it. It came from S. Africa, the very paradise of bulbs, and the rule with regard to their treatment was to give them a season of rest. The ground becomes almost baked, and so it was concluded that, as other bulbs, *Disa* must have a rest too. It was not until my late friend Mr. Charles Leach, of Clapham Park, brought a little observation and common sense to bear on it that it was treated properly. He noticed that previous even to the dying down of the flower stem, a growth appeared beside it, and he therefore concluded it did not want a season of rest, and, in fact, in its native habitat it did not get it. It occurs only in one ravine on the top of Table Mountain, and when it does not rain there (which it does pretty handsomely, as the Americans say) there is a heavy cloud and drenching mists generally enveloping it, so that its summit is rarely seen. Mr. Leach concluded that his plants should be repotted; then he grew them on; and few who remember his pan of plants at the opening exhibition at South Kensington are likely to forget it. Well do I recollect old Donald Beaton almost wild with delight, and executing a sort of war-dance around the exhibit, which he declared was worth everything else in the show, even although it contained the finest bloom of *Lilium auratum* ever seen in England; in fact, the old bulb or tuber dies, and this growth it made is that of the young tubers; if this is injured the plant perishes. I had a painful experience of this last year. One of my plants had bloomed very well; it was, as I believe, the true *superba*, but by some means or other a slug managed to get at it, nibbled it across, and my plant died.

From these facts the true method of cultivation may be deduced. In the first place, it does not want heat. I do not know what the temperature of Table Mountain is, but I was assured by Mr. Short, who had been there, that the thermometer often goes below freezing point. My plants are never exposed to so low a temperature as that, although the house is often down to 35°; in fact, my whole object, as far as this is concerned, is to keep out frost, and not in any way to force the things that I grow. As with most Orchids, the quality of the peat is a very material point. The brown fibrous Orchid peat is what they seem to rejoice in, and I once very nearly lost my plants by using a large dose of boggy peat, which I thought would answer as well. I only use peat and lumps of charcoal. I know that it is recommended to mix Sphagnum with the peat, and I am sure that those who recommend it must have found it answer, but I never did, and I adhere strictly to the peat and charcoal. Good drainage is, of course, essential. The time I pot my plants is immediately after the stems have died down, the young growth having already, as I have said, made its appearance. It has sometimes been recommended to pull the plants to pieces, and that they like it. This is not my experience. I take as much of the peat away as I can without necessarily disturbing the plants, and then repot them.

With regard to the position in which to place

enough for *Lycastes*—in fact, it is the very best place for them, but they want a warmer place in winter by some 5° or 10° than is usually accorded them. This fact has prevented the *Lycaste* becoming such a popular plant as Mr. Skinner himself desired to make it. Another thing I observe is that the plants flower with the foliage for the most part in a trifle more warmth, and this is a decided advantage.

W.

Oncidium ampliatum majus.—This may be reckoned amongst the very finest of the *Oncids*, although very seldom seen. When I used to grow it I found it did best when grown in the East India house and wintered in the *Cattleya* house; thus treated it used to grow very freely and flower profusely. It is now in very fine form in Mr. Larkin's garden at Highbury New Park, and I would

them, I have found it well to give them a summer and winter one. After they are repotted they are placed out of the reach of the sun for a few days, and then moved to a place near the door; here they have abundance of air and no very strong sunlight, being somewhat shaded by the plants at the back of the shelves, while the glass is shaded by whitening it. This, I think, will be an answer to your correspondent's question as to whether he should place them in full sunlight or not. I leave them in this place near the door until the month of October, when they are moved to the upper and warmer end of the house, where they remain until April. I do not dip them in water, but syringe them daily, and sometimes twice a day in the summer months. I do not grow any other Orchids, except a few *Masdevallias*, but I should not care to place my plants in full sunlight, as I do not believe it to be the natural condition. It is different in this respect from many of the gems of the alpine regions, which are well nigh baked in the fierce sunlight. Anyone who has travelled to the "jardin" at Chamounix, and has come back with face and hands like a boiled lobster, can bear witness to what the amount of sunlight which the *Gentians*, *Silenes*, &c., of the Alps can and do endure, but Table Mountain is not an Alp, and, therefore, the analogy does not hold good. I should prefer placing it in a cool greenhouse from whence frost is excluded. I once saw them at Chatsworth, in Mr. Speed's time, by the door of an *Erica* house, doing well.

I am often surprised to find how miserably poor *Disa* fares even in grand Orchid places. How often have I when looking through a magnificent collection of Orchids, and been wonder-struck by the *Lelias*, *Cattleyas*, *Dendrobiums*, *Odontoglossums*, *Vandas*, &c., asked, Do you grow *Disa*? Yes, but we can't do much with it; here it is. And I am shown, perhaps in a *Cattleya* house, a miserable specimen suffering from want of ventilation and coolness. It is astonishing how people will persistently give it heat, although told that it does not require it. I have given away many plants of it, and have always told the recipient how it is to be managed, and I invariably find that either they or the gardener have gone directly in the teeth of instructions, and have consequently lost their plants. Some have been florists who could grow an *Auricula* or *Carnation* to perfection; some Orchid growers, who could manage even a *Vanda* *teres*, but because they won't believe that all Orchids are not like them, have failed in growing *Disa*. And yet in richness of colouring there is, as far as I know, no Orchid, except perhaps *Sophranitis*, that can equal it.

As I have already said, there are, I believe, various strains of it in collections, some much inferior to others, and that this is a point I hope to settle by and by. I hope that what I have written may be useful to your correspondent, who, however, seems to be growing his plants well. DELTA.

SHORT NOTES.—ORCHIDS.

Dendrobium albo-sanguineum.—Fine flowers of this species come to me from Mr. E. M. Turner, of Dartmouth, the ground colour being apparently of a delicate buff. I am very glad indeed to find this variety regaining popularity in some districts.—W.

Odontoglossum Andersonianum Ellisi.—Blooms of this beautiful variety come to me from Mr. Ellis, of Wallington. The flowers are larger than those of the type, and set very closely upon the spike, the ground colour yellow, heavily blotched with bright brown. This is a very fine and desirable variety.—G.

Cattleya Lawrenceana.—I have just received a flower of a very good variety of this plant from Mr. Measures, of Streatham, and also a very similar one from Mr. Moss, of Winters Hill, Bishop's Waltham. These are both exceptionally fine forms, but neither of them is so fine as the variety recently sent me by Mr. Cypher, gardener to Mrs. Studd, of Bath. I may say, however, they are beautiful in the extreme, but their petals lack breadth, and consequently the flowers are not so round and full.—W.

Burlingtonia fragrans.—This is a plant that used to be grown more when I was a boy than now. It should be placed on a block, or in a shallow basket,

and grown in this way it is now very fine in Mr. Larkin's garden at Highbury New Park, filling the house with its delightful fragrance of May flowers. It is a plant which, apart from the odour, is in great favour with the ladies, the flowers being pure white, tinged with yellow in the throat, the sepals and petals pellucid, and looking as if frosted.—G.

Cattleya Skinneri.—Blooms of a magnificent form of this old species come from Mr. Moss, of Winters Hill, each nearly 4 inches across, the sepals and petals being broad, and deeper in colour than those of a highly coloured form of *C. Lawrenceana*. The lip is large, broad and flat, intense deep rich rosy purple, the throat white, with a rosy purple stain at the base. It is the finest form of the species which has ever come under my notice, and should be taken care of. Such varieties cannot but restore the plant to popularity.

Odontoglossum baphicanthum.—Numerous forms of this handsome form are just now blooming in the establishment of Messrs. Williams and Son, Upper Holloway, although it is usually looked upon as a summer flowerer. The flowers are somewhat like those of *O. Alexandræ*; indeed it is a supposed natural hybrid between that species and *O. odoratum*. The sepals and petals are white variously marked with deep brown spots, suffused with purple. It is a very handsome plant, well deserving more attention than it appears to receive.—W. G.

Odontoglossum Alexandræ.—A magnificent flower of this species has been sent me by Mr. Howard, The Grove, Teddington, massive in substance, with large and broad sepals and petals, the former tinged with rose, the latter pure white, each segment bearing one or two large chocolate spots; lip white, beautifully fringed, pure white, saving the yellow disc and a large spot of chocolate just below the crest. It is a grand flower, and Mr. Howard tells me it is produced by a little plant having only three small bulbs. I anticipate it will improve in size and in the density of spotting as the plant increases in strength, and thus prove to be a very valuable variety.—W. G.

Masdevallia Veitchi.—A very fine plant of this species is now opening the first of some thirty flowers in Messrs. Williams and Son's nursery, Upper Holloway. This is the finest of the batch now flowering. It is a great pity that such a fine plant should not hold its own with Orchid growers. I wonder if a blue-coloured flower of the same size would tempt growers. I am afraid not, without some modification in form. This plant has been introduced for upwards of twenty years, and it still remains the largest flowered and the most brilliantly coloured of any known *Masdevallia*. It grows up to 13,000 feet elevation in the mountains of Peru. Naturally it gets bright sunshine in the daytime, and the temperature is very low at night, the air also being very damp. It appears to like partial shade.—G.

ROSE GARDEN.

THE FROST AMONG THE ROSES.

It is pleasing to find from "A. H." that there is an *Eldorado* for Roses in Suffolk, and that even shoots of Teas little thicker than straws did not suffer from 20° of frost and 6 inches of snow. Unfortunately for us, the snow did not lie, and we have not yet learned our Teas, nor the rank and file of our Perpetuals to be hugged by so severely cold airs with impunity. But possibly "A. H.'s" secret of immunity from injury may be found in his perfection of natural drainage, higher altitude, and modifying influences of contiguity to tidal rivers or the open sea. I know from experience something of the ameliorating effect of the two last on local climate, and after all it is local climate often confined to very narrow areas that controls the destruction or safety of Roses and other plants.

It is to be hoped that many others may have shared "A. H.'s" good fortune, though my correspondence records that many Roses in more favourable climes than East Anglia have been hit hard this spring. I note a point in favour of the safety of "A. H.'s" Roses

that I have frequently adverted to, viz., that over 1000 of his Teas were transplanted or planted during November or December. This transplantation—the later the better—has a protective power on the Roses, though checking growth and depleting the plants of sap. Happy possessor of a *Rose Eldorado* with 1000 transplanted Teas, and no one knows how many older Teas and Perpetuals, all safe and unscathed after one of the most subtle, mysterious, harsh, and hard-hitting winters and early springs that we have had for many years.

D. T. F.

SHORT NOTES.—ROSES.

Rose William Allen Richardson.—My experience of this variety differs from that of "S.," who regards it as a weakly grower. In a garden at Fareham I saw last season a plant of it growing at the base of a low wall having a south-western aspect. The shoots of this plant, thrown out both from the base and higher up, had grown 4 feet and 5 feet high, and were smothered with the lovely apricot-coloured blossoms. The plant itself covered a space fully 6 feet in length, and when in bloom at the end of June was very beautiful.—E.

Rose Gloire de Dijon.—The praise bestowed upon this Rose by "S." (p. 288) is well merited; no matter in what position, whether inside or outdoors, this Rose is unequalled for freedom and continuity of flowering. Another point in its favour is the freedom with which it grows from cuttings and the easy manner in which they strike, especially if taken from a plant after it has flowered in the month of April in the greenhouse. The wood then is partly ripened, and should be cut into lengths of 4 inches. The cuttings, if dibbled around the sides of a 4-inch pot in sandy soil, plunged in a gentle bottom-heat, and shaded for a time to preserve the leaves intact, which hastens root-formation, in a short time produce nice little plants, which if grown on steadily in the greenhouse will make good plants for either planting out of doors the following spring or for blooming indoors.—E.

STOVE AND GREENHOUSE.

DRYANDRAS.

This is a genus of greenhouse plants now very little grown, but still beautiful and well deserving cultivation. It is also necessary that they should be looked after, or the day will come when the population of Australia will have exterminated many of the kinds. Some thirty years ago many species in fine specimens existed in the Royal Gardens at Kew, but they are for the most part now extinct. I recently noted that the genus *Protea* is again coming into favour in these gardens, and I would also strongly urge the claims of the genus *Dryandra*.

Dryandra is named after one Jonas Dryander, a Swedish botanist contemporary with Sir Joseph Banks. He was famous for the fine catalogue of the Banksian library which he published and many other things. The *Dryandra* is allied to *Banksia*, but all the varieties, I believe, are yellow-flowered. Some are slow growing and somewhat naked and not beautiful, but the majority of them are not so, and I should much like to again see the order restored to public favour. *Dryandras* like a liberal supply of water through the summer months, and therefore it is necessary that the drainage should be perfect. I like, however, to have the drainage material for these plants broken somewhat smaller than for most plants, and to cover it with a good layer of turfy loam which has had nearly all the soil beaten out of it; this will allow the roots to work into the drainage, a condition which they appear to enjoy. During the summer, and even in the winter, they require a free circulation of air. During the winter months I do not like the temperature to fall lower than about 40°, whilst during summer the plants thrive well outdoors in partial shade,

care being taken that they are not subjected to drip from trees nor too heavy rains. The following kinds will be found ornamental species worthy of attention, especially by those having a large conservatory or winter garden.

D. ARCTOTIDES.—This is a small, slender plant, growing some 3 feet high. The leaves, from 4 inches to 6 inches long, are deep green, while beneath they are clothed with a white tomentum, and the midrib furnished with some small white scales. It is a very pretty plant, and must not be over-potted.

D. BAXTERI is a beautiful and more robust plant than the preceding, with spreading pinnatifid leaves, which are deep green on the upper side and ferrugineous beneath. It is a pretty leafy plant.

D. CALOPHYLLA.—This is a somewhat large-leaved plant, and it is, moreover, rather more difficult to grow than some kinds. The leaves are from 9 inches to 10 inches long and 3 inches wide in the broadest part; they are strongly nerved, deep green on the upper side, slightly scaly, and grey beneath.

D. FLORIBUNDA.—As its name implies, this flowers very freely; it is a much-branched and very leafy plant, growing about 3 feet or 4 feet high; the leaves wedge-shaped, about 2 inches long, serrate on the edges with long spines, deep green, and slightly paler beneath. When in bloom this species is a truly beautiful and showy plant.

D. LONGIFOLIA.—The leaves of this species are from 9 inches to 10 inches long, very deep green on the upper side, ashy grey beneath. It is a very handsome plant.

D. NIVEA.—One of the most lovely of the genus, very leafy, the leaves being from 4 inches to 6 inches long, pinnatifid, the segments narrow, deep green above, snow-white beneath. It is a dwarf and pretty plant.

D. NERVOSA.—A singular and fine species, but it is apt to become somewhat shabby looking if not grown freely. It grows some 2 feet or more high, and produces leaves from 9 inches to 18 inches in length.

D. OBTUSA.—A plant which grows some 2 feet high, and produces leaves about 10 inches or 1 foot in length.

D. PLUMOSA.—A very handsome and densely leaved plant, growing some 3 feet high; the leaves are from 9 inches to 1 foot long, narrow, pinnate, deep green on the upper side and snow-white beneath. It forms a beautiful feathery plant well deserving attention.

D. TENUIFOLIA.—This is a very elegant form with slender leaves some 6 inches long, which are deep green on the upper side, pure white beneath.

All the *Dryandras* flower in the spring, and at this season make a house very gay, while they always form handsome ornamental foliage plants. Beside the above named there were also in the Kew collection *D. armata*, *præmorsa*, *mucronulata*, *Menziesii*, *bipinnatifida*, *pteridifolia*, *senecifolia*, *cuneata*, and many others which I think could not now be found in the country. W. H. G.

Gladiolus flowered Cannas in bloom.—That section of *Cannas* known as the *Gladiolus*-flowered, two examples of which were illustrated by a coloured plate in *THE GARDEN* for March 2, 1889, are remarkably free-flowering, for some plants that have been wintered in the pots wherein they flowered last season have, directly growth commenced, pushed up spikes, the blossoms on which are already expanded, and make a good show just now. As might be expected, the blossoms are not so fine as those borne later in the season, as it is not till midsummer is past that the flowers of the dwarf *Cannas* are seen at their best, and then, of course, the ample foliage has had time to develop freely. M. Crozy, of Lyons, to whom we are indebted for the great improvement in the *Cannas* of this particular section, still devotes great attention to their culture, so that we may possibly look for varieties superior to those we have now, but it seems very difficult indeed to improve on some of them. Anyone

commencing the culture of this class of *Cannas* will find a dozen varieties ample. Where flowered under glass, seed also ripens readily, and by this means a varied assortment can be obtained, especially if the flowers are artificially hybridised. Like all the *Cannas*, the seeds are very hard (hence the name of Indian Shot), and while some file them slightly before sowing in order to allow the embryo to escape, I much prefer to soak them in warm water for a day previous to sowing, as by this means all risk of injury to the seed is avoided.—H. P.

FRANCISCEAS.

SOME years ago these plants were far more grown than at present, and the generic name, too, is altered to *Brunfelsia*. In spite of all this, the *Francisceas* are certainly among the most useful of flowering plants at this season of the year, for with ordinary attention they will bloom for months together. A very distinct feature of the *Francisceas* is the great change in colour that takes place in the flowers after expansion, for whereas when first opened they are of a deep purple colour, they gradually become paler till almost white, and as the flowers remain on the plants some time, we get two perfectly distinct shades. So free-flowering are they, that small bushy plants not more than a foot high will maintain a succession of bloom for some time. Cuttings may be formed of the young growing shoots, the present being a suitable time for the purpose, as if struck now and grown on during the summer, a fair return in the matter of flowers may be reasonably expected next spring, though of course the plants will be far more effective the following year. The cuttings should be taken off at from 3 inches to 4 inches in length, and with no more leaves removed than is absolutely necessary for the purposes of insertion; they must be dibbled into well-drained pots of soil, consisting of equal parts of loam, peat, and sand. It matters little whether a single cutting is put into a small pot, or four or five around a larger one, but in either instance if placed in a close propagating case in the stove they will strike root in about three weeks or a month, when the young plants should without delay be potted off, that is, as soon as they have been inured to the atmosphere of the house after their removal from the case. The soil may be much the same, except that, if available, well-decayed leaf-mould can be substituted for the peat and the quantity of sand lessened, though enough must be retained to keep the soil open. One of the best *Francisceas* is *F. confertiflora*, a free, vigorous growing species, with deep glossy green foliage and fine handsome blossoms, borne on small plants as well as on large bushes. Of this there is a variegated leaved form, and when the foliage is well marked and the plant thickly studded with purple blossoms it is pretty, and by some admired, though I prefer the rich green foliage of the normal type. There are several other *Francisceas*, such as *F. uniflora*, *eximia*, and *Lindeni*, but the first mentioned species is equal to the best of them, and there is a strong family likeness running through the entire genus. There is another plant bearing a great general resemblance to a *Franciscea*, viz., *Brunfelsia americana*, which is said to have been introduced into this country about 150 years ago. This forms a somewhat upright growing plant, clothed with rather narrow leaves, while the flowers are borne freely. They are distinct from those of the cultivated *Francisceas*, being of a pale yellow colour and sweetly scented. Like the various subjects mentioned above, it only requires the usual treatment be-

stowed upon most stove plants. This last is a native of the West Indies, the *Francisceas* having been introduced from Brazil.

H. P.

DEUTZIAS FOR FORCING.

DEUTZIA GRACILIS has been a great favourite for a very long time, and is likely to remain so, as a more useful plant it is impossible to name, for it can be forced readily, and blooms with the utmost freedom on every twig and shoot, from which the long racemes of snow-white flowers hang in the greatest profusion. To have plants in this satisfactory condition, it is necessary to treat them well after their beauty is over, a period at which most forced subjects have rather a hard lot, and, except in a few places, cannot receive the care and attention they require, owing to want of glass-room or accommodation to shelter them till they have completed their growth and it is safe for them to be stood out in the open. To fit them for this they should at least have the protection of a cold frame, as in that it is possible to render them the necessary assistance, by giving air cautiously and closing early, to attract and conserve sufficient heat from the sun for them to finish making their young wood. After this is done they may be gradually hardened, by withdrawing the lights during the day till they will bear entire exposure. If they require repotting, that should be done immediately after the flowers fade, which will encourage fresh growth, and at the same time plants that are large may be pulled apart, or split through and divided, or have their tops thinned and pruned into shape. Some cultivators head their *Deutzias* down altogether, and depend on the long shoots they make for affording the bloom; but finer specimens are obtained by leaving the main branches and getting the breaks from them, as every twig they produce becomes laden with flowers. Ripeness of growth tends towards this, and the plants should, when that is fully completed, be plunged out in full sun and there left till the winter, when, though quite hardy, they ought to be housed and drawn from as required for forcing. *Deutzia scabra* fl.-pl., though not so generally grown, is almost as valuable as *D. gracilis*, but it cannot be had in bloom so early in the season, as it is very impatient of artificial heat, and does far better if allowed to come on of itself in the ordinary temperature of a greenhouse. *D. scabra*, instead of being a dense, lowly shrub, is strong and more spare in habit, and attains a height of from 4 feet to 6 feet, sending out and up strong shoots annually that produce very long racemes of creamy-white blossoms. S. D.

The Cape Primroses (*Streptocarpus*).—The advent of *Streptocarpus Dunii*, which first flowered at Kew four years ago, served to direct renewed attention to this pretty and free-flowering class of plants, which up to then were very little grown, but now, thanks to some beautiful hybrids raised at Kew, they have become much more popular than formerly. The small-growing *S. Rexi*, with its lilac-purple blossoms, is just now flowering profusely with us, as also several hybrids, varying more or less from each other and from their parents, but all alike beautiful. I am sometimes asked to name a few flowering plants that would thrive in an intermediate temperature, and I always recommend some of the various kinds of *Streptocarpus*, for they are of very easy culture and flower freely. They all do well planted out as an edging, but in many gardens there is no convenience for treating them in this way, and when this is the case the smaller kinds may, if required, be grown in single pots, and employed as an edging to a stage or some similar position. If fair-sized specimens are required, the better plan is to group several together in a large pan or some other suitable receptacle. This may be done either in the autumn or early in the year; it matters little which, provided the plants are established in small pots, as the roots need not be disturbed in any way. By varying the time of sowing and shifting on into other pots, the different varieties of *Streptocarpus* may be had in bloom over a long period, viz., from early spring till au-

turn sets in. Some of the kinds can be increased by leaf-cuttings, but this is seldom resorted to, as seeds are freely produced and germinate readily, soon attaining flowering size. The seed, from its minute character, should, when sown, be very slightly covered, and if the structure is not very close, germination is assisted by laying a pane of glass over the surface of the pot till the young plants make their appearance. When this is carried out especial care must be taken that the sun is not allowed to shine directly on the pot. A group of the smaller kinds of *Streptocarpus* was well shown in a coloured plate in *THE GARDEN* of May 22, 1886.—H. P.

Forcing *Azalea mollis*.—Recently in *THE*

house, and, consequently, they are then better able to resist a little extra strain than if just lifted, potted, and taken into heat directly. The evil effects of delaying the potting of shrubs required for forcing till it is nearly or quite time to place them in a little heat should be more generally recognised than it is at present, for one frequently sees shrubs bristling with flower-buds offered for sale till long after the period at which they should have been either potted or planted, and consequently the floral display is, as might well be supposed, very disappointing. In returning, however, to the *Azaleas*, I may mention that the plants of *A. mollis*, which are kept throughout the season in pots, seldom or

throughout the winter, and indeed almost the whole year. As a rafter plant for the greenhouse the variety *Fireball* is very suitable, as it is not too vigorous, and consequently does not obstruct a great amount of light from the plants below it. *Tropæolums* of this section are usually increased by cuttings, which strike root readily during the growing season.—T.

PELAGONIUM JEALOUSY.

WE have here a very pretty illustration of a *Geranium* in an open verandah of a Devonshire villa. My friend, whom I lately met in London, says that it has not been out of flower since last May. At Christmas he sent me a box of flowers from this plant. The blooms have a yellow or salmon tinge, which has given rise to its name of *Jealousy*. As may be seen from the accompanying illustration, it produces fair-sized trusses of flowers, and in the month of July last it had upon it no fewer than 250 such trusses, all open at the same time; whilst in September of last year, when the photo was taken, there were about 70 trusses, and ever since then up to the present time it has never been without flower, and as we are now fast approaching the month of May, this plant may be accounted a perpetual bloomer. But, then, these Devonians live in such a climate! My friend wrote to me about Christmas last, sending up quantities of flowers, and saying wild Strawberries were in fruit and ripe. It is true they do get an occasional gale and a little rough and, to them, cold weather; but I am sure they did not have 30° of frost in the early part of March, as we did in the neighbourhood of London, and which, I see, has nearly killed my *Lapageria rosea*. In company with this *Geranium*, *Lapagerias*, both the white and rose-coloured varieties, would be at home; so also would *Clianthus puniceus*, *Clematis indivisa lobata*, and many other plants, and I have strongly advised my friend to try some of them.

W. H. G.



Pelargonium Jealousy planted out.

GARDEN a writer alluded to the premature dropping of the flower-buds, to which this species is predisposed. This may be caused by a severe check, such as allowing the roots to become very dry, but in my opinion it is generally owing to the plants having been potted too late, for in common with all other hardy shrubs that are required for forcing prematurely into bloom, by far the most satisfactory results are obtained when potted as early as possible after the fall of the leaf, or even before the plants are quite bare. If this is done and suitable soil used, the roots will then commence to be active before the plants are taken into the forcing

house, and, consequently, they are then better able to resist a little extra strain than if just lifted, potted, and taken into heat directly. The evil effects of delaying the potting of shrubs required for forcing till it is nearly or quite time to place them in a little heat should be more generally recognised than it is at present, for one frequently sees shrubs bristling with flower-buds offered for sale till long after the period at which they should have been either potted or planted, and consequently the floral display is, as might well be supposed, very disappointing. In returning, however, to the *Azaleas*, I may mention that the plants of *A. mollis*, which are kept throughout the season in pots, seldom or

never drop their buds, while the blooms also remain fresh for a lengthened period. That the practice of keeping the plants altogether in pots entails more work than where they are planted out is easily understood, but with proper care in watering during the summer, the potted plants can be depended upon to flower satisfactorily, while if planted out they should, as above mentioned, be lifted early and potted very carefully, so as to become established before winter.—H. P.

***Tropæolum Fireball*.**—This is one of the bright-coloured climbing *Tropæolums* that in a warm greenhouse are valuable from the fact that they flower

CLIVIAS AT FOREST HILL.

THE *Clivia*, or to use a name by which it is still more familiarly known to some growers, *Himantophyllum*, has now, thanks to a race of splendid varieties, in which we have not only a bold bloom, but also brilliant shades of one distinct colour, become familiar in our plant houses. The type is *C. miniata*, which was introduced about 1854 from Natal, and has ever since made its way by reason of such sterling qualities that no gardener or amateur can afford to overlook. As with many other introductions, the *Clivia* was first grown in a stove, and here it will do well, but it will grow and flower with the utmost vigour and profusion in a cooler temperature, and even in a greenhouse. It is on the Continent much used as a plant for dwelling-houses, and nothing could be finer, as we have the rich tropical aspect of the *Aspidistra* with also noble spikes of flowers which in the umbel are of great richness, while gathered separately they can be used for many dainty decorations in which a little bright colour is desirable. The *Clivia* is a plant easily grown, so that those who have only a greenhouse need not be deterred from having a plant. It flowers in late spring and summer, and for soil likes best a mixture of turfy loam mixed with about a fourth portion of peat. Weak liquid manure when free growth is being made will give increased vigour to the plant, and if placed in a room the smooth, leathery, rich green leaves must be kept sponged occasionally to prevent the accumulation of dust. Those who have any doubt of the brilliancy of the *Clivia* should see the specimens in Messrs. J. Laing and Sons' nursery at Forest Hill, and which for several weeks have given strong colour to the house. And this is one of the great uses of the *Clivia*, to light up not only miscellaneous groups in the conservatory or at the exhibition, but to place here and there in the greenhouse. The flowers vary much in shade of colour, although all have

a variation of orange-scarlet, which, however, by the skill of the hybridist, it seems likely will in time give way to other hues. In some of the varieties at Forest Hill there is a distinct trace of purple, not a very inviting shade, but showing the possibilities of future colouring in the offspring of *C. miniata*. One named *sulphurea* is more sulphur than red, and may lead to a yellow-flowered variety; while in one called *Parity* there is a clear white centre, which again may be the beginning of a white form, a flower that must be at once lovely and valuable. A fine white *Clivia* would be a treasure to the gardener, market grower, and the seller of cut blooms. In all the varieties mentioned the flowers are broad, massive, with plenty of substance, and a fine range of colour. One of the brightest kinds we remember to have seen was a seedling of Mr. E. H. Woodall's, of Scarborough, in which the flowers were of an intense and glowing scarlet, but John Laing is also a fine crimson, and the same may be said of Mrs. Laing, as in both varieties we have a brilliantly coloured and handsomely shaped flower. In *purascens* there is a purplish colour, quite distinct from such a handsome type as *Stanhed Beauty*, in which the flower is of a fine carmine shade, bold, and robust in expressive; *Salmonea*, of a salmon shade, Mrs. Peters, very bright, and Martha Reimers are a good trio, especially the last, which although introduced several years is still one of the first. The plant makes a strong growth and carries large flower-spikes, each umbel often bearing about eighteen of the broad orange-scarlet flowers. These are a few of the best of the *Clivias*. There are, of course, others, but the danger is, as in *Daffodils*, in naming everything that shows a mere variation, although it may consist only in a paler or deeper shade of colour. Some of the specimens at Forest Hill are several feet through, showy plants of themselves, and when in bloom strikingly effective. The brightness of the flower is perpetuated, if such a thing is allowed, by the deep red plum-like fruits which are as ornamental in their way as the flowers. There is also a dwarf habit in some of the varieties, more particularly in *Lady Wolverton*, which would make an excellent plant for the front of a group or a small greenhouse where space is precious.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

THE meeting on Tuesday last in the Drill Hall, Victoria Street, was the finest and best attended the Society has yet held there. Such a result was brought about partly by the National Auricula Society holding their annual exhibition on the same day, but the meeting itself was more interesting than usual, and in addition an excellent paper on *Primroses* and *Polyanthuses* was read in the afternoon by the Rev. Wolley Dod.

A FIRST-CLASS CERTIFICATE was awarded to each of the following plants:—

ODONTOGLOSSUM TRIUMPHANS AUREUM.—This is a perfectly distinct and handsome variety of an Orchid, that varies much in its intensity of colour, but though this is without scarcely a trace of rich chestnut-brown, it is neither weak nor sickly. The plant of it which was exhibited by Mr. Cummins, gardener to Mr. A. H. Smee, Wallington, bore two flowers each smaller than those of the usual type, and almost self yellow of a clear and charming shade, relieved by a few not very decided bars of greenish-white; the lip is blotched with the same pretty yellow colour, except the upper half which is wholly of this shade, and the margin is delicately frilled. The white column adds to its charm. It is the most distinct form of *triumphans* we have yet seen.

CATTLEYA LAWRENCEANA VINCKI.—Those who ardently seek for a blue *Cattleya* would find a beginning in this variety. There is a distinct trace of blue in the flowers, though their colour cannot be thus described. A plant from the collection of Baron Schröder, The Dell, Egham, was bearing two strong spikes, which had four and three flowers respectively, each being of about the same size as those

of the parent, but quite different as far as colour is concerned. The sepals are softly tinted with bluish-purple, which is more pronounced in the broader petals, and the lip is wholly of this distinct, not to say, striking shade, deepening at the entrance to the throat to almost a tone of blue-sapphire. This flower with its subtle blue-purple colouring marks quite a new departure.

AN AWARD OF MERIT was given to each of the following:—

MIGNONETTE GARAWAY'S DOUBLE WHITE IMPROVED.—This is a fine variety of *Mignonette* as shown by Messrs. J. Garaway and Son, The Nurseries, Bristol. The spike is long and slender, and the individual flowers are large, sweetly fragrant, and white, or nearly so, with the anthers rich brownish red in colour.

NEPHROLEPIS EXALTATA PLUMOSA.—We all know the value of the type for hanging baskets, and the variety here named is just as useful, even more so, for the reason that the apex of each frond is finely plumose, forming a heavy, but elegant tassel, exquisitely graceful and refined when the plant is suspended or placed on a bracket to show off its distinctive and characteristic feature. Those in search of an elegant basket Fern will find a rich treasure in this plumose variety of *N. exaltata*. Exhibited by Mr. H. B. May, Edmonton.

NARCISSUS GEORGE ENGLEHEART.—This was one of the charming hybrid *Narcissi* exhibited by the Rev. G. H. Engleheart, of Andover, and described in "Notes of the Week" of the present issue.

PRIMROSE RED GAUNTLET.—This is another gem in the *Primrose* way from Mr. G. F. Wilson, of Weybridge, whom we have to thank for the pretty variety *Oakwood Blue*. It is quite distinct, and just as striking and handsome. The plant seems as free as the wilding of the woods, each flower also being excellent in form, and of a fine and distinct purple colour, set off by a red centre and a small yellow eye. The *Weybridge Primroses* form a charming race of hardy flowers of bold, decided colours.

RHODODENDRON WILLIAMS.—This is a charming variety, and the several plants of it from Messrs. B. S. Williams and Son, Upper Holloway, showed that it was as free as it is beautiful. They were each in a 5-inch pot, and bearing on an average about six trusses of flowers, one carrying as many as nine. The flowers are of delicate colour, almost white, but softly tinted with lilac, the upper petals spotted with yellow. Such a lovely variety is just the thing for the greenhouse, and the medium-sized trusses of prettily coloured flowers would be useful when cut.

PRIMULÆ SIEBOLDI BRUCE FINDLAY AND DISTINCTION.—These were the two new varieties given an award from the splendid collection shown by Messrs. Ryder & Son, of Sale, Manchester. The variety *Bruce Findlay* has finely-coloured, purplish-blue flowers, while those of *Distinction* are rose and beautifully fringed. Both are distinct and charming kinds.

ODONTOGLOSSUM VEXILLARIUM (Le Doux's variety).—Two plants of this form were exhibited by Mr. G. Le Doux, East Moulsey, and both showed the immense size of the flowers, which in the lip are each 4 inches in depth and quite $3\frac{1}{2}$ inches across. This portion is pure white, but the sepals and petals are rose, deepening to a richer shade just above the column, beneath which there is also a blotch of yellow, with two or three lines of deep lake colour.

ODONTOGLOSSUM PESCATOREI MRS. G. W. PALMER.—We have never seen a variety of this not very variable Orchid so beautifully and softly coloured as in this form from Mr. D. Dockerill, gardener to Mr. G. W. Palmer, Elmhurst, Reading. The plant of it bore a spike of nine flowers, each of excellent form and pure white, except a flush of rose-magenta in the sepals, which, together with the petals, are distinctly and freely blotched with mauve-magenta of a lovely shade. We can never have too many Orchids of the delicate beauty of this *Odontoglossum*.

One of the finest displays was made by Messrs.

Ryder and Son, who staged a large number of varieties of *Primula Sieboldi*, a flower they have made in a sense their own. In all there were about fifty panfuls, each a mass of bloom, showing the delicate range of varieties now to be had in a rich selection of this *Primula*. *Alba magnifica* and *Queen of the Whites* are two beautiful varieties, and a lovely pink is Mrs. Ryder, while also conspicuous were *Miss Nellie Barnard* (purplish rose) and *Rosy Morn* (rose). The same firm also exhibited *Primula Golden Queen*, a rich golden yellow-flowered variety, with a white central ring; it is a telling plant shown in a mass (silver-gilt medal). Messrs. Barr and Son, Covent Garden, exhibited a large group of *Daffodils*, besides a variety of other hardy flowers, and a selection of cut blooms of florists' Tulips. Flowers of the noble trumpet *Daffodil* *Mme. de Graaff* came from the Rev. W. Wilks, Shirley Vicarage, Croydon, and a plant of *Boscawen's* double yellow *Primrose* from Mr. R. Dean. This variety was collected wild by the late Rev. J. T. Boscawen, and is a beautiful form, large, perfectly double, and rich yellow. A charming garden flower. *Primrose White Duchess* from Mr. D. Abbott, near Doncaster, is a good white flower.

Messrs. Paul and Son had a fine group of hardy flowers, comprising large masses of the yellow *Doronicum plantagineum excelsum*, *Iris pumila azurea*, *Anemones* in variety, *Triteleia uniflora lilacina*, and a variety of the common *Snake's Fritillary* (*F. Meleagris*), besides several *Erythroniums*, a fine panful of that somewhat miffy though beautiful *Bellis auctubæfolia*, *Ranunculus amplexicaulis*, the pretty double *Wallflower* *Harpur Crewe's* variety, and the *Bloodroot* (*Sanguinaria canadensis*). Very beautiful was the display of *Anemone hortensis* varieties from Mr. T. H. Burroughes, Lower Berkeley Street, W. The flowers were loosely and tastefully arranged to set off their gracefulness and elegance, the colours ranging from the deep crimson of *græca* to quite a rose and satiny pink, with here and there a salmon coloured form—a beautiful series of subtle colours. Mr. Burroughes also exhibited the pretty yellow-flowered *A. ranunculoides* and *A. nemorosa Robinsoniana*. *Anemones*, especially *A. fulgens*, were shown well also by Mr. J. T. Gilbert, The *Anemone Nurseries*, Dyke, Lincoln. Two magnificent boxes of *Maréchal Niel* Rose blooms came from Mr. J. Walker, Thame, Oxon, the flowers perfect in colour, finish, and size. Mr. H. Shoemith, gardener to Mr. Hodgson, Croydon, also showed this charming Rose well. A very pretty pure white *Pelargonium* named *Miss F. Measures* came from Mr. R. J. Measures, Camberwell. The *Pernettyas* from Mr. G. Wythes, Syon House Garden, Brentford, were remarkably well berried, and illustrated the value of the *Pernettya* for conservatories and greenhouses. The plants had been in full berry for about six months.

A large and interesting display was made by Messrs. B. S. Williams and Son, Upper Holloway, comprising plants of *Spiræa alboides* and several varieties of *Clivia*, which will have a more detailed notice, and a number of excellent *Amaryllises*, finely coloured and dwarf, the tallest not being more than 2 feet, while some were only about 1 foot. The *Mahdi*, deep crimson, darker at the upper half of the segments; *Leeana*, bright scarlet; and *Crimson King*, crimson, were amongst the best (silver medal). Messrs. H. Lane and Sons exhibited a large collection of *Rhododendrons* in pots (silver medal), and Messrs. J. Veitch and Sons, Chelsea, two splendid specimens to illustrate its value for forcing of the old *Chionanthus virginica*, the double salmon-flowered *Azalea rostrata* *Rollissoni*, and *Moutan Paony Reine Elizabeth*, figured in THE GARDEN, January 22, 1887 (p. 76).

Ferns were shown by Mr. H. B. May, Edmonton, the plants remarkably well grown, compact, and representing several of the newer varieties of the Edmonton nurseries, besides some of the best of the older kinds. Many of these illustrated the remarks in this week's issue (p. 387) as to the rich and varied colours found amongst the Ferns (silver medal).

One of the best features of these meetings is the group of plants from the Royal Gardens, Kew, and

on this occasion there was a charming collection, many of which are referred to more fully in the "Notes of the Week" (p. 383). Two baskets of *Primulas*, comprising many kinds, made an interesting exhibit of itself; but there were also the extraordinary *Aristolochia Goldiana*, *Hoya multiflora*, a handsome Javanese plant, bearing three umbels of whitish flowers; *Streptocarpus Dunni*, the lovely *Tropæolum azureum*, *Bossia linophylla*, *Viburnum plicatum*, and several varieties of *Rhododendron arboreum*, showing the great variation in colour, from the deepest crimson to the softest pink. Also exhibited were the Malayan *Ataccia cristata*, *Echium callithyrsus*, *Amherstia nobilis*, *Brugmansia sanguinea*, the expanded portion of the flower being scarlet; and *Acradenia Frankliniae*, a Tasmanian plant growing about 8 feet high, and producing a number of terminal clusters of small pretty white flowers.

A fine plant of *Ochna multiflora* was shown by Mr. Sebright, gardener to Mrs. Grinling, Stanmore. This curious plant is figured in THE GARDEN for Dec. 30, 1882. Mr. G. Wythes also had the pretty blue-flowered *Clitoria ternatea*, *Ruscus androgynus*, which has small whitish flowers and attains a great height, and *Anthocercis viscosa*, a white-flowered Solanaceous plant.

Orchids were numerous. Mr. S. Malcolm Cooke, Kingston Hill, showed a photograph of *Cattleya amethystoglossa*, bearing twenty-four blooms, and flowering plants of good varieties of *Odontoglossum maculatum* and of *Rossi majus*, the darkest and handsomest form we have seen. *O. nebulosum*, *Masdevallia ignea*, and *Sophronitis grandiflora* were also exhibited, besides unusually fine flowers of *Carnation Souvenir de la Malmaison*. Messrs. J. Veitch & Sons had plants of the beautiful hybrid *Cattleya calummata*, *Cypripedium priapus*, a hybrid between *C. philippinense* and *villosum*, a very distinct and handsome cross, with much of the villosum character, and a compact, yet not stiff form of *Nephrolepis* called *N. cordifolia compacta*. Sir Trevor Lawrence, Bart., Dorking, exhibited *Dendrobium sulcatum*, a pretty, rich, lake-coloured *Masdevallia* sp., *Oncidium phymatocbilum*, which carried three branching racemes of flowers, the sepals and petals of which are greenish barred with brown, the lip white, and a fine raceme of *Phalenopsis grandiflora*, with large broad flowers. Mr. A. H. Smee showed a small plant of *Dendrobium thyrsiflorum*, bearing three racemes of flowers, and a remarkably well marked variety of *Odontoglossum triumphans*. From Mr. Pollett, Bickley, came a pale form of *O. sceptrum album*, the flowers, however, not being without the brown blotches, and from Mr. F. Lee a plant of *Cymbidium chloranthum*. A very pretty *Cypripedium*, a hybrid between *C. vexillarium* and *Stonei*, and called *Apollo*, came from Mr. R. J. Measures, the colour of the greater portion of the flower being rich mauve-magenta.

Fruit committee.—The principal exhibits before this committee were the collection of remarkably well preserved Apples from Messrs. J. Cheal and Sons, Crawley (silver medal), and the splendid fruits of an excellent selection of Keen's Seedling Strawberry from Mr. Wythes; the plant produces more compact clusters than the ordinary type, and is largely grown at Syon House. The exhibit was of high cultural excellence, and the same can be said of the fruits of President. Mr. Miller, gardener to Lord Foley, Esher, exhibited excellent Mushrooms from an outside bed; and from Mr. Hartland, of Cork, came a Broccoli called April Queen, the heads of which seemed far too large. It was recommended for trial at Chiswick.

Narcissus committee.—At a meeting of the Narcissus committee on April 22, 1890, the following two varieties were registered: *Grande*, known formerly as *bicolor maximus*, and sometimes as *bicolor grandis*; *Queen Sophia*, an *incomparabilis* with widely spreading tinted crown. Mr. Engleheart showed an interesting set of seedlings, consisting of *poeticus ornatus* × *Bazelman major*, with three flowers, exactly intermediate between the two parents; *ornatus* × *Hudibras*, pure white perianth with clear yellow widely expanded crown,

almost flat; *ornatus* × *Mary Anderson*, pure white perianth, with deep red crown; *tortuosus* × *poeticus*, very like the variety known as *Circe*; *John Horsfield* × *ornatus*, near *Humei*; *Ard-Righ* × *ornatus*, like an *incomparabilis*; *Leeds Gem* × *cernuus*, like a white *Ajax*, but flowering three weeks later. Dr. Wallace sent a lemon-coloured variety of *incomparabilis plenus*, which was stated to have proved constant since shown last in May, 1887.—C. R. SCRABE-DICKINS, *Hon. Sec.*

AURICULA EXHIBITION.

THE annual *Primula* festival, held by the National Auricula Society in the Drill Hall at Westminster, in connection with the meeting of the Royal Horticultural Society, on Tuesday last, must be declared a very great success. All classes of the flower were adequately and, in some cases, exceedingly well represented, and the giant *Polyanthuses*, *Primroses*, and collections of species of *Primulas* made a display of a brilliant and exceedingly interesting character. There were a great many show Auriculas, green, grey, and white edges and selfs, some of them of exceptional quality, but the general public who crowded to see the flowers knew but little, and cared less for the distinctions of class set up by the florists, although they recognise them as unusual, interesting, and even fascinating. It requires an expert to tell the difference between a grey and a white-edged flower, but the green edges and selfs differentiate themselves into distinct sections, easily comprehended. A flower in which green predominates is regarded as something unusual and even abnormal, and it is the singularity rather than the beauty of the green-edged Auriculas that fascinates the public. The florist sees in them types of rare beauty, and places them at the head of the Auriculas. Good green edges are very few, and always scarce and expensive, and among those shown on Tuesday it was pleasant to see Leigh's Colonel Taylor, a variety nearly a century old, shown in an unusually fine character, with a strength of massive white paste very unusual in the flower.

The leading class for show varieties was for twelve plants, and here Mr. T. E. Henwood, Hamilton Road, Reading, a highly successful and comparatively new exhibitor, ran the Rev. F. D. Horner very close for first place. The superior quality, however, of Mr. Horner's flowers gained him the priority. The names of his flowers may prove useful as a record. He had of green edges—The Rev. F. D. Horner, raised by Mr. B. Simonite, Sheffield, and so finely developed as to have been selected as the premier variety in the exhibition, and *Monarch* (Horner). Of grey edges—Headley's George Lightbody, a flower of marvellous individuality of character, and Rachel (Woodhead). White edges—Snowdrift, *Atalanta*, *Magpie*, a very expressive name for a lovely flower; and *Desdemona*, all raised by the exhibitor. And of selfs—*Heroine*, *Laura*, a very fine plum-coloured variety; *Iris*, and *Favourite*, also very fine. But it should be stated that only three of these flowers are actually in commerce—the Rev. F. D. Horner, George Lightbody and *Heroine*. Mr. T. E. Henwood had of green edges the Rev. F. D. Horner, *Monarch*, and the old grey-edged *Lancashire Hero*, which sometimes, as in this case, takes on a green instead of a grey edge. Grey edges—George Lightbody, very fine; George Rudd (Woodhead), with ten fine pips of flower; Mr. Moore (Douglas) and Rachel. White edges—Dr. Kidd (Douglas) and *Acme* (Read); and of selfs, Barlow's Mrs. Potts, a lovely blue variety; Woodhead's Black Bess, and *Heroine*. Mr. J. Douglas, gardener to Mr. Whitbourn, Great Gearies, Ilford, was third. In the class for six plants Mr. Henwood was first, Mr. Douglas second, and Mr. Horner third. *Reliance* (Mellor), a pretty white edge; *Attraction* (Horner), a green edge, much in the way of the Rev. F. D. Horner; and dark selfs, *Florence* and *Daphne*, both raised by Mr. Horner, were distinct from those already named. In the classes for four and two varieties a band of young growers from Reading carried off the leading prizes; indeed what might be termed the biscuit metropolis has become a very

active and successful centre of Auricula cultivation. Then there were classes for single plants in their different sections, a good many being staged, and it was in the green edges that the Colonel Taylor alluded to above put in an appearance. The alpine varieties were of great excellence, and the lead taken by the late Mr. C. Turner as a raiser of new varieties in their section it being imitated by Messrs. Henwood and others. Happily for the general public, these charming bright-coloured flowers fall into two classes only, the gold centres, by far the most numerous, and the white centres. But, as could be observed on Tuesday, some varieties partake of both characters; they open gold and then change to white, a great defect, as it imparts to the plant a confused appearance. There is great need for more good white centres that do not quickly die away to a ghastly white, but retain the life found in the marginal colours. The most beautiful are the white centres shaded with deep mauve and blue, but there are as yet very few good ones among them. Unfortunately, the judging arrangements on Tuesday appear to have broken down in some of the alpine classes, and some regrettable awards were made.

Mr. T. E. Henwood, in alpine Auriculas, had the best twelve, his varieties being *Defiance*, *Horner*, *Philip Frost*, *Edith*, *Mungo McGeorge*, *Sunrise*, and *Miss Blackburn*, all fine varieties raised at the Royal Nursery, Slough, and some by Mr. Henwood himself. Mr. C. Turner, Royal Nursery, Slough, had twelve fine varieties also, which were awarded the second prize; they consisted of *Charles Phillips*, *Alarm*, *Countess*, *Olympia*, *Nemesis*, *Troubadour*, *Jewess*, *Wrestler*, *Sunrise*, *T. E. Henwood*, and *Royal Standard*. If anyone could succeed in getting a plant of each of the foregoing they would possess a very select and splendid collection. In the classes for six, and also for four varieties, and in those for single plants of gold centres and white centres, there was a keen competition.

There was a class for fifty Auriculas, in which Mr. Douglas was first and Mr. Turner second. There was one for twelve fancy Auriculas also, a kind of nondescript section. In Mr. Douglas' collection, which was placed first, there were some very pretty and striking golden edged varieties.

It was not to be wondered at that the public hung about the brilliant giant *Polyanthuses* and *Primroses*. They appear to entertain a suspicion that the culture of the high-class show and alpine Auriculas is a mysterious process known only to experts, but in the case of the *Polyanthuses* and *Primroses* they see homely subjects that do well in the open border. Mr. R. Dean, Ranelagh Road, Ealing, was placed first with twelve superb single *Primroses*, *Samuel Barlow*, rich bright crimson; Mr. Gladstone, ruby-purple; Mrs. Gladstone, pure white; and *Brilliant*, bright cerise-crimson, being conspicuous for their striking quality. Mr. J. Douglas was second with some very good flowers also. With twelve fancy *Polyanthuses* Mr. R. Dean was again first, with bold flowers of high quality; Mr. J. Douglas again being second. There were several baskets of *Primroses*, that from Mr. R. Dean being awarded the first prize; that from Messrs. Paul and Son, Old Nurseries, Cheshunt, being placed second. The only exhibitors of six pans of double *Primroses* were Messrs. Paul and Son, having *Croussi*, *platypetala*, *sulphur*, *white*, *lilac*, and *Scotch red*.

By the side of their illustrious relatives, the giant *Polyanthuses*, the florists' gold-laced varieties looked very poor. The only exhibitor of well-developed varieties was Mr. Samuel Barlow, of Manchester. He had *George the Fourth*, *Prince Regent*, *Exile*, *Lancer*, and *Cheshire Favourite*, good old named varieties, in excellent condition. The amount of prize money allotted to these types is altogether beyond their real value.

Species of *Primulas* were numerous and very interesting. Mr. J. Douglas was first with twelve specimens, having well-developed plants of *verticillata*, *obconica*, *japonica alba*, *Nelsoni*, *obtusifolia*, *Auricula rosea*, *nivea*, &c.; Mr. W. Harpur was second, and Mr. O. T. Hodges, Lachine, Chislehurst, third, both having interesting and well-grown

examples. In the class for six species Mr. S. Barlow was first, having obconica, denticulata, verticillata, intermedia, viscosa, and vulgaris. Mr. R. Dean was second.

New Auriculas were somewhat sparingly shown, but Mr. Horner's yellow self Buttercup was an exception to the general mediocrity. It is by far the best yellow self seen during the last quarter of a century. Irreproachable (Horner), grey edge; Miranda (Horner), white edge; and Dimple (Horner), dark self, are promising. New alpine varieties were few also. Mr. T. E. Henwood had Florrie Henwood, rich gold centre, maroon margin, shaded with deep rosy salmon; and Mr. J. S. Hedderley's Jenny, gold centre, maroon margin, shaded with crimson, were both awarded certificates of merit.

THE HALL FOR HORTICULTURE.

Meeting of the Trade.

ON Tuesday last a meeting of trade growers was called together in the offices of the Royal Horticultural Society to consider what measures could be taken to arouse a thorough interest in the Hall of Horticulture by the trade, as without their help it is practically impossible to bring the scheme to a successful issue. The following is the scheme proposed by Baron Henry Schröder, and which was fully explained by him at the general meeting held on Feb. 11. It is signed by the three trustees, and clearly sets before those interested in the matter its object, and the way in which it is to be worked.

It is proposed to invite all friends of horticulture to join together in placing in the hands of the trustees a sum of £40,000 to be held by them free of interest for the benefit of the society, and to be gradually returned to the lenders by drawings of the bonds which they will receive, such drawings to commence as soon as possible.

Of this sum of £40,000, the greater part would be invested by us in first-class securities yielding interest, and the remainder would be invested in the buildings to be erected, the society paying rent for them, and the total of interest and rent thus received would suffice for the payment of the ground rent. It is hoped that a considerable sum would be annually obtained for the purpose of redemption of bonds by letting the basement and the great hall itself for various purposes at times when it is not required by the society, and so soon as the whole of the bonds shall have been drawn or paid off, the buildings, &c., would become the absolute property of the society, and the office of the trustees will have ceased.

Thus the lenders will see that the sum invested by the trustees, together with the value of the buildings erected, would form ample security for their money, and the only loss to themselves would be that of the interest during the period between their placing the money in our hands and the date of the drawing of the bonds they will hold in its stead. That the matter can be carried to a successful conclusion the society is amply assured, if all lovers of horticulture will join together to lend the money required.

Hoping that we may receive your hearty sympathy and active support,

TREVOR LAWRENCE,
HENRY SCHRÖDER,
EVERARD A. HAMRO, } Trustees.

The chair was taken by Sir Trevor Lawrence, Bart., M.P., who alluded to the scheme above given, and said, if a suitable building could be got in a good thoroughfare and position, it would not only be an advantage to amateurs, but to the horticultural trade. He appealed strongly to the nurserymen to help forward this scheme, reminding them that the money is only lent, and will be returned. The sacrifice which we ask you to make in carrying out this scheme is not a very great one. The chairman then called upon Baron Schröder, who has the project so much at heart. He said, 1500 circulars had been sent out, putting forth the details of the scheme, and of which we have given the three most important paragraphs. Baron Schröder specially laid stress upon the advantage of the scheme to the horticultural trade. He said there are two points to be considered, the one a monetary point, the second, the site. As far as the monetary point is concerned, the Horticultural Society is unable to extricate you from the present Drill Hall, but if we put our shoulders to the wheel, we should be able to get a Hall for Horticulture second to none in the world. We,

however, require the means, and I simply ask you to have confidence in the three trustees. He then gave a sketch of the scheme, and impressed upon his hearers that the capital would be perfectly secure, and only the interest would be lost for so many years; it would depend upon you whether that money is quickly repaid. The site is a very important question. One on the Embankment would be better than any other, as it is on the highway to the city. I find that there is a growing desire among city men to have fine flowers and to occupy themselves in horticulture generally. If we could get the site on the Embankment we could use the building for a number of purposes, amongst other things a permanent exhibition of garden implements, &c. Baron Schröder said he had been asked to whom the hall would belong after the money had been repaid, and he replied, of course to the Royal Horticultural Society.

Mr. Bull heartily supported the scheme, mentioning that it is a disgrace to those connected with horticulture in London that there is no place for shows. It seems the only feasible plan by which we can hope to raise the £40,000; the money is only lent, and will be returned. A resolution was then proposed by Mr. Bull—

That the representatives of horticultural trade here present having heard from Baron Schröder of the proposed Hall of Horticulture in connection with the Royal Horticultural Society, pledge to support it to the best of their ability.

This was seconded by Mr. Bunyard, who asked whether, in case the sum of £40,000 is not subscribed, any alternative scheme could be proposed. Baron Schröder said a smaller amount would not do; £40,000 is the very lowest sum possible; he would much rather it were £50,000. He said: "I would rather withdraw than I would take less money and not be sure of my scheme." Mr. G. Paul recommended the scheme, and Mr. Bruce Findlay said he would also do everything in his power to promote it, as it must be borne in mind that it is not merely a London affair.

A committee of nurserymen was then formed, with power to add to their number, to promote in every way the scheme for the Hall of Horticulture.

ROYAL BOTANIC.

APRIL 23.

THE second show of the season was better than the first. At this date we are free from the big pots of florists' Crocuses and other things that disfigure the March exhibition. Never have hardy alpine flowers been shown finer than on Wednesday. The plants were large and in fullest flower, from the masses of the yellow *Doronicum plantaginifolium* excelsum to the little creeping Balearic Sandwort (*Arenaria balearica*). Mr. T. S. Ware was first for a collection of hardy herbaceous plants, an excellent variety of things, comprising masses of Japanese Primulas, *P. Sieboldi*, *Saxifraga Camposi*, Trilliums, *Cypripedium Calceolus*, *Gentiana acaulis*, *Doronicum austriacum*, *Primula cashmeriana*, *Iris pumila atropurpurea*, the deepest blue of any variety of this dwarf flag, and the pretty purple-flowered *Orobanchis vernus purpureus*. Messrs. Paul and Son, Cheshunt, were first for a collection of alpine, and a delightful variety of kinds thoroughly well grown so as to display the characteristics of each was presented, such as *Gentiana verna*, *Adonis vernalis*, *Waldsteinia trifolia*, *Hutchinsia gracilis*, *Uvularia grandiflora* with its narrow-petalled, yellow drooping flowers, and the little Rouen Violet (*Viola rothomagensis*). Primulas, of course, were as largely exhibited as any flower; and the collection from Mr. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, included a number of the best and well-known kinds. Messrs. Paul and Son were second for a rich variety of coloured Primroses, both single and double, the colours bright and decided. Mr. J. Douglas also had the best Polyantheses, and Mr. Charles Turner, Slough, the finest alpine Auriculas. Mr. Douglas was also first for twelve Auriculas, and in his collection were two beautiful self varieties, one, *Tiresias*, having a fine umbel of flowers, each of a rich violet-purple colour, the paste white; and in a seedling exhibited the colour was of the finest sapphire-blue.

The finest greenhouse Azaleas were from Mr. H. Eason, gardener to Mr. B. Noakes, Hope Cottage, Highgate, the specimens especially of *Roi d'Hollande*, *Charmer*, and *Reine des Pays Bas* being one mass of bloom. Messrs. H. Lane and Sons, Berkhamstead, were first for twelve *Rhododendrons*, and Messrs. Paul and Son for twelve *Roses*; the varieties *Alphonse Soupert*, *Celine Forestier*, *Avocat Duvalier*, *La France*, *Innocente Pirola*, and *Ulrich Brunner* were well shown. This firm also had the finest *Amaryllises*, amongst which were several promising seedlings of bright colours. Both for *Cinerarias* and *Pelargoniums*, Mr. D. Phillips, Langley Broom, was first. Messrs. H. Cannell and Sons, Swanley, were the only exhibitors of tuberous *Begonias*, but they had several excellent single varieties, the best being *The Lady* (pure white), *Princess Maud* (white, rich pink at the margin), *Countess Granville* (salmon, a very bright flower), *Duke of Sutherland* (rich glowing crimson), *Lord Salisbury* (bright scarlet), and *Andrew Searle* (carmine). One of the best of the doubles was *Duke of Fife*, the colour rich salmon-rose. Excellently-grown plants of *Mignonette* came from Mr. W. Morle, Regent Street.

There were several miscellaneous exhibits. Messrs. Ryder and Son showed a group of Japanese *Primulas*, as at the Drill Hall on the previous day. The plants were finely arranged with *Maiden-hair Ferns* and embedded in Moss, far prettier than showing the bare exterior of the pans. Messrs. B. S. Williams and Son, Upper Holloway, had a bright group of miscellaneous plants, and Messrs. Paul and Son a number of *Roses*. Messrs. J. Laing and Sons, Forest Hill, exhibited *Orchids*, *Tree Pæonies*, a fine plant of *Rhododendron Countess of Haddington*, and *Carnation Mme. Warocque*. *Mignonette Garaway's* double white, from Messrs. J. Garaway and Son, was again exhibited. Mr. W. Morle, Regent Street, showed a miscellaneous group, and Mr. F. H. Burroughes a charming selection of cut *Anemones*, described in our report of the Royal Horticultural Society. The blooms of *Maréchal Niel* *Roses* from Mr. J. Walker, Thame, Oxon, and the *Rhododendrons* from Messrs. H. Lane and Sons, Berkhamstead, were both finely exhibited. Mr. W. Ramsey, Waltham Cross, exhibited a collection of standard and bush *Roses*, comprising amongst others good plants of *Mme. Hoste* and *Maréchal Niel*.

Large collections of *Daffodils* came from Mr. T. S. Ware, of Tottenham, and Messrs. Barr and Son, Long Ditton; and groups of *Auriculas* and *Primulas* from Mr. J. Douglas and Mr. Charles Turner. A large group of hardy herbaceous plants was sent from the Broxbourne nursery of Messrs. Paul and Son. There was a large boxful of cut spikes of *Megasea cordifolia purpurea*, one of the most richly coloured of all varieties, the pretty little *Tulipa Clusi*, and a small collection of *Daffodils*. Single flowers of laced *Polyanthuses* from Mr. J. James showed fine markings and colour. *Pelargonium Duchess of Fife* from Mr. Phillips is a good variety, with each flower well shaped, bold, and pure white, the upper petals feathered with a lilac colour.

Excellent fruits of *Bramley's Seedling Apple* came from Mr. F. H. Burroughes, Ketton, Rutland. They were finely coloured and remarkably fresh for the season.

A full prize list is given in our advertising columns.

Death of Miss C. M. Owen.—We regret to announce the death of Miss C. M. Owen, of Knockmullen, Gorey, co. Wexford. The deceased lady was the only daughter of the late Admiral Richard Owen, R.N., and also a near relative of the Earl of Courtown. Her garden at Knockmullen contained a large and choice collection of hardy plants, and the notes on their cultivation, &c., which she frequently contributed to THE GARDEN were always interesting.

Rough glass for hothouses.—I am about to put a new roof on two hothouses and wish to use the rough glass. Which is the proper side to put outside, the rough or the smooth? I have seen both, but do not know which is the best.—T. S.

M. A. W.—Try Thompson, Ipswich. He offers it.

WOODS AND FORESTS.

THE HEMLOCK SPRUCE.

WITH the exception of the White Pine, the Hemlock Spruce must be regarded as the most valuable of all the trees of the United States east of the Mississippi River, so far as abundance of timber products up to the present time is concerned.

The wood, for many purposes, especially in the unexposed parts of structures, has no superior, if, indeed, it have any equal. Its capacity for holding nails is greater than that of the White Pine, while its durability is equally great in corresponding exposures. With these qualities in its favour, the Hemlock must be regarded as worthy of careful consideration with reference to its bearing upon the important forestal problems of the nation. In the brief paper I have prepared for the present occasion, I have drawn my matter largely from a report upon the Hemlock, prepared by me for the Forestry Division of the Department of Agriculture, based upon a somewhat extended study of its biology, history, and economy.

The wide range of the Hemlock, covering, in its natural distribution, more than one-half million square miles, extending through thirty degrees of longitude and thirteen of latitude, would of itself suggest its adaptation to forestry. The impression received from its distribution is further strengthened by the fact that the tree grows naturally in a considerable diversity of soil, climate and situation. Few trees of our native forest are more marked in this respect, and somewhere within its range it is found as an associate of nearly every species of the arboreal flora of Eastern North America north of Alabama. If, however, we examine the question from the standpoint of actual experience in the cultivation of the Hemlock, the matter appears far less encouraging.

1. The demands which the Hemlock makes in regard to soil and climate are of so general a nature that no obstacle to its cultivation can arise from this consideration, although, like other plants, it manifests a certain preference for particular situations. Throughout the area covered by its natural distribution there are millions of acres adapted to the highest development of the Hemlock, which are unfit for any other than forestal purposes. No requirements exist, therefore, in regard to soil and climate, which are not amply supplied.

2. The tendency of the Hemlock to renew itself naturally on areas which have been largely or completely deforested is less marked than that of most other tree species. Still, the tendency to natural renewal is by no means wanting. I have seen a large pasture adjacent to a piece of Hemlock woods well stocked with a growth of young Hemlocks. They bore evidence of having been disturbed by cattle, but there were abundant indications that if left to themselves they would completely reforest the area on which they were growing. Other similar instances have been mentioned by correspondents in numerous locations. The Hemlock is an abundant bearer when once it has reached the fruiting age, although the seed crops are biennial. The seeds are shed at different periods, extending from autumn until spring. Fertile seeds have been found in the cones as late as the last of April. The seeds, if favourably placed, germinate freely, the specially favouring conditions being a moderate amount of shade and moisture. The latitude, in this respect, is not great, as any considerable excess of moisture causes the young plants to damp off, while from any great lack of it they wither and perish. While the young plants must be regarded as exceedingly delicate, they are, nevertheless, capable of enduring a considerable range of climatic and other conditions. There seems to be no inherent reason in the nature and constitution of the Hemlock to operate against its natural renewal on areas from which it has been removed, provided the conditions are favourable to that end. The essential condi-

tions are twofold: First, the rigid exclusion of all domestic animals; second, obviously and chiefly, the prevention of forest fires. While these conditions apply to all tree species in common with the Hemlock, they are relatively of greater importance in regard to the latter on account of its constitutional delicacy. A third condition would be the removal of a certain proportion of the seedlings of other species which are endowed with a greater degree of vigour.

3. In regard to the cultivation of Hemlock in nursery rows for subsequent transplanting, practical experience shows its want of adaptation to this purpose. In its seedling state it is probable that no other tree species is of so slow growth; at the end of its first year a seedling is rarely more than an inch in height; and at the end of its third or fourth year it has increased to scarcely more than 3 inches or 4 inches. This low growth is characteristic of the Hemlock during many subsequent years, although at a later period the relative rapidity of growth is somewhat increased. While these facts materially lessen the adaptability of the Hemlock to forestry, they do not prevent the employment of the Hemlock in the renewal of forests in the method previously considered. Moreover, it should be stated that while the rate of growth here indicated is based upon my own experience and observation, and is confirmed by many correspondents who have had great experience in the cultivation of the Hemlock, there are a few correspondents who consider it to be, in specially favoured situations, as rapid a grower as most other Conifers.

4. A few facts concerning the consumption of the products of the Hemlock may be here noted. What are regarded as trustworthy estimates, place the amount of bark used for tanning purposes in 1887 at 1,200,000 tons, which at 32s. per ton would represent a value of £1,920,000. Estimating the amount of manufactured lumber at 1500 feet per ton of bark, would give 1,800,000,000 feet as the total amount, representing a value, at £2 8s. per 1000 feet, of £4,320,000. While a considerable portion of the peeled timber is wasted, and should be deducted from the above estimates, it is believed this amount is made good by the use of unpeeled timber for railway ties, fuel and various other purposes. It may, therefore, be estimated that the full value of the products of the Hemlock is, in round numbers, £6,000,000 per annum. The length of time during which our remaining Hemlock forests will continue with this annual drain upon them is, of course, uncertain; but the most careful and conservative observers consider that the present supply could not be maintained for a period exceeding twenty or twenty-five years. It becomes, therefore, a question of great practical importance as to the way in which the existing demands upon the Hemlock shall be hereafter supplied. These supplies can, of course, be afforded in only two ways: First, by the substitution of corresponding products from other trees or other sources; second, by the renewal of the Hemlock forests.

The general conclusions which have been arrived at as the result of a somewhat careful investigation of the present subject may be briefly summed up as follows: The Hemlock has been from the earliest settlement of the country a tree of vast economic importance to the people of the Eastern and Northern States; that in this respect it has been second to none of our native forest trees, with a possible exception of the white Pine; that the tree has been exhausted from vast areas where it formerly existed in great abundance; that at the present rate of consumption the entire supply will be practically exhausted in from 20 to 30 years; that nothing has been anywhere done toward reforesting the areas from which it has been removed, and that its nature and constitution afford only a moderate promise of its adaptation to economic forestal purposes. Finally, it may be stated that the most prominent result of the investigation to which I have referred has been to give great emphasis to the fact, not as yet sufficiently recognised, that the country ought to give prompt and ener-

getic attention to the whole subject of forestry; that no successful forestry management is possible in the absence of adequate knowledge of the subject, and that this knowledge is attainable only through intelligent experiment, experience, and study.—*Read before the American Forestry Association by Professor A. N. Prentiss.*

FORESTRY.

THE open weather with which we have been favoured during winter and spring has been beneficial for the planting of all kinds of trees and shrubs. Although the trees may have been carefully planted, the work is by no means at an end, as the planter will now require to protect his trees by fencing, staking, tying, and in some cases erecting screens to protect half-hardy kinds from unfavourable climatic influences until the roots take to the soil and become established. In all cases where the plants have been inserted by the notch system the trees should be frequently examined, and any that are blown by the wind to one side should be set up and the ground around the collar of the plant made firm. This is an important point in tree culture, inasmuch as if blown plants are left lying on one side, when they commence to grow the top naturally takes a perpendicular direction and thus forms a bend at the base of the stem, which lessens the value of the tree to a large extent when it is felled for use. Many young plantations here and there throughout the country are occasionally destroyed or partly destroyed by fire, so that great vigilance is requisite in dry weather to detect and have such promptly subdued when it occurs, for I can conceive nothing more vexing to a proprietor who takes an interest in tree planting and has spent part of his capital in that way than to see a thriving plantation reduced in a few hours to a mass of blackened stems and stumps. An example of this kind occurred a few days ago at Fintry Bay on the Meikle Cumbrae Island, where upwards of four acres of young trees were completely destroyed. The trees were planted about two years ago by the orders of Lord Bute, who wished to beautify the western shore of Cumbrae.

Several species of beetles and insects destructive to tree life are already quite active, so that in order to keep them within bounds, all dead and sickly trees should be cut down and the bark removed from their stems and limbs. This applies principally to the coniferous tribe of trees, but Elm had better be treated in the same manner. Trees that are badly infested with insects that bore into the solid timber should be cut down and the parts affected burned, which is a wholesale way of destroying them and their eggs or progeny. In cases where the timber has been damaged to any great extent by the insects, it can be used for firewood or the making of charcoal. Specimen ornamental trees should be examined at this season, and such as have suffered damage during the winter by the wind tearing off limbs or branches should have the wounds, after all the splinters and detached fragments of wood are cut off, dressed with coal tar or thick paint to prevent the lodgment of water and the growth of fungi. By a little timely care in this way many fine trees may be spared and their lives prolonged. To lessen the risk of fracture by wind, it is sometimes necessary to cut off part of a large branch or limb.

J. B. W.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWER GARDEN.

LIGHT-HUED SPRING FLOWERS.

ALTHOUGH Bedford is some thirteen miles from Hyde Park Corner, yet the prevailing condition of the atmosphere during the spring has been that of dullness and gloom. This prevalence seems largely due to the persistent determination of the wind to blow from the east and north, and thus bring down volumes of metropolitan smoke, which shut out the sunlight even when there is little cloud. When these both exist, the dullness is indeed visible. Here, on the morning of the 25th of April, a time of the year when we should have a wealth of light and sunshine, and yet the sun has shone out but a few hours all the week, and even with the wind westerly for a couple or three days, there has been little sunlight and plenty of cloud. This morning the outlook is peculiarly gloomy, for the wind is exceedingly cold, and the light is as that of November. No wonder then that all dark or rich-hued flowers look dull and uninteresting, whilst white and yellow flowers stand out with peculiar boldness. These hues are specially marked amongst the Polyanthuses, because the dark-hued clumps act as foils, and show up in exquisite beauty the paler tints, and yet when we have sunlight, the dark hues are exceptionally beautiful. The eye tires of always resting on clumps of white and yellow, especially upon Daffodils, and naturally turns with relief to dark colours. Still, in gloom dark hues suffer immensely, and it is not a matter for wonder that almost all who see hardy spring flowers favour the light-coloured ones. I have seldom seen a prettier sight on a sunny spring evening than is found in a big mass of dark-coloured Polyanthuses or Primroses of many diverse shades. The golden eyes reflect the light, and every flower as it were becomes individualised. In such light whites and yellows lose their individuality and become clumps of colour only. For the production of distant effects even such hues as buff, salmon, and carmine are very good indeed. The salmon tints, though regarded as washy by some, are singularly striking when seen in clumps in the distance; indeed, Polyanthuses of all sorts of colours looked at from a distance would afford many lessons to planters in producing proper colour effects in the spring, because the colours are so diverse, and those of particular hues stand out from the rest with marked clearness. Nature has been lavish with light hues in spring flowers, probably because usually seen under heavy skies. It is true the Violet is deep hued enough, but it is not a flower to produce colour effects under any circumstances. Probably the most striking of heavy coloured spring flowers, but then only when seen in considerable masses, are the rich blood-crimson double Daisy and the deep purple Aubrietia with which body of colour seems to overcome the comparative dullness which would otherwise be apparent in gloomy weather were the clumps of flowers small. A bunch of the golden-leaved Valerian may be seen a long way off, whilst the Beetroot-coloured foliage of the Sweet William offers no attraction. Very likely away in high and remote country districts the atmosphere is pure and aglow with sunlight. To see Nature

under such conditions is to enjoy beauty, from which those living in smoke areas are too frequently debarred. Whenever the air is pure in this district, and, of course, it is so occasionally, the rich hues of flowers present a most marked contrast to their general aspect in heavy weather. Pure air and ample sunlight are conditions of flower culture so essential, that it is not a matter for surprise our markets should be supplied with flowers from France and elsewhere.

A. D.

PRIMROSES AND POLYANTHUSES AT BETTESHANGER.

OF all the spring flowers there is none more bright, beautiful, and long-lasting than the Primrose, in its varied forms and many-coloured strains. Some of these fine kinds are worthy of extensive culture in gardens, by massing them in suitable situations, when their effect is very striking. The garden at Betteshanger Rectory is now brilliant with Primroses, although only a few kinds are grown, but these on an extensive scale. Perhaps the prettiest thing in the garden is a single mauve-coloured Primrose, which comes into flower long before the common one in the woods is open, and continues to bloom profusely for many weeks. It is growing in various parts of the garden. In one place there is a long line at the edge of the border; in other parts there are broad, informal masses; but in every situation, whether sunny or shaded, the plants are a mass of blossom. Does anyone know anything of the origin of this Primrose? I have seen it in other gardens, but never before growing so extensively as at Betteshanger. A variety such as this has merits which cannot be too widely known and appreciated. This season there have been found in the woods several Primroses bearing white flowers. Probably this is nothing unusual, but it is intended to increase them and see whether they will maintain their character. A Primrose with white flowers, but in other respects a counterpart of the Primrose of the woods, would be an acquisition and very useful for associating with other kinds, as from the spring-gardening point of view it is not a varied strain that is wanted, but distinctly coloured, hardy, free-flowering kinds that can be grown in quantity. Among the Polyanthuses there are many that produce white flowers, and the shades of white and orange are extremely effective. A rich orange-coloured Hose-in-hose kind figures prominently, and is, in fact, one of the finest things in the spring-gardening arrangements in the beds. That the Primrose is well adapted for this purpose is here well seen. It is a simple matter to work up a stock of good kinds in the reserve garden, and have strong plants for transplanting into beds. In the reserve garden at Betteshanger there was a mass of a coloured kind whose flowers were of a bright, but peculiar kind of red. There were also hundreds of seedlings flowering for the first time in rich and beautiful variety, but only those that are specially striking and distinct are selected and increased.

I do not wish to speak in disparagement of the variable strains now in commerce, but these remarks are made in order to show how the finest kinds can be used in places where, perhaps, it has been the rule to leave the ground bare till the time comes for putting out the summer flowers. The greatest merit the Primrose has is its absolute hardiness, and in this respect it has a decided advantage over many things that are recommended or used to beautify the garden in spring; and last, yet not least, although it well repays good cultivation, yet it will stand a great amount of ill-treatment and neglect.

A. H.

Narcissus Bernardi.—Several thousands of this in the herbaceous grounds at Kew show some very curious and surprising flowers. The majority of them favour the Barri rather than the incomparabilis group, as we understand it now, but many of the flowers have developed a very rich intense orange shade. The only fault, if it may be called a fault, is their flowering so much later than their nearly allied cultivated forms, but we believe they

are earlier than they were last year, and if this continues we may soon have them flowering at the proper time. It will be curious to watch this interesting group and see what will result as time goes on. It is said that N. Bernardi cannot be cultivated for any length of time. The bulbs at Kew at any rate are in perfect health, and this is their third season. They were presented by Lady Godolphin Osborne from her son's collection.

Hardiness of Gerbera Jamesoni.—A friend having asked me about the hardiness of this plant, I think it likely that readers of THE GARDEN who remember the fine plate that was published with the issue of October 12 of last year, may also be interested to know the degree of exposure to which it has been subjected, without injury, in the Cambridge Botanic Garden. It perished on the open border, but two specimens planted among the Opuntias have survived, and one of them is now sending up a flower. They both commenced to make leaves about a month ago. With the Opuntias they have had the protection of glass overhead which throws off rain, but does not enclose them in front. The position is at the foot of the south wall of the stove with shelter, by other houses, from direct easterly wind. Here they seem to do much better than in pots.—R. I. LYNCH.

Alpine Anemones.—Amongst all these plants none, in my opinion, is so satisfactory as our own native A. Pulsatilla. A. pratensis is interesting with its curious half-opened deep purple flowers. A. montana, Nuttalliana, patens, and vernalis are all beautiful additions to the rockery in spring, and very charming when seen in groups or masses. Unfortunately, every season does not suit them. The English Anemone does well on ordinary borders or on the rockery where sufficient old mortar has been dug into the soil to give it a colour. It seeds so freely and can be so easily raised in the open air that no one need be without large stocks of this valuable plant. Its foliage is pretty and the large purple flowers are freely produced. The silvery involucre also helps to make a charmingly harmonious whole.—K.

Primula Göblii, shown recently at the Drill Hall, from the Royal Gardens, Kew, will make those cultivators with a pet theory as to the origin of the Auricula change their ideas. This plant, which has been several times collected in a wild state, is substantially a garden Auricula. Of course, it lacks the fine form, the perfect throat, and aristocratic paste of its more fortunate brother, but it, nevertheless, is a true Auricula, and brings this vexed question to a much nearer settlement. With this P. Göblii, and with a little aid from P. Palinuri, we seem to have all that is required to obtain the fancy Auricula. Palinuri, which has traces of a paste round the throat, would in time supply that commodity in sufficient quantity to pass muster. Curious developments are also got from time to time from the plant known in gardens as P. pubescens, which in a broad sense may be made to include P. alpina and P. arctotis. From purple-flowered plants we get seedlings of all shades, purple, cream, white, while the leaves in some are green, in others mealy, with almost entire or deeply serrated margins. If one could keep seedling these and growing only the most distinct, some interesting and curious facts might be gleaned.—K.

Zinnias.—These are generally sown too soon, and in consequence tender young plants become drawn long before it is safe to plant them out, which should not be done till June, as the slightest frost is almost fatal to them and cold greatly cripples them. This being so, it will be found that the end of April or the first week in May is quite early enough for sowing the seed, which should be done in shallow boxes filled with light soil and the seed just covered, when if sprinkled with water and stood in any warm house or pit, it will soon germinate. The way Zinnias look best is in large masses in beds, as when so grown their colours blend and they make a grand show, and are almost dazzling when the sun shines upon them. To have them at their best, the bed intended for them should be deeply dug and heavily manured, as they

like rich soil, and it is necessary for them to be able to send their roots well down or they suffer from dryness. The most suitable situation for the bed is an open sunny one, as Zinnias are fond of heat and do not flower half so freely if they get shade during any portion of the day, as then their growth is less firm. The lines may be 15 inches apart, and the plants 1 foot from each other in the lines. This will be quite near enough, as they branch out freely and grow very strong, and it spoils them to crowd them together. Single Zinnias do not make anything like the show the doubles do, as the singles have such coarse prominent discs and but few petals to their flowers. A new variety now being sent out is said to have very large flowers. It grows about 3 feet high, and bears very large conical-shaped flowers of rich and varied hues. This kind is well adapted for the centre of a circular bed to be filled in around with the other sorts, or as single plants in a border in the way Dahlias are grown. Zinnias, unlike most annuals, are continuous blooming, and when planted in deep rich soil last in full beauty till quite late in the autumn.—S. D.

THE GLADIOLUS.

AN old grower of Gladioli said to me some time ago, "I believe we keep our bulbs too long out of the ground." Probably there may be some truth in this, for it may be observed that any bulbs passed over by mistake at digging-up time and that have been left in the ground all the winter will flower strongly the following season. On the other hand, we dig up the bulbs in October, and they are kept drying on shelves in some cases until April, rather a long period; both of us had to do with growing the plant within the radius of the smoke of large towns. I have often complained of the degeneration of our plants, either seedlings of our own or named varieties raised by other people. Recent experience leads me to the belief that climate more than soil has to do with this troublesome trait in the character of our plants. Mr. Ward and other growers of Covent Garden Market plants inform me that their difficulties have vastly increased during the last few years owing to subtle influences at work in the atmosphere; it does not seem to be so pure as it was ten years ago, and fogs actually seem more destructive. It is painful to an admirer of these beautiful plants, after infinite pains have been taken to prepare suitable soil, &c., to find expensive varieties lose their vigour, the leaves become of a sickly yellow colour, and the spikes shadows of what they ought to be. Side by side with them recently imported bulbs produce healthy plants with deep green foliage, which throw up handsome spikes. Next season the bulbs produced by these same plants give very indifferent results. Do we keep the bulbs too long out of the ground? I do not think so, for there is not much, if any, difference between those planted in March or late in April; indeed, the later planted ones sometimes do best. Mr. D'Ombain, the most noted amateur grower, informs me that his plants do not degenerate at all; but is he not located in Kent, the garden of England, and far away from London fogs and London smoke. Mr. Burrell, of Cambridge, is another notable grower who does not find any difficulty with the plants, but Cambridge seems also to be a goodly land, and the rainfall in autumn seems to be much below the average, and on this point, I think, much depends. I am quite certain that our soil is always too wet in the autumn, and the lack of sunshine near London is unfavourable to its drying. Messrs. Kelway, of Langport, are also, as is well known, most favourably situated for growing Gladioli. The climate of Somersetshire may even be more favourable than that of Kent or Cambridgeshire. Coming to practical details, it is much to be desired that all the bulbs should now be planted out. Get them in when the ground is in good condition. Any plants pushing through the soil may be kept from injury by having a flower-pot inverted over each. I have on previous occasions advised the planting of a few of the earliest flowering varieties in pots, say, in February. These are to be placed in cold frames and then planted out on a sheltered border or some

suitable place in the flower garden about the end of April. The plants should be turned carefully out of the pots and be planted, say, 2 inches deeper than they were before, and they must not receive any check by the roots being disturbed. It may also be well to add that the plants should be inured to the open air by having the lights removed night and day for a week at least before planting them out. This is important in dealing with the hardiest plants. J. DOUGLAS.

THE PREPARATION AND HARDENING OFF OF BEDDING PLANTS.

THE pressure in connection with the preparation and hardening off of bedding plants is always great at this season, as the capabilities of most places are strained to the utmost, and it requires much forethought and some amount of scheming or ingenuity to improvise structures or places in which plants may be put for shelter to prevent them from suffering after coming from warm houses or pits. This is an easy matter where there are old lights to spare, as they may be utilised for covering in temporary frames, which may be made with 9-inch boards, and if the front one is edgewise on the ground and the back one on bricks laid flat, so as to raise it a little, numbers of things may be pricked off or turned out of pots, and so prepared for beds and borders, to which they may then be readily transferred with good balls without feeling a check. We have just constructed several of these frames, and the way we manage is to drive short stout stakes at regular intervals along each side of the boards to hold them up, the bricks at the back giving the requisite slope for the lights, and when completed we put a sprinkling of rotten leaves over the hard ground and on them some light soil, the two forming a depth of 2 inches or so. This we find better than more, and quite sufficient for Calceolarias, Ageratums, Lobelias, Iresines, Heliotropes, Asters, Stocks, and all bedding stuff of that class, as they do not stand long, but root thickly on the firm floor. Many of the half-hardy annuals may be sown and raised in such frames, but Stocks, Zinnias, and Asters should have a little more warmth, and it is best to sow these in boxes or large pans and stand them in a hot bed or house where they can have a temperature of 60°, which will help the seed to germinate, and as soon as the plants can be seen the boxes or pans should be moved to a cooler position and placed up near the glass to prevent the young seedlings from becoming drawn. In a few days they will be sufficiently hardened for pricking out, but before this is done the soil in the improvised frames should be made perfectly smooth and level, and then the plants may be quickly dibbled out at about 3 inches apart. This done, the next thing is to give a gentle watering with warm water and to keep the lights close and shaded for a day or two to give the young plants a start, after which air will be necessary to keep them sturdy and strong. Pelargoniums and all such like things will need the shelter of glass for a short time longer, but on fine warm days they will be benefited by having the lights withdrawn for a few hours, as it is the gradual exposure that so fitly hardens the foliage and enables the plants to stand the full glare of sun when turned out in the open. S. D.

Primula denticulata.—This, badly represented amongst the species at the National Auricula show at the Drill Hall, has no equal amongst its class as a showy garden flower. If given ordinary treatment it grows with a robustness and flowers with a freedom almost unparalleled in the genus. It is one of the easiest to manage, and, as we have often before remarked, stands any amount of rough treatment. Its near ally, *P. capitata*, is rather more difficult to manage. It is, perhaps, best treated as a biennial, and as it usually ripens seed freely there will be no difficulty in managing it in this way. *P. Fortunei*, with its loose heads of lilac or pale purple flowers, has an excellent constitution, and can be increased freely by division, as in the case of *P. denticulata*. It differs from *denticulata*, however, in retaining its

leaves through the winter, and is perfectly hardy in the open air.—K.

Primula cortusoides.—The display of this plant at the Drill Hall recently was, perhaps, the grandest ever seen. This is a very old garden Primrose, one of the earliest of its class in cultivation, in which little or no improvement took place until within the last twenty years. The type, rarely seen in gardens now-a-days, is later in flowering than the variety *amœna*, and has small usually washy coloured flowers. In the variety *amœna* we have one of the most varied and showy of this large genus, capable, apparently, of great things in the future in the direction of deeper and stronger tints. The next improvement ought to be to obtain stronger stems, so as to dispense as much as possible with staking, which, however carefully done, creates a certain stiffness.—K.

Cultivation of Cyrtanthi.—I think Dean Herbert gives the reason himself why the genus *Cyrtanthus* did not prosper in his hands. He kept them too hot. The following is an extract from p. 130 of his work on bulbous plants:—

They are altogether plants of difficult culture, the bulbs being more disposed to dwindle and rot than to increase in bulk. Mr. Griffin was, I think, more successful than most others in the cultivation of *C. obliquus*, of which he had many strong bulbs very near the glass in his stove, where the heat was never great. A common greenhouse is usually too damp for it in winter, and the air of a hot stove too confined.

That reads as though the *Cyrtanthi* were more coddled by Herbert and his friend than they ever care to be. They should have nothing to do with a stove. I have never tried *C. obliquus* in the open ground, because it has persistent leaves, and where that is the case, the cold east winds of spring punish them so fearfully that the foliage is almost certain to suffer from them, and then the bulbs rot as a matter of course; but *lutescens* and *McKenii* have deciduous leaves, and I have nothing easier in my garden to manage. They are both coming up very strongly now in the open ground, and they increase and blossom abundantly. I expect that Mr. O'Brien will have perfect success with them in the open border, as he has already had in unheated frames, my notion being that they have suffered a great deal more from heat than from cold in this country, and that the care which has been lavished on them is the very thing that has injured them. I mean to put *Cyrtanthus obliquus* by the side of the others next week, and I shall protect its leaves in winter in the best way I can. *C. sanguineus* is already *in situ*. I planted it as soon as the winter was over, and so far it is happy enough. I have always grown *C. obliquus* in a greenhouse where the windows could be thrown widely open on every possible occasion.—HENRY EWBANK.

The Tulip mania (R. S.).—The rage for Tulips existed in the highest degree amongst the Dutch, from the beginning to the middle of the seventeenth century; it would not be possible to say in what year it began or left off, but a writer named Hirschfeld states that in the year 1637 a Tulip named *Viceroy* was sold for 4203 florins, a florin at that time (Anderson's "History of Commerce") being equal in value to an English bushel of wheat. From that date to the middle of the century prices increased, until the trade in Tulips became a system of gambling, which the government found it necessary to put a stop to. Beckmann, in his "History of Inventions," gives a full account of it in a chapter on Tulips (vol. i. p. 36). A bulb of a Tulip Admiral Leifken was sold for 4400 florins, but the variety *Semper Augustus* was the most celebrated. Of this there were at one time but two bulbs, one at Amsterdam and the other in Haarlem, and for one of these a person offered 4600 florins, a new carriage, two grey horses, and a complete set of harness. Another person offered for it 12 acres of land. After the middle of the seventeenth century high prices were obtained for Tulips, but the gambling mania ceased about the year 1650. The late Mr. Groom, of Walworth, published his Tulip catalogue, in which high prices were maintained up to the year 1854. It contained three varieties at 100 guineas, viz., *Duchess of*

Cambridge, Princess Mary of Cambridge, and Miss Eliza Seymour. There were also one at 50 guineas, twelve at 21 guineas each, and four at 10 guineas each. Mr. Groom died soon after, and the entire collection was sold by Messrs. Protheroe & Morris, none of the rows of seven bulbs realising more than six or seven guineas. Since that time the Tulip has been in the background. Mr. Charles Turner, of Slough, kept up a collection until fifteen years ago, when he sent me all his best bulbs, because no one would buy them at any price.—J. DOUGLAS.

PERMANENT BEDDING PLANTS.

THAT a bed of hardy flowers is far more beautiful and, in the long run, less expensive than a gorgeous display of the so-called "summer bedding" subjects, few will deny. Despite this, however, the majority of gardeners still cling to the orthodox system, for it is a rare occurrence to see an array of flower-beds containing nothing but hardy flowers. Still, there are a few exceptions to the rule, and these might be taken as an example with advantage.

There are many subjects suitable for forming permanent flower-beds, and, so far as my taste is concerned, none are more beautiful than Carnations. These, as is well known, when properly managed produce an abundance of bloom varied in colours, and in the case of Cloves delicious in fragrance. I remember having seen a number of beds containing old crimson Cloves and other border Carnations in close proximity to a line of beds planted with Calceolarias, Pelargoniums, &c., and the difference between the two was most conspicuous, the Carnations being decidedly the best. But, some may argue, the Carnations will not bloom until the autumn. True, but are there not numerous dwarf-growing autumn-flowering perennials that could be associated with them? Such common subjects as Snapdragons, Pentstemons, Violas, &c., would, if judiciously arranged, produce a telling effect. The well-known Madonna Lily (*Lilium candidum*) also makes a charming bed on a lawn, but seldom have I seen it used for such a purpose. It is in cottage and old-fashioned gardens that this Lily, the best of its class, is seen to advantage. The Iceland Poppies (*Papaver nudicaule*) will also produce an effect that no ordinary bedding plant in cultivation is capable of doing. These, as is pretty well known, form ornamental tufts of Fern-like foliage, and produce flowers of various shades from pure white to a deep orange-scarlet. They are, moreover, most profuse bloomers, producing an immense quantity of bloom from June until September. Another fact that strongly recommends them for beds is their dwarf habit, for when in bloom they rarely exceed a foot in height. As a rule, they do best in cool spots and in a moist, but sandy soil. The Alpine Poppies (*Papaver alpinum*) are also beautiful little plants, and admirably adapted for beds. There are several forms of them with white, scarlet, and yellow flowers. Like the Iceland Poppies, too, they appear to thrive best in moist sandy soil and in cool positions, but, as far as my experience goes, do not bloom for so long a period. Many of the dwarf-growing Campanulas, again, make by no means ineffective beds. For small beds or as an edging to larger ones, the pretty little Campanula pulla is well adapted. It is a dwarf grower, rarely exceeding 6 inches in height, and produces abundance of dark blue or purplish bell-shaped flowers. *C. turbinata*, another dwarf-growing kind, I have also seen answering well for the purpose; it makes an effective bed, and will thrive, moreover, in a partially shaded position. The flowers are somewhat large and of a deep bluish shade. *C. glomerata* and *C. grandis* would also make a fine show during the summer when planted in masses in beds, while the same may be said of *C. grandiflora* and *C. carpatica*. The last-named is especially useful for beds, and should be largely used for the purpose. The type has fine blue flowers, while *C. carpatica alba* has pure white blooms. Single and double Pyrethrums, too, make a good show with their variously coloured flowers when planted in beds, but as they only bloom during June and

July they require to be associated with something else, in order to prolong the flowering period until the end of the summer. For this purpose some of the late flowering Lilies, such as *L. auratum*, would be well adapted, and if judiciously arranged the effect would be very telling. Among the numerous Irises now in cultivation may be found some exceedingly showy plants, and if planted with taste a few beds of these would produce a most charming effect. The common and much grown *Iris germanica* in its numerous varieties is as good as any for planting in beds. The Gaillardias afford a showy and pleasing variety, while the same may be said of the Aquilegias, of which I have seen fine beds, and the effect was everything that could be wished for. *Aquilegia cærulea*, *A. Skinneri*, and *A. chrysantha* are best adapted for growing in beds. Then some bold masses may be made of the Japanese Windflowers (*Anemone japonica*), with the white and rose-coloured flowers. Only those who have seen the beautiful white variety Honorine Jobert planted thus can form an adequate idea of its value for such a purpose and the effect it produces. No bed, no matter how elaborately planted, of common tender subjects is capable of producing such an effect. The spring-flowering kinds, such as *Anemone fulgens*, *A. apennina*, *A. blanda*, &c., are equally effective and worthy of being planted in quantity. The same may be said of Hepaticas, for these are exceedingly pretty in beds in early spring. There are many other subjects also suitable, such as Sweet Williams, Lychnises, Spiræas, Pinks, Primroses, Iberises, &c., as well as shrubby plants, which might include Heaths, *Helianthemums*, Veronicas, and such like.

To produce the best effect, however, with these permanent bedding plants some regard must be paid to the arrangement of them, so as to have a few in flower from early spring until the end of the autumn. Then, again, each kind should be placed in groups or clumps as large as the beds will permit, and, moreover, place those with finely cut foliage close to others that have broad leaves. The same rule should also be observed in regard to the evergreen kinds and the deciduous or herbaceous, so as to have an equality of foliage as well as flowers on the bed at all periods of the year. For a spring display bulbs in variety may be largely used, and by the time these are at their best the summer-flowering subjects will be just in the zenith of their beauty, and so on until the winter sets in. By arranging matters thus a most charming variety of bloom may be had for at least nine months out of the twelve. O. L.

SHORT NOTES.—FLOWER.

The lilac variety of the spring Star Flower (*Triteleia uniflora lilacina*) is a pretty free-growing variety, with flowers of a decided lilac colour. Like the type, it is showy when massed together, the only true way to see its beauty.

The Tulips in Parliament Square are finer than we ever remember them, the varieties comprising chiefly the golden-coloured Yellow Prince, Keizer Kroon, Crimson King, and Molere, all good varieties for massing together in large beds.

Coloured Primroses and Polyanthuses in St. James's Park are worth a note. There are several beds, the whole filled with flowers of fine colours, the yellow Polyanthuses making a striking mass. A better effect would have been obtained if the colours had been less mixed.

The finest Tulip last week in the Royal Gardens, Kew, where is a large collection, was *T. elegans*, figured in THE GARDEN, Dec. 3, 1887. It bears a handsome flower, with the crimson-coloured segments narrowing to a point. Grouped with the old *Ornithogalum nutans* it makes a charming bed.

Grape Hyacinths of several kinds were in full beauty the other day in the nursery of Messrs. Barr and Son, Long Ditton. Massed together they are remarkably brilliant, making sheets of blue. *M. botryoides* in variety, *neglectum*, *concinnum*, rich blue, *commutatum*, *argyreum*, *atlanticum*, and *armenicum* were all in flower.

Arenaria balearica.—As evidence of the value of considering fit places for plants, I may state that I have thousands of this pretty alpine flower on low

walls, shaded partly on the north side; at the foot of wall facing east, and growing a foot up the wall; also in the woods on rocks, though here it is not so free as in the garden and about the house. It is now freely dotted with its little white flowers.—S.

Primroses on Grass.—What charming plants the hybrid forms of coloured Primroses are for planting and naturalising on Grass! Last spring I sowed a quantity of seed in a prepared space in the kitchen garden, and planted out the seedlings in the Grass last autumn. For several weeks past we have been repaid by a grand show of these lovely hardy flowers in various colours. I planted some in a border in the usual way, but there is no comparison between them, those in the Grass looking more natural on the green carpet, while they are not splashed by heavy rain, as in a border.—J. C. F.

Primula intermedia.—What is *Primula intermedia*? is a question one is often asked, and one that is difficult to answer by those not understanding the great amount of variation in form, &c., found in this large genus. *P. intermedia* as understood by botanists, and *P. intermedia* as understood by growers, are two entirely different plants. *P. intermedia* of botanists, which I take to be the true plant belonging to this name, may be described as a very large *P. minima*; indeed, if I mistake not, it is a cross between that species and *P. hirsuta*, and is not unlike *P. Forsteri*, a nearly allied hybrid. It was first described by Portenschlag, and has been in cultivation some time. The *P. intermedia* of gardens is undoubtedly a form of the variable *P. pubescens*.—K.

NOTES OF THE WEEK.

Boronia serrulata is one of those old-fashioned plants we seldom see, but there is a pretty group of it in the nursery of Messrs. B. S. Williams and Son, Upper Holloway. The small plants of it are smothered with bright rose coloured and fragrant flowers.

The Tulips in Battersea Park are exceptionally beautiful and planted freely, the varieties comprising principally Joost Van Vondel, Keizer Kroon, and the double red and yellow Tournesol, besides other well-known kinds.

Death of Miss Owen.—With reference to our notice of this lady's death in our last issue, Mrs. Owen requests us to say that she was not related to the Earl of Courtown.

Daffodils in Battersea Park are planted with great taste, the prettiest break occurring on the banks sloping down to the small lake or lady's pond. There is no wretched attempt to make zigzag or triangular devices, but the whole is planted with a true eye to natural effect.

Doronicum plantagineum excelsum.—This beautiful spring-flowering hardy perennial is now in full bloom in the herbaceous borders here. I find that the golden-yellow flowers are most useful for cutting. It is the best early flowering perennial I know.—H. B., Castle Ashby Gardens.

Tufted Pansy Snowflake is a lovely variety, of the purest white, except for a small yellow eye, which brings out the purity of the broad and firm sepals and petals. There is a large breadth of it in the nursery of Mr. Chambers, Isleworth. The plant is pretty even grown in a pot, presenting a solid surface of white flowers.

Achimenes Rosy Queen, exhibited by Messrs. Sutton and Sons, Reading, at the Royal Aquarium show, is quite a distinct break away in colour. The plant is of vigorous growth and the flowers large and of a brilliant rose shade. A few plants of this novelty in a greenhouse would make a telling show of colour.

Strawberries Keen's Seedling and La Grosse Sucrée.—Mr. Miller, The Gardens, Ruxley Lodge, Esher, sends us some very fine samples of forced fruits of the above Strawberries. They are highly coloured and the flavour is excellent. A note by Mr. Miller on these varieties appears in this week's issue (p. 410).

The American Wood Lily (*Trillium grandiflorum*).—When looking over the beautiful grounds at West Park, Bedford, last week, I was much struck with two fine plants of the American Wood Lily (*Trillium grandiflorum*). The larger plant was in a pot 15 inches in diameter, inside measurement, and had 114 fully expanded flowers, the other plant being in a pot 13 inches in diameter, and bearing 75 fully expanded

blooms. Mr. Ford, the gardener, informed me that the flowers are excellent for cutting.—HENRY BIRCH, *Castle Ashby Gardens*.

British Fruit Growers' Association.—We understand that His Grace the Duke of Bedford has contributed £25 to the British Fruit Growers' Association to open a fund for the purpose of preparing and publishing an official report upon the present condition and prospects of fruit culture in Great Britain and Ireland.

Primroses in Scotland.—Primroses of all kinds thrive well here, many of the cottage gardens being adorned with fine double-flowered varieties covered with bloom. I hope to make the Primrose a specialty in my garden. I am making a rock garden here, and hope to be able to send you some notes from this neighbourhood.—GEORGE MUIRHEAD, *Mains of Haddo, Aberdeen*.

Beaumontia grandiflora is now magnificently in bloom in the gardens of Earl Cowper at Panshanger. It almost completely covers the roof of the large Banana house, a structure about 45 feet long, with its large, pure white, fragrant flowers. Mr. Ruffett, the head gardener, tells me it has been in bloom about three months, and thousands of flowers have been cut from the plant, and it is still carrying thousands more.—J. H.

Embothrium coccineum.—This very ornamental evergreen shrub is now flowering most profusely here, and although a native of the Andes it is perfectly hardy. It may be propagated by layers or seeds, but does not strike readily from cuttings. When covered with its beautiful orange-scarlet flowers, I know of no shrub so ornamental. It is not a long-lived plant, and this may be partly the reason that it is so seldom seen, and at the same time necessary to have more than one plant in every collection.—W. O., *Fota, Cork*.

Aerides mitratum.—This rare plant from Burmah is now flowering in the nurseries of Messrs. Veitch and Sons, of Chelsea. It is an outlying member of the genus, having cylindrical pendulous leaves resembling those of *Scuticaria*, but less robust. The spike of flowers is erect and many-flowered, the blooms being somewhat small; sepals and petals pure white, the trowel-shaped lip being bright rosy-purple. This elegant plant requires to be grown on a hanging block of wood, as its leaves are pendent. It enjoys heat and moisture all the season.—W. H. G.

Narcissus jargon.—In current journalism the Narcissus jargon, we are sorry to see, goes on its ugly ways. Among recent utterances we find the following:—

The cornuus contingent, the incomparabilis tribe, the odoratus section, the rugulosus set, the tridymus clan, the poeticus breed, the polyanthus and Tazetta hordes, all as fully represented as possible; and then who shall number, much more describe, the infinite variety of hybrids and crosses, the Leeds mixtures, the Barri bleedings, the Burbidgei combinations, and the Bernardi amalgamations.

Rhododendron Williamsi is an interesting and beautiful hybrid, a cross between *Rhododendron arboreum* and *Azalea sinensis*. There are several specimens of it in full bloom in Messrs. B. S. Williams and Son's nursery at Upper Holloway, and they show that this hybrid is exceptionally free-flowering, each branch bearing a cluster of flowers, which are well-shaped and of a blush colour, almost white, with the exception of a yellow suffusion on the upper petals. It is a useful plant for the greenhouse, as the growth is neat, and a few specimens in full bloom would give great beauty without occupying much space.

Dendrobium hircoglossum.—Of the smaller-growing section of Dendrobies this species is decidedly one of the prettiest. It is of comparatively recent introduction, having been discovered in Malacca and sent home by one of Mr. Sander's collectors in 1886. It bears a close resemblance to a much older species, *D. aduncum*, a native of the mountains on the Chinese mainland opposite Hong-Kong, and of this it may be no more than a geographical form. The pseudobulbs are slender and about a foot long, bearing at the upper nodes several of the neat and pretty flowers. These are for the greater part of a delicate pale rose, and measure each about an inch across. The lip is of

a somewhat lighter shade; whilst the apex of the column is of the blackest purple, forming a novel, and in this instance prominent, feature in *Dendrobium* flowers. A plant now flowering freely may be seen in the warm Orchid house at Kew. It thrives under the treatment usually accorded to tropical *Dendrobiums*.

Heuchera sanguinea.—A spike of this from Mr. Smith, of Newry, the variety being called *superba*, from its large and brighter coloured flowers than the ordinary type, reminds us again of what is one of the most useful border plants in cultivation. A coloured plate was given of it in *THE GARDEN* of Oct. 25, 1884, and from it we can get an excellent and truthful idea of the brightness and beauty of this *Heuchera*. It will grow with robustness even in the ordinary border, and that without much care, while it may be easily increased by division of the roots. Few plants look better in a mass, the forest of rich carmine spikes making a glow of colour in bed and border. The habit is neat, dense, and bushy, the graceful spikes rising about a foot from the ground. It is a native of the Porphy Mountains of Llanos.

Presentation to Mr. Richard Dean.—At the beginning of the present year Mr. R. Dean was obliged from failing health to resign the office of hon. secretary to the Ealing, Acton, and Hanwell Horticultural Society, which he had held for a period of fourteen years, having previously been an active member of the committee. In order that some recognition of Mr. Dean's services to the society should be made, a committee was formed to obtain subscriptions that some substantial present should be made to him, with the result that on April 22 a number of supporters of the society met at the London and County Bank at Ealing, and Mr. R. Willey presented Mr. Dean with a gold keyless English lever watch, value £20, and Mr. G. F. Nixon, the treasurer of the society, also handed Mr. Dean in addition a purse of sovereigns.

Flowers from Newry.—*Daphne Cneorum* hybridum is a very superior thing, the flower-heads being about twice their normal size, and the perfume is if anything stronger. *Heuchera sanguinea superba* does not leave much to be desired in that direction; the individual flowers are half an inch in diameter and brilliant in colour. *Muscari armeniacum* is a very fine Grape Hyacinth, the flower-heads 3 inches long and fine in colour. This just now, associated with *Ranunculus montanus*, is charming. *Mertensia virginica* is stronger than usually seen and as beautiful as ever. This, I find, in deep sandy soil, with moisture down below, does well in the open—at least, those I send were fully exposed to all the winds that blow and every ray of sunlight. And lastly, *Polyanthus Alexandræ*, uniform orange, without margin or spot, the most distinct thing I have obtained in this way.—T. SMITH.

The Gardeners' Orphan Fund.—The monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, on the 25th ult., Mr. C. H. Sharman in the chair in the absence of Mr. George Deal, who was, unfortunately, too unwell to be present. The minutes of the last meeting having been read, a resolution of sympathy with Mr. Deal, regretting his sudden illness and trusting he will soon be restored to his usual health, was passed. The balance at the bank was stated to be £335 12s. 10d. The following candidates, duly nominated for election to the fund in July next, were accepted: Alfred H. Badd, Kingston Road, Ewell, aged 8; Winnifred Jones, Fern Lodge, Atcham, Shrewsbury, aged 4; Robert James Phillips, Eridge Green, Tunbridge Wells, aged 7; Arthur J. Rowland, Grange Farm, Crawley Down, aged 8; George P. Shrubbs, 57, Thurlow Hill, West No. wood, aged 7; Susan E. Barker, 31, Prospect Road, Cheshunt, aged 8; George Beveridge, 8, Wells Street, Paisley, aged 2; Evan E. Kinch, Margam Road, Port Talbot, aged 10; Sidney A. Offer, Ashford Terrace, Fordingbridge, aged 6; Francis Thomas Pragnell, East Coker, Yeovil, aged 4; William H. Milne, Walpole Street, Peterborough, aged 2. The following candidates, unsuccessful last year, also stand for election: Frank

Butcher, aged 7; Bessie S. Deedman, aged 8; Mary Grieve, aged 10; Arthur Lacey, aged 4; H. E. Skelton, aged 7; Thomas Henderson, aged 7—making seventeen candidates, out of which ten will be elected in July next. The form of the voting paper and other preliminaries were agreed to. Subsequently a meeting of the joint committee to carry out the arrangements of the next floral fête in aid of the fund was held, Mr. Asbee presiding, the standholders being well represented.

Goodia lotifolia.—This is one of those plants which might be expected, both on account of its free-flowering nature and its easy propagation and culture, to find a place in almost every greenhouse. Its presence there, however, is much more the exception than the rule. The genus, of which this species is, so far as we are aware, the only one of horticultural value, is so named in memory of Peter Good, a Kew gardener, who found *G. lotifolia* in New South Wales. The specific name (often erroneously spelt *latifolia*) indicates the shape of the leaves, which consist of three oblong leaflets and are of a pale glaucous green. The flowers occur in short terminal racemes and are pea-like, chiefly of a bright yellow with a reddish-brown blotch at the base of the upper petals. Plants may be raised either from seeds, which ripen freely, or from cuttings. It grows best in a rich sandy loam, and specimens 2 feet high and as much through may be grown in 10-inch pots. Planted out it grows rapidly and soon forms a large bush. Such a one may now be seen flowering in the temperate house at Kew; several others are also in bloom in the conservatory.

Rhododendron Aucklandi.—This has been well named the queen of *Rhododendrons*. In size of bloom as well as in wealth and beauty of foliage it stands pre-eminent amongst the Himalayan section. Many of this class become very gaunt in an adult stage, and when out of flower are the reverse of ornamental. In a state of nature, according to Sir Joseph Hooker, they exhibit the same meagre, straggling habit. To a great extent this may be obviated under cultivation by judiciously stopping and disposing the branches when the plants are young, and especially is this the case with *R. Aucklandi*, which by a little care may be made to develop into a really striking and handsome shrub. The leaves are smooth, of a rich deep green, and from 8 inches to a foot long. The flowers are borne in loose terminal heads of from three to six blooms; they are campanulate, and measure 6 inches and 7 inches across, with the mouth of the corolla wide and spreading and the edges turned slightly back. Two other species, *R. Dalhousie* and *R. Nuttalli*, almost rival this in the size of the flowers, but neither of these kinds equals *R. Aucklandi* in robustness of constitution or beauty of habit. Healthy examples from 5 feet to 8 feet high are flowering in the temperate house at Kew. Seeds of this species were brought home by Sir Joseph Hooker in 1849, the plants raised from these flowering first in 1858. A coloured plate of *R. Aucklandi* appeared in *THE GARDEN*, Sept. 24, 1881.

Plant diseases.—Rev. C. Wolley Dod recently gave, at the scientific committee of the Royal Horticultural Society, an interesting account of several diseases of plants in his garden, and commented on the difficulty of finding curative means, or of hearing of other suggestions than burning. He first alluded to a species of smut (*Ustilago*) on *Primula farinosa*, which appeared to be indigenous, as the plants were collected in Lancashire; and although it was grown with *P. denticulata*, the smut was confined to the former species. *Æcidium ficiaræ* had attacked his *Hellebores*. In this case, a dryer soil was suggested as likely to prove effective in ridding the plants of the fungus. The "Lily spot," due to *Polyactis cana*, usually appearing late in summer, had been seen in April upon Tulips, and apparently the same species on Daffodils. It was suggested that a mixture of sulphate of copper and quicklime would prove effective. *Puccinia Schrateri* occurred on Daffodils from Portugal, and also upon the common double sorts.

ORCHARD AND FRUIT GARDEN.

THE GREEN GAGE.

IF the consumers of Plums were confined to one variety, the majority, no doubt, would give the preference to the Green Gage, and yet a respectable minority might vote against it on the score of its being too rich. In all other respects this Plum has held and will continue to hold its position in the front row of first-class fruits, for not only is it hardy, a profuse cropper as standard, bush, or wall tree, but it is a superb dessert Plum, most excellent for cooking or preserving, and being so well known it commands the top price when offered for sale. It comes, moreover, true from seed, and suckers from such trees, of which there are a great number in this country, produce fruit equal to that borne by the parents at an early age. The most remarkable instance of profuse reproduction came under my notice some twenty-five years ago, when in the gardens at Underdown, near Ledbury, some old trees threw up a quantity of suckers a considerable distance away from the main stems every year. These as regularly were taken up and transplanted, when, like the Pershore or Egg Plum, they formed perfect standards or stocks for other varieties. The family of Gages is a long one, numbering more than a score of varieties, some earlier, some later, and others larger, but, taken at all points, not better than the original, which produces the richest flavoured fruit when grown as a bush or standard. This quality, in addition to immense fertility, has given the old Green Gage a very high standing with market growers in Worcestershire, where, planted out in large orchards, the trees literally break down under their prodigious loads of fruit. Great fertility is not, however, confined to the old red sandstone of Worcestershire, as readers of *THE GARDEN* will gather from the accompanying figure of a fruit-laden shoot grown at cold Congleton, in Cheshire, where varieties must be very hardy indeed if they are to pay for planting.

Although the Green Gage is universally known and accepted as one of the best, its introduction into this country is shrouded in doubt. Some writers assert that it was introduced from France at the beginning of the last century by Sir Thomas Gage, of Hengrave Hall, near Bury St. Edmunds, but being probably a native of Greece it is supposed to have passed into Italy at a very early date, where it is called Verdochia, thence into France and England about the same time. Arrived in France, other names were soon found for it, but in England, according to Parkinson, it was known and grown under the original Italian name of Verdoch, which it most likely retained until the second introduction, when in course of time the Green Gage was found to be an old friend under a new name, no uncommon event at the present day. In France, although, as I have just stated, it has many names, that under which it is best known is Reine Claude, given in honour of the consort of Francis I., in whose

reign it is supposed to have been introduced. It does not, however, appear to have made the rapid progress it did in England, but this is a matter of little consequence, our principal business to-day being a selection of a few of the best varieties for our own special purposes and general use.

Quality going without question, I would give to the subject of this notice the first place for general culture, then should follow the Jodoigne Green Gage, MacLaughlin's (a large American clingstone, but excellent), Guthrie's Late, the Purple Gage, Reine

somewhat later, probably a fortnight; hence its value for prolonging the dessert or for exhibition.

Valuable as the Green Gage is as a fruit, the tree, I am inclined to think, has not been turned to its fullest account by the trade, for coming true from the seed and sucker, and being so thoroughly hardy, it might be made available as a stock for other choice varieties.

W. COLEMAN.

BIRDS AND THE FRUIT CROPS.

JUDGING from a correspondence taking place in a London daily paper, and also from what has occurred in this neighbourhood, birds, and bullfinches in particular, have been unusually destructive among fruit buds during the past winter. Never before probably have so many bullfinches been killed in one season, more than one hundred of these having been shot within three miles of where I am writing, but in spite of this wholesale slaughter it is doubtful if so many fruit buds have ever been destroyed while it was being carried out. Gooseberries, Red Currants, Plums, Pears and Medlars have suffered most, hundreds of bushes and trees having scarcely a bud left on them. Strange to relate, we who live quite in the country and in close vicinity to extensive game preserves have suffered much less from the depredations of birds than is the case in town and suburban gardens generally. Not only have the bullfinches worked most mischief in the latter, but in addition sparrows also have done their share in thinning out the buds. A scarcity of other food near towns may have had something to do with this, as it is very certain birds of nearly all common kinds are plentiful enough in the woods adjoining our garden. Neither sparrows nor tomits interfere with the fruit buds, but they are troublesome enough in some other respects, the latter annually pecking small holes in, and thereby spoiling great numbers of the best Pears.

Many and various are the reasons given for the great increase in the number of troublesome birds and the remedies offered for the prevention of their mischievous propensities, all of which may be more or less deserving of notice. In my opinion, however, the Wild Birds Preservation Act has had little or no effect either in preserving nearly extinct species, or in fostering the increase of undesirable "feathered friends." Nor do I attach much importance to the theory that small birds especially have become far too numerous owing to the destruction of their natural enemies by gamekeepers. How many of us could state what birds are protected by the Act, or when the "close season" may be said to begin? As far as my experience goes, the Act is simply a dead letter, while the gamekeepers have waged a deadly war against the weasel tribe, hawks, jays, magpies, and the poor unoffending owls to my knowledge for the past thirty years at any rate. What has had the most marked bearing upon this great increase in the number of birds is the enforcement of the clause in the licensing laws, making it necessary that all who shall use a gun, if for one day even, must have a licence for the same. This has effectively stopped those roadside sporting (?) excursions which used to be so numerous, especially during the winter months, and saved the lives of innumerable birds of all kinds. Then again the laws against trespassing either by men or boys in search of nests of both large and small birds are most rigorously enforced, especially wherever a gamekeeper is kept; and lastly, no long death-dealing frosts have been experienced of late years.



A fruiting branch of Green Gage Plum.

Claude de Bavay (an excellent late Gage for walls), Transparent Gage, also Rivers' Early Transparent, two superb Plums for general culture, for the orchard house and for exhibition, but being extremely tender they require the greatest care in packing. Late Transparent is very highly recommended, not only for size and quality, but being a dwarf, compact grower and extremely prolific, it should prove one of the best for pot culture and for training as an open-air bush, where netting against birds is absolutely necessary. Bryanston Gage is a large form of the original,

So much for the cause and effect, and now for the remedy, if such can be found. Feeding the birds regularly and freely has been found to answer well, but I very much question if this would deter bullfinches, as it is my belief hunger is not the sole reason why these destroy so many buds for the sake of the delicate morsel they contain. It always strikes me they have a love for doing mischief. Nor are these bold marauders so readily deterred by numerous lengths of black threads, suspended egg shells, and other contrivances said by some to scare them away. Whitening the branches with limewash will keep them off for a time, but they become accustomed even to this, and directly the buds commence to move they are at them. They are so bold that a gun may be fired off at or near them without actually scaring them out of a garden. If disturbed by any unusual sound they simply fly from one part of a garden to another and quickly recommence operations, and how rapidly they can clear a tree or bush of buds most gardeners are only too well aware. I am dwelling at some length on this part of my subject in the interests of numerous head gardeners in charge of gardens, the owners of which may have read how simply others having succeeded in preserving the buds, and are disposed therefore to grumble at their want of success in the same direction. Banish the gun or trap from a garden hereabouts and I defy anyone to preserve even a tithe of the fruit-buds from birds. Bullfinches especially must be closely watched for and as closely destroyed, or the prospects of a fruit crop are very meagre.

We may, however, preserve our fruit-buds, the bloom also escaping destruction from frosts only to lose much of the fruit when it is ripe, birds again being the offenders. This time it is principally blackbirds we have to contend with, and so little do I like these birds that I often feel disposed to kill them off as closely as we do in the case of bullfinches. Blackbirds very rarely pay us a visit other than while the fruit season lasts. They commence with Strawberries when these are partially coloured, and finish up with Apples and Pears. Medlars only are untouched by them, everything else being cleared off wholesale. With us they are far too numerous to be kept out of the garden by means of a gun. What is required then is something that will protect the buds from small birds and the fruit from larger fry, without excluding the more friendly small birds who do so much towards keeping the fruit trees free of destructive caterpillars and grubs. On the whole, the best and, in the long run, the cheapest plan is to enclose large breadths of trees and bushes with galvanised wire netting, and for which a moderately light, yet durable wooden framework is necessary. This might not altogether do away with the necessity for fish nets, but it would soon effect a great saving in that direction and prove to be both serviceable and economical. With a very little ingenuity structures might be permanently or temporarily erected which would be capable of excluding all kinds of birds and even rats and mice, provided the netting was sunk well into the ground. Three years ago we enclosed a long garden wall 11 feet high and fruit borders 70 yards long with a permanent wire netting covered structure, the rafters and other parts of the extra strong framework being made of good red deal duly coated with black varnish, and three-quarter-inch mesh netting used at a cost of about £20, and it was money and labour well spent. It should be added that the border and wall were thoroughly well stocked with trees and bushes, and each season we have had full crops of Plums, Gooseberries, and Currants, being also able to keep the same much better than was the case when they were covered with fish-nets only. I have also seen much the same plan answer well with large beds of Raspberries and Strawberries, and I fail to see why Pear trees against walls and dwarfs in the open should not also be similarly covered, at any rate, where much difficulty is experienced in preserving both the buds and the fruit from birds. The netting does not appear to unduly shade fruit trees, and apparently it acts as a slight protection from frost.

We are not much troubled with caterpillars and

grubs of any kind, and for this we have to thank the birds, which prey upon them, and also, I think, the solidity of our surface soil. If the latter is not loosened, neither fly nor grubs can escape from it in great numbers, and the less we disturb it, therefore, the better. Where caterpillars are frequently very numerous, there is a great risk to be run in excluding birds from the trees at all times. Having seen the ill effects attending the latter proceeding, Gooseberry bushes especially being quite denuded of leaves by caterpillars, I took the precaution of having the front of our Gooseberry house previously alluded to made 5 feet high, and six large wire netting covered shutters fitted in. Directly these trees and bushes are well into leaf, these shutters are placed on one side, the structure being then open to birds generally, and our great friend the cuckoo in particular, till the fruit is ripening, when they are closed again. Last year not a dozen caterpillars were seen on the bushes, nor will there be this season.

Somerset.

W. IGGULDEN.

UNNAILING WALL PEACH TREES.

THERE appeared in THE GARDEN, March 22, a very pertinent question upon the above subject from the pen of "A. D.," and down to the present time I have been looking with some interest for the replies. Had some enthusiastic Rose grower made a similar request touching the best mode of sheltering early blooms from spring frosts, replies would have been sent in by the score, but only three gardeners have responded to his query as to the advantage or otherwise which may be derived from trying to retard the flowering of the Peach. Mr. Harris, Alnwick Castle, three miles from the sea, and "E. B.," Claremont, on a dry sandy soil, do not find detachment necessary, but Mr. Miller, Ruxley Lodge, is in favour of the unnailing of the young shoots and sometimes draws forward the whole tree. My own practice need not be detailed, as every reader of THE GARDEN knows that I detach all my trees every year. The tedious operation of drawing thousands of nails, securing the shoots and branches, and re-nailing have not been neglected this year, and when I state that not a single blossom has been touched by frost, on this point alone your readers will gather that I still think this mode of management pays. Although the principal or prominent feature in "A. D.'s" question is preservation of the flowers from frost by drawing the shoots away from the heat-absorbing wall, I may repeat, as I have done many times over, that the battle with King Frost is a minor affair as compared with the circumvention and slaying of insect enemies which gain lodgment in the old shreds, gnarled branches, and joints in the walls. If fruit growers like to incur unnecessary expense in protection, they may shield any wall tree from severe frost, but no amount of shelter will protect flower, leaf, and fruit from the ravages of the multitude of marauders which prey upon the Peach. Aphids, red spider, thrips, scale, woodlice, earwigs, and mildew bide their time behind the branches and in the walls, and once cleansing is neglected double the amount of labour in the spring and summer does not always preserve the crop of fruit and early growths. The perfect maturation of wood and fruit and immunity from spring frosts, say, at Claremont and other places in dry, warm districts may go for granted, but the drier and warmer the locality the more need for detachment and cleansing, as insects which can stand our sharpest winters are most troublesome in tropical seasons. Trees, on the other hand, on heavy soils in low, damp districts never ripen their wood when the first growths are injured by insects, the best of summers being too short for the formation and maturation of the second. These immature growths

consequently often get killed or severely injured by mid-winter frosts, when gumming, curl, and mildew render restoration to health and fertility a most difficult matter and too often an impossibility. Although I have often advised detachment, and, as a rule, give my reasons, it is just possible that in this case I may have been less explicit than usual; if so, I avail myself of this opportunity to explain to "A. D." the fact that I consider a thorough overhauling and cleansing of Peach trees quite as important as retarding their flowers.

W. COLEMAN.

Bones as a Vine manure.—The organic changes that have taken place in bones as manure, according to recent revelations, are only equalled by the changes that have taken place in the "experience guaranteed" of certain writers on the Vine. Time was when they recorded the marvellous efforts a Vine root would make to get at a half-inch and even a whole inch bone, and how it would hug it like an octopus when it did reach it and devour it voraciously; but now, since certain substitutes have been "discovered," bones have changed their nature and Vines their habits. The first have become indestructible in the soil—turning up the same as when put in nearly half a century after—and the second refusing to have anything to do with their old and favourite food. We are getting on! Vine growers need not, however, discommode themselves. Half-inch bones do not exert much influence the first year, but they do the second, and for many years after, and they are still the best and most permanent manure that can be applied to a Vine border, and the assertion that bones do not decay and decompose when buried has not a leg to stand upon, and is too absurd to be accepted for a moment.—OLD BONES.

Early forcing Strawberries.—My favourite forcing Strawberries used to be Keen's Seedling and Marguerite. I have done a little with the old Rosebery and Black Prince. When at Worksope Manor I began to pick Keen's in February, and met the outside Strawberries with British Queen. But now La Grosse Sucrée beats Keen's Seedling. This, which I have now grown for two years, I had ripe early in February this year, and by the middle of the month for a special occasion I had a grand picking, and the majority of the fruits weighed an ounce each. The plants were put into the early Peach house in November; in January they showed a multiplicity of bloom which gave us plenty of work with the camel's-hair brush. The shortness of the daylight including dull weather made me rather suspicious of their setting. When a reasonable lot of fruit had set, the plants were removed into a higher temperature, close up to the light on the back shelf of the Melon house. At the meeting of the Royal Horticultural Society I took special notice of Mr. Smith's Auguste Nicaise; its appearance gave it a qualification as a forcing Strawberry, and one that will dish up well where large fruit is generally admired. After La Grosse Sucrée, which has taken the place of Keen's Seedling for early work, I follow with Sir Joseph Paxton, President, and British Queen, which in a general way, according to the season, meet the out-of-door sorts, including, from a north border, Eleanor, which comes in very useful as a late variety.—J. MILLER, Ruxley Lodge.

Grafting.—Three years ago, when I set about improving our small orchards with more modern sorts, I was doubtful as to whether grafting very strong wood so late in the season as the end of May would be a success, and even up to the present time some nurserymen have never heard of, or, at least, seen it done. Instead of being an evil I think grafting is beneficial, for now, after three seasons growth, I have fine heads of trees of Blenheim Orange and other Apples, as well as Pears. Sixteen months after grafting I exhibited shoots over 9 feet long, and the other day at the Daffodil conference I exhibited shoots over 11 feet long. These have been thinned out to get the tree into shape, in addition to letting daylight into the midst of

the tree. I have cut, as yet, but few of the shoots of the original tree, as they have not quite effected their purpose in keeping up the quantity of foliage in order to sustain the tree in full health until the grafts can take up the whole flow of sap. Unless there is an exuberance of superfluous shoots the first year after grafting the original tree, quite independent of the grafts, the attempt at grafting will be a failure. Although the grafts alone may produce a few weakly shoots and leaves for a year or two, the trees may just as well be grubbed up, as a lingering existence will be the consequence. Independent of grafting, in order to have flourishing orchards, high cultivation of the land is required. Grafting in some things unknown to me may be an evil, but not so with the above, and as first-class fruit always brings its value in market, it is too much to say that grafting fruit trees is an evil.—J. MILLER, *Ruxley Lodge*.

THINNING GRAPES BY EXPRESS IN JERSEY.

A CORRESPONDENT in a contemporary, referring to the skill of the Jersey Grape thinners, says, one man thinned a house of Black Hamburgh Grapes in two and a quarter days, the crop weighing about 800 lbs.; also a house of Gros Colman, weighing between 600 lbs. and 700 lbs. in the same time. That this information was given there exists no doubt, but can it really be true? and if so, it might be interesting to learn the length of the longest working day in Jersey. Also if the Jersey men are in sympathy with the thousands of overwrought individuals now agitating in London for eight hours' work, eight hours' play, and eight hours' sleep. Anyone who has noticed the Jersey Grapes knows quite well that very little attention is devoted to the high class culture and finish in which British gardeners excel; but this is not the point, as the Jersey growers who cater for the million go in for small profits on large quantities and quick returns. On the other hand, the question which will be put by a great number of keen, but thoroughly unpractical owners of vineries in this country is this: If a Jersey man can thin 800 lbs. of Grapes in two and a quarter days of ten hours a day, how is it that mine are unfinished at the end of a month? In vain may the knight of the scissors endeavour to explain away the fact that he has been possibly thirty days in thinning 100 bunches, when the Jersey man has thinned some thirty-six bunches an hour day after day. In vain may he assert that he works at his Grapes at odd times; moreover, that he has 100 irons in the fire, or that once over each bunch will not do for him or his employer, who must have first-class fruit. He may be a very good all-round man, but he is adjudged a muf in Grapes, and he must go. Hard lines these, nevertheless true; but before this representative of a large class of hard-working men packs up his goods, chattels, &c., let us hear what practical Grape growers in England have to say. Having myself had some experience in thinning, I am prepared to assert that a Jersey sweater should not touch my Grapes unless he would pledge himself to slacken his stroke, and then I should expect him to preface operations by reading my article on "Thinning," p. 227, March 8. But setting aside my own opinions and practice, I will continue this important subject by taking the liberty of quoting a few lines from Mr. A. F. Barron's excellent book. At p. 94 he says: "The time that is occupied in thinning Grapes is very great, but it must be given to the operation if good Grapes are desired. It will take about five minutes for an expert hand to thin properly a one-pound bunch. With larger bunches it is frequently desirable to tie the shoulders up and so spread the bunch out, or loop them up to the trellis with S-shaped pieces of wire. Care should be taken not to make the bunches too thin, as when that is done they are so loose when cut as to spread all over the dish. Very expert hands will be able to thin a bunch properly at one operation; small bunches may easily be so done, but, as a general rule, they require to be gone over twice before the stoning period and once after during what is termed the 'second swelling,' in

order to remove all small berries and otherwise regulate the bunches."

From this standard work we gather that the first time over gives 12 lbs. an hour—pretty good work, which very few thinners get through, and allowing ten hours as the working day, a house of 800 lbs. would keep one of our men going six days and a half. The second and last operations would not take up so much time, but I have said sufficient to prove that the Jersey system must not be accepted as the standard for measuring our men's prowess in the thinning of choice hothouse Grapes.

W. COLEMAN.

SHADING CUCUMBERS AND MELONS.

A CERTAIN amount of shade must be afforded Cucumbers, or otherwise they will not long remain in a healthy productive state; but, according to my experience, the other extreme is nearly as fatal to longevity. In not a few cases a heavy permanent shading is put on, either from choice or necessity, and for a time may answer very well, but its weakening effects are soon apparent. Next to a heavy, green-tinted, permanent shading, the most injurious is a rather thick coating of lime-wash, or whitening mixed with milk, applied in either case with a brush. Such shadings can be most neatly put on with a brush, though, if the material was mixed much more thinly and lightly syringed over the glass, this would have the effect of moderating the sun's rays without preventing the necessary amount of light from reaching the foliage. A shading of any kind is only needed during the hottest part of the day, or say from 10 a.m. to 3 p.m., and at all other times it does more harm than good. This being so, we may reasonably conclude that blinds not very thick in texture, and which can be easily rolled over or off the roof, are by far the best form of shading that can be recommended, and these ought always to be used where possible. With their aid much higher temperatures may be maintained than would otherwise be safe, a rapid growth of fruit resulting. Nor under this treatment, other conditions being favourable, do the plants very quickly collapse, the abundance of light reaching them through the greater part of the day preventing spindly shoots and thin, unserviceable foliage.

Melons are differently constituted to Cucumbers, and not only will stand, but must have far more light and sunshine. In reality, the less shade given these the better. After a few dull days a sudden burst of sunshine is apt to scorch some of the foliage, and in anticipation of this it is advisable to lightly shade in some way; but this must not be of a permanent character—at any rate before July or August is reached. We sometimes find it necessary to shade Melons, but it is only with very thinly mixed stale lime and water, applied through a syringe, or else whitening is used instead of lime. The first heavy shower will wash this off, but this would not happen if newly-slaked lime were used. Wherever a permanent shading is used over Melons, especially in the early stages of growth, the plants invariably grow very weakly, the fruit first showing turning yellow and shrivelling up, or else being malformed and valueless. Plants thus delicately reared will not bear any great strain, and are the first to canker or fail in some way. There is no necessity for sunshine to ever fall directly on the fruit, though these require plenty of light in order to have them well netted. Keep the plants in good health at the roots, the foliage being well exposed to the sunshine and clean, and a good crop of richly-flavoured, luscious fruit will usually result.

W. IGGULDEN.

Beetles destroying Vines.—I send you in a box several beetles of a kind now doing much damage to the vineyards in this country. I also forward you a sample of the wood of the Vines attacked and pierced by same, showing how this hitherto unnoticed insect does its work of destruction so well. You would confer a boon indeed on all our Vine growers by giving in your columns the name of the beetle, and the means, if any, of stopping its ravages.—EDWARD WHITTALL, *Smyrna*.

* * In reply to the above, the beetle attacking

your Vines is *Bostrichus bimaculatus*. I do not know of any English name for it, but it might be called the two-spotted *Bostrichus*. As both the beetle and its grubs are wood-borers, it is difficult to suggest any remedy but cutting off the affected parts and burning them at once. No external applications of any insecticide would have any effect on the insects. A Vine which had not been attacked might be smeared with something, such as soft soap and paraffin oil, or soft soap and tobacco water, which would be distasteful to the beetles, and which would prevent them from attacking the Vines, but this could hardly be carried out in a vineyard, if it were possible to do so. The time of year when the beetles may be found on the Vines should be noticed and the dressing applied previously.—G. S. S.

RED SPIDER ON VINES.

ONE of the worst pests a gardener has to battle with in Grape culture is red spider on Vines, and as the time is fast approaching when this diminutive, yet insidious insect will be very busy, a little advice on one of the best means of destroying the pest may not be out of place. Perhaps the Black Hamburgh, of all others, is the variety which is the most generally infested with red spider if I except Muscat of Alexandria. Seldom indeed, if ever, do the berries colour satisfactorily if the foliage is attacked with red spider before colouring commences; therefore it behoves all cultivators to take means to check its ravages before it is too late. An experienced cultivator can tell at a glance if the spider be present or not upon the foliage by the colour of the leaves. If the spider is allowed to go on unchecked the whole of the leaves will be destroyed by the sun, which shining full upon the impaired leaves burns them up entirely. Such remedies as covering the hot-water pipes with sulphur both in a dry and a wet state, the latter by painting them with the sulphur mixed up to the consistency of paint with water. The pipes are then made hot and the house closed. It is then supposed that the fumes arising from the sulphur are strong enough to kill the spider, but in many cases the foliage is injured by an overdose of sulphur given at a time when the leaves are not sufficiently matured to withstand the strength of the fumes.

One other objection I have to the use of sulphur upon the hot-water pipes is that in the following, season's growth, if the pipes have not been properly cleaned from the sulphur when the Vines are in bloom, the fumes arising from the pipes, in consequence of their being made hotter than common to maintain a higher temperature to assist fertilisation, injure the tender skin of the berries so much that rust takes place, and in consequence the berries refuse to swell.

In such cases the cure is worse than the disease, and in inexperienced hands much injury is done by the use of sulphur in the way described. Sponging the leaves so affected with various mixtures, such as soapy water, tobacco juice, and such like is preferable to sulphuring the pipes, but it is a tedious process, fraught with danger to the berries and bunches. Although sponging the leaves will check the rapid spread of the spider, it is absolutely necessary that this be repeated occasionally to keep the pest in check.

I have at some length pointed out the usual remedies employed and the disadvantages attending the application of such measures; I will now describe the method which I have found to be the most satisfactory in not only checking the spread of, but of totally destroying the spider. Vines once affected with spider are for several years subject to annual attacks in the same place. Directly the first appearance of spider is noticed on the leaves, dust the affected parts with sulphur in a dry state. When dry sulphur comes in contact with the spider it is almost certain to kill the pest. With care the sulphur can be applied to the leaves without damaging or disfiguring the bunches. H.

Cultivation of Raisins in California.—According to *Bradstreet's*, raisins are the leading fruit product of the San Joaquin valley of Cali-

fornia, as Oranges are of the upper Santa Ana valley, Fresno being the centre of the industry, which is amongst the most remunerative on the Pacific coast. Its growth has been phenomenal. Fresno county furnishes over half of the entire raisin crop of California, and the fruit is as well known and liked in New England as in San Francisco. In 1882 the output of Fresno county was only 4000 20-lb. boxes. Seven years later it was 560,000 boxes. The total product of the state in 1888 was 1,034,000 boxes. Of this the Fresno district furnished 534,000 boxes, and the Riverside and San Bernardino districts 290,000 boxes. Nearly 40,000 acres of raisin-grape Vines are now growing in Fresno county, almost all of the Muscatel or Muscat variety. The growth of the vineyards in size and value during the past two or three years has been very great. At the beginning of 1889 there were about 15,000 acres of Grape Vines, of which 12,000 acres were Muscatels. The planting during the following season amounted to not less than 10,000 acres, and the late winter has seen even a greater addition. The important discovery has been made that irrigation is a benefit to the Vines and not a detriment, as has been commonly supposed. Raisins of California growth are wholly cured in the sun, no artificial means whatever being employed. Sun-drying is made possible by the climatic conditions. Rain never falls during the summer or early autumn, and the nights are as dry as the days. The clusters of Grapes when picked are accordingly laid out in the sun on open trays for about two weeks, being turned once, and at the end of that period they are raisins. Since, however, they may dry unevenly, on account of difference of size or for other reasons, they are packed together for a brief "sweating" before being put up for market. As a rule the grower sells directly to local packers, and 2½d. per lb. is considered a remunerative price. After the packer has sorted the raisins and put them into boxes the average wholesale price at Fresno is 5d. per lb. Special brands, raisins laid in boxes separately in rows or geometrical figures, small cartons, &c., command fancy prices in California as elsewhere. At 5d. per lb. or 8s. per box, the 560,000 boxes of Fresno raisins brought in to the packers last year over £220,000, of which amount the growers received about one-half. With the highest culture, under the longest experience and greatest skill, £80 an acre has been realised, and £50 an acre is not uncommon. The raisin has been called the "poor man's friend," but no poor man can get the indispensable start in the best and safest localities. Wealth is not required, but nothing can be done without a moderate amount of capital.

BOOKS.

REPORT ON INJURIOUS INSECTS.*

Most agriculturists will by this time have learnt to look forward during this month to the appearance of Miss Ormerod's annual report on the injurious insects of the past year. The report just published is the thirteenth. It contains exactly the same number of pages as the one issued last year, but rather a larger number of insects, &c., are reported on, namely, twenty-seven against the twenty-three of the previous year. Eight of these—the saddle fly (*Cecidomyia equestris*), the gnat midge (*Cecidomyia* sp. ?), the white woolly Currant scale (*Pulvinaria ribesiae*), the March moth (*Anisophteryx oscularia*), the eye-spotted bud moth (*Hedya ocellana*), the pith moth (*Laverna atra*), the shot borer beetle (*Xyleborus dispar*), the Turnip mud beetle (*Helophorus rugosus*)—have been reported on for the first time. The year 1889 does not seem to have been remarkable for any unusual amount of insect attack. The Hessian fly scare seems to be dying out, and this insect has only been reported by eight observers. It is now very generally supposed that it is by no means likely that the Hessian fly should ever be a very

destructive insect in this country, and that it probably has been by no means recently imported, but that its attacks were not noticed until four years ago (in 1886), when they were more abundant and marked than usual. Since then every farmer has been on the look out for this insect, and it is almost a wonder that more notices of its occurrence have not been given. However, it is very satisfactory to find out that the pest has not increased year by year, for agriculturists have already quite enough foes to contend with. Miss Ormerod in this report seems much inclined to favour the American style of common names for insects, which is, I think, very inconvenient, as the insects are given such very long ones, for instance, the yellow Fir wood wasp, the eye-spotted bud moth, the white woolly Currant scale. These are not quite as long as some of the American ones, the angular-headed marbled Fir inch worm, the red and yellow striped Pine span worm, or the mussel-shaped Butternut bark louse, for example, but they are too long for convenience. In the preface Miss Ormerod says: "During 1889 inquiries were sent to me regarding about seventy kinds of insect attack injurious for the most part to farm crops or stock, or to matters connected with farm produce. Of these the most destructive perhaps were the ravages of the orchard moth caterpillars in various of our fruit-growing counties in the early summer. The following list, however, of injurious insects regarding which reference was made will show that most of our common kinds of farm pests were present. In some instances the loss caused was slight, but in some the attack was both prevalent and destructive in many localities." Among the pests mentioned is one of the eelworms which attack Clover, causing the disease known as clover sickness. These eelworms are very small, about one-twenty-fifth of an inch in length, and are supposed to be of the same kind (*Tylenchus devastatrix*) as that which attacks Oat plants, causing the disease known as Tulip-root, or segging. The Clover plants attacked were found to be "more or less decaying towards the centre, and sometimes down the main root stem; the growth of the shoots is in some cases deformed, that is, they are shorter and thicker than the natural form, the buds also having a swelled appearance." The eelworm may be found in these distorted stems and buds. A lithographed plate is given drawn by Dr. Ritzema Bos of the State Agricultural College, Wageningen, Netherlands, to whom Miss Ormerod sent some diseased plants for examination, which shows the creature in various stages of growth. This pest seems to be widely spread, and in some places to have caused considerable damage to Clover crops. As regards its destruction a rotation of crops is considered to be the best means, but care must be taken in the selection of crops, as Oats, Rye, Teazel, Buckwheat, and Onions are also attacked; Potatoes also have suffered in Germany and the United States. The surface of infested land should be thoroughly buried in ploughing; "in this way all the eelworms (whether in the plants themselves or those which will in all likelihood have left them and be lying quite in the surface soil) will be safely turned out of the way and (unless they are ploughed again to the surface) will be put out of the way of giving further trouble." The same may be said of trenching the ground with a spade, a dressing of sulphate of ammonia and sulphate of potash, three and a half to four hundredweight to the acre, has been found efficacious. The saddle fly is one of the insects now reported on for the first time. The grubs of this insect injure the stems of Barley in a peculiar manner, forming small oval or narrow hollows with a border of diseased growth, in most cases raised round them so as to give the appearance of a row of little saddles set along the straw. Miss Ormerod calls this insect in her report the saddle fly gnat midge, which is another of the long names already alluded to. Why gnat midge it is difficult to say, as gnats and midges, except for size, are very much alike. The attack by this insect was noticed in a field in Lincolnshire. The disease known as Tulip-root or segging in Oats, which is now recognised as due to the same kind of eelworms (*Tylenchus devastatrix*) which cause Clover

sickness, seems to have been rather prevalent last year. Half-a-hundredweight of sulphate of potash per acre is recommended as a dressing for infested ground. The white woolly Currant scale is another insect which has not hitherto been reported on, though it is by no means a new introduction to this country. It is a very destructive insect to Currant bushes, but fortunately one which is easily detected by the white cotton-like substance which it exudes when it is laying its eggs. The scale insect itself is about an eighth of an inch or rather more in length, of an oval form, and dark brown in colour. It is an insect which is very likely to spread, as the eggs or young scales attached to the cottony down may be so easily carried by the wind from one bush to another. Red, White, and Black Currants, and the common Ribes or flowering Currant so often grown in gardens are attacked by it. Mr. W. McKenzie, of Ballater, fortunately, has found an easy remedy in whitewashing the bushes with 2 lbs. of lime dissolved in one gallon of water. The caterpillars of the winter moth (*Cheimatobia brumata*) and various other moths nearly allied to it were again very destructive in orchards. The enormous number of the moths in some places may be realised from the experience of one observer, who had fastened sticky bands round his fruit trees to prevent the female moths, which are wingless, from ascending them to lay their eggs near the buds, and caught 500 in the band on a single tree. Had the eggs of these moths all duly hatched, the state of the trees after the caterpillars began to feed may be easier imagined than described. Considerable space is given to discussing what is the most desirable sticky material to use, the best means of applying it, and the use of Paris green when a tree is attacked by caterpillars. Judicious pruning is also recommended, as the eggs of these moths are frequently laid on the twigs at the end of the boughs. I should rather question the utility of this plan, as the moths if able to do so lay their eggs near the flower-buds, and if these are cut off the remedy is worse than the disease. Among the insects which attack Fir trees is the giant siren, or yellow Fir-wood wasp (*Sirex gigas*). The second English name to this insect is very misleading and objectionable, for it is not a wasp in any sense of the word. It does not sting, and though a ferocious-looking insect, and one with which most persons who are unacquainted with it would not be too familiar with, it is quite harmless, and it is absurd to give it the name of a perfectly different insect, which it only resembles in being of a black and yellow colour. This insect appears to be doing great injury to Silver Fir trees near Whitehaven.

A curious instance of the power of the jaws of this insect is mentioned. Some leaden water pipes were laid against some woodwork which was infested by this siren, some of which, evidently wishing to escape, came into contact with the pipe, and pierced it in several places.

The shot borer, Apple bark beetle, or Pear blight (*Xyleborus dispar*) is another insect which has found a place in these reports for the first time. It has made its appearance in several localities. Why this beetle was not reported on under the heading of orchard insects, but under that of Plum, is not explained. It injures fruit trees by boring tunnels in the stems and branches; it is quite a small beetle, being only an eighth of an inch in length; in colour it is brownish; the males are much smaller than the females and somewhat different in form. The best means of destroying this pest seems to be cutting the attacked tree down and burning it. A new Turnip pest is mentioned—the Turnip mud beetle, a small reddish brown insect, about a quarter of an inch long, which feeds on the leaves of Turnips; they frequent moist situations, and are usually more or less covered with mud. Several pages of this report are devoted to the warble or bot fly, and a good deal is said as to the quality of the meat from a beast which has suffered from warbles. On this point there seems to be some difference of opinion, some persons asserting that the meat has a bitter taste, others, that it is of very good quality. No doubt much of the

* "Report of Observations on Injurious Insects during the Year 1889." By Miss E. A. Ormerod. London: Simkin, Marshall, Hamilton, Kent, & Co.

meat along the back near where the maggots are is useless, and has to be removed. These reports, as usual, are very "wordy," and might with great benefit be condensed, but the matter they contain is most interesting and valuable, which makes it all the more a cause of regret that they are not presented in a form which would be more palatable and easier assimilated by the agriculturist.

G. S. S.

TREES AND SHRUBS.

RHODODENDRON ARBOREUM.

THE hardiness in England of many of the species of Rhododendron from the Sikkim Himalayas is either not generally known or the fact is not as fully recognised as it might be. There are hundreds of gardens in which R.

produces every spring a magnificent display of flowers. In exposed situations, although it is hardy, its young leaves are apt to get blasted by cold winds and frosts in spring; its flowers too are destroyed by the same causes. In moderate shelter, however, such as is afforded by a belt of trees, a wall, or buildings, it escapes these calamities.

A few years ago I noted when at Singleton some of the largest specimens of Sikkim Rhododendrons, which are there a magnificent feature, and with the assistance of Mr. Harris, the gardener at that time, I am able to give their dimensions. All of these plants were in the open, but sheltered and even shaded by tall trees. The experience both at Singleton and Penllergare with these Sikkim Rhododendrons



Rhododendron arboreum in the Earl of Annesley's garden at Castlewellan.
Height 26 feet. Circumference 86 feet.

arboreum, for instance, might be as successfully grown in the open as it is at Castlewellan, Cork; at Singleton Park, Swansea; and at Penllergare, the residence of Sir J. T. D. Llewellyn. The accompanying woodcut represents a specimen in the gardens at Castlewellan. It is 26 feet in height and 86 feet in circumference. The dimensions given for this species by Sir Joseph Hooker are 1 foot less in height than this. I saw specimens of it at Singleton Park four years ago which were 22 feet in height and at least as much through. In Cornwall, and even in the more sheltered parts of Surrey, this and other species are perfectly at home.

Of all Rhododendrons, R. arboreum must be admitted the king. Under favourable conditions it forms a huge bush, furnished from top to bottom with rich green foliage, and

clearly demonstrated that both shelter and moderate shade were most agreeable to them.

It is probable that in other gardens, besides those here named, there are large specimen plants of R. arboreum and other kinds established in the open ground. The value of the following list is in its suggestiveness. If these various species of Himalayan Rhododendrons can be grown successfully out of doors at Singleton, there is no reason why they should not be tried in all gardens where the climatic conditions approximate to those of Swansea.

The following were noted in 1886 at Singleton:—

R. arboreum,	height	22 feet,	diameter	12 feet.
R. eximium	"	22	"	15
R. Falconeri	"	22	"	17
R. Kendrickii	"	30	"	15

R. niveum	height	18 feet,	diameter	12 feet
R. barbatum	"	18	"	18
R. Thomsoni	"	18	"	13
R. fulgens	"	10	"	12
R. Hodgsoni	"	10	"	12
R. argenteum	"	18	"	

R. ciliatum, R. campanulatum, and R. Wind-sori were also represented by large healthy specimens. Returning to R. arboreum, it may be added that in addition to the typical crimson flowered form there are also white, blush, and pink-flowered varieties. It is one of the commonest of the genus in India, and its geographical distribution extends, according to Sir Joseph Hooker, from Ceylon, through India to Upper Assam, and as far west as the Indus.

Many of these plants are of great value for planting in large conservatories, winter gardens, &c. They are much healthier when planted in a bed of well-drained sandy peat than when kept in pots or tubs. They are surface-rooting plants and enjoy an abundance of water all the year round. Anything approaching sourness or stagnation in the soil is most distasteful to them. Where possible it is of course preferable to have them out of doors, but in any case a collection of the species of Sikkim Rhododendrons should be a feature in every good garden. W.

Large-fruited Almond (*Amygdalus communis macrocarpa*).—While all the Almonds are very beautiful, I should, where there was space for only one variety, be inclined to give preference to the large-fruited Almond (*A. communis macrocarpa*), which differs in many respects from the other varieties. In the first place it is a stout vigorous grower, being of a more upright habit than the others, while it is also the first to unfold its blossoms. The blooms are about 3 inches in diameter and white tinged with pink, especially towards the base of the petals. It is a fine showy tree, and appears to be less particular as to soil and situation than the other varieties. The large-fruited Almond is by no means a novelty, having been included by Loudon among those at that time in cultivation.—T.

The Norway Maple.—On April 19 in THE GARDEN a nice notice appeared by "T." on the Norway Maple. It is a very lovely tree, and too much can hardly be said in its favour. It has always the appearance of being in a good temper. It is so beautiful when in flower that I wonder the nurserymen do not let it do duty twice in their catalogues, once as a deciduous forest tree and once as a flowering ornamental one. "T." says justly that it grows anywhere, but I wish especially to point out its resistance to the roughest winds. Here (Liphook) on very high ground no blasts—and they are most severe—affect it, otherwise than apparently to strengthen its constitution. It is one of the most brilliant in giving autumn tints. Last year I feared a new red brick chimney was rising up at the back of a plantation of which I had not been aware, and was greatly relieved to find on closer observance that it was only the top of a Norway Maple freshly tinged by an early frost.—M. R.

Golden Barberry (*Berberis stenophylla*).—Of the various evergreen Barberries now in flower the two finest are undoubtedly *Berberis Darwini* and *B. stenophylla*. The last-mentioned is said to be a hybrid between Darwin's Barberry and the curious little *B. empetrifolia*, both of which are natives of the neighbourhood of the Magellan Straits, and forms a specimen of more graceful outline than the other, while the flowers do not possess the rich orange colour of those of *B. Darwini*, though in this respect there is a considerable amount of variety to be found in different plants of *B. stenophylla*, especially where a quantity is raised from seed. I recently saw a number of seedling bushes of *B. stenophylla*, many of which had reached flowering size, and the amount of variation among them was very great, some plants being quite compact, while others had the loose open character of their parent, and in foliage a few showed as close

an affinity to *B. Darwini* as to *B. stenophylla*. While, however, the flowers varied in colour a good deal, none of them were so deeply tinted as the ordinary form of Darwin's Barberry. *B. stenophylla* is seen to very great advantage when treated as a lawn shrub, for though in such a position the flowers may be and are occasionally cut by late spring frosts, yet that seldom happens, and even then, irrespective of blossoms, it forms a very handsome shrub. It has been treated as a wall plant with a certain measure of success, but when trained in this manner the graceful character of the entire specimen is not seen to such advantage as when occupying an isolated position. It has also been employed for flowering under glass during the spring months, but when required for this purpose it must be subjected to very little heat, otherwise many of the flowers will not open. A well-flowered specimen at a time when those outdoors are still wearing their winter garb is a very attractive object in the greenhouse or conservatory.—T.

LEPTOSPERMUM SCOPARIUM.

A REMARKABLY characteristic and beautiful plate of *L. lanigerum* was given in THE GARDEN of January 8, 1881, and to that species the present one bears considerable resemblance; indeed, a strong family likeness prevails throughout the entire genus. The plants usually form freely branched bushes, the slender twigs being clothed with neat foliage, in some small and pointed, while in others it is more Myrtle-like. *L. scoparium*, now flowering freely in the greenhouse or conservatory, has pure white flowers, individually somewhat like those of the Hawthorn, and borne for a considerable distance along the slender shoots, so that a specimen in full flower is quite a mass of white. It is known as Captain Cook's Tea Plant, from the fact that the leaves have before now been used as tea. Shrubs of this class are very useful where there is a greenhouse or conservatory from which the frost is only just excluded, as their requirements are not great, and besides this, they are almost hardy in favoured spots along our southern and western coasts, being, in common with many of their allies, included among hardy shrubs, and even in the neighbourhood of London they will often survive many winters against a wall if protected by a mat during severe weather. The *Leptospermums* belong to the Myrtle family, so largely represented among the trees and shrubs of Australia, for beside these above noted there are also the Gum Trees (*Eucalyptus*), the *Beaufortias*, *Callistemons*, *Melaleucas*, *Metrosideros*, and others. Most of those included under the four last names are popularly grouped together as Bottle-brush plants, from the fact that their long prominent stamens are arranged around the shoots after the fashion of a bottle-brush. The *Leptospermums*, and in fact most of their allies, can be readily increased by cuttings of the current season's shoots taken just as they become slightly woody, as if too succulent they are apt to damp off. All that is needed is to take off the shoots at a length of 3 inches or 4 inches, remove the bottom leaves for an inch or perhaps a little more, and dibble the cuttings thus prepared into pots of sandy soil, when a good watering should be given. After that they should be kept close till rooted, which in a temperature slightly warmer than that in which they have been growing will not be long. Under favourable conditions seeds are often produced, and should be sown as soon as possible after they are ripe, and from their minute character care must be taken not to sow them too thickly or to bury them too deeply, as all the covering needed will be a slight sprinkling of very fine sandy compost. H. P.

SHORT NOTES.—TREES AND SHRUBS.

Ceanothus dentatus.—This *Ceanothus* appears to be little known, if one may judge from the few places in which it is seen. It was introduced as far back as 1848 from California, and is somewhat tender compared to many shrubs. It is, nevertheless, a most desirable kind. The deep blue flowers show off well

on the deep green narrow leaves. It is hardy here at West Dorset, some 12 miles from the sea. It has stood for several winters as a bush in a shrub bed exposed to the east, and will be a mass of bloom in a few weeks. We have it also against a wall.—WEST DORSET.

The best early-flowering Currants.—The richest and deepest coloured variety of the flowering Currant is *atro-rubens*, in which both the individual blooms and the racemes in which they are borne are smaller than those of the common form, but this is more than made up for by the rich hue of the blossoms. In spite of its distinct character this variety is very seldom met with, though it is by no means a novelty, as it is included by Loudon among the varieties of *Ribes sanguineum*. Another distinct variety is *albidum*, which has large and massive racemes of bluish-white flowers. The double-flowered (*flore-pleno*) is very curious when closely inspected, but at a little distance this peculiarity is not noticed. It does not flower till all the varieties of *Ribes sanguineum* are past their best. Where a little more variety is required a note may be made of *Gordonianum*, supposed to be a hybrid between the common flowering Currant and the golden flowered (*aureum*), which origin seems to be borne out by the colour of its blossoms, as they are of a peculiar orange-red tint. Add to the above *Ribes aureum*, and we have a good selection of flowering Currants, sufficient indeed for most gardens.—H. P.

Berberis congestiflora hakeoides.—This is a remarkably singular and distinct evergreen species of Barberry, which was almost, if not quite, unknown in cultivation till distributed by Messrs. Veitch a year or two ago. It forms a sturdy bush, which is said to attain a height of several feet, but the specimens that have come under my observation are small, although profusely laden with blossoms. The leaves, which are from 1 inch to 2 inches in length, are almost round, the upper surface being bright green, while the lower is glaucous. A distinct feature is furnished by the stout coriaceous character of the foliage and the large conspicuous spines on the margins of the leaves. In this Barberry the flowers are crowded together in dense heads, very unlike those of any of the other species, but they are of the same colour as many other members of the genus, viz., bright orange-yellow. It is, I believe, as hardy as the other South American evergreen Berberies, and will, no doubt, before long be better known.—T.

THE WEEK'S WORK.

WORK IN PLANT HOUSES.

GREENHOUSE.—YOUNG HARD-WOODED PLANTS.—Unless this class of plants is grown for exhibition they are often seen with their bottom branches bare of leaves. This is the best time of the year for training young stock of this description. All the strongest shoots should be bent out in a horizontal position so as to bring them down close to the rims of the pots. There is a double advantage in this: when the branches are secured in this position whilst the plants are young as they increase in size and occupy larger pots there will be no difficulty in getting the branches thus already trained well out to extend in this direction so far as necessary to hide the old wood as it becomes bare of leaves; the second gain is, that when the strongest shoots are trained in this direction it helps to regulate the run of the sap more evenly. The work should be carried out whilst the plants are small to save time. The points of all the strongest growths should be pinched out so far as necessary to induce them to branch, and furnish the future specimens sufficiently. Heaths and most of the bushy habited New Holland and Cape plants need to be dealt with in the manner described.

AZALEAS.—Azaleas require to be differently treated. In place of pinching the shoots it is much better to encourage a limited number of stronger branches, allowing them to extend considerably before being stopped, simply tying them out suffi-

ciently to keep the plants in shape. When Azaleas are kept open and thinner of branches whilst they are young, they attain treble the size in a given time than is possible under the severe stopping system, and they are much more likely to grow into healthy specimens sufficiently large to admit of quantities of their flowers being cut, with enough wood attached, without doing the plants any great amount of harm, to make it possible to arrange them in water. As Azaleas go out of flower the seed buds should be at once picked off; if they are allowed to remain for only a week or two they weaken the plants. Plants that were forced so as to flower some time back, and that require more root-room, may now be potted. The roots of Azaleas are generally in the best condition for re-potting in a month or five weeks after the blooming, that is provided the plants have been kept in a genial growing temperature after they had flowered. In all cases see that the plants are free from thrips, on the detection of which they should be dipped in or syringed with tobacco water, in which a little Gishurst compound has been dissolved.

SWAINSONIAS.—These plants mostly flower in the summer, when the majority of the greenhouse kinds have done blooming, and on that account they come in useful for conservatory or ordinary decoration. Thriving young specimens that were cut back after flowering last summer, and that require more pot room, should now be shifted. *Swainsonias* will grow in either a mixture of peat and loam, or if the loam is of good quality, it may be used alone. But whatever is used should be good enough to last for years, as in common with most plants of a like nature that will not bear shaking out, when the soil gets into an unsuitable condition for the roots to keep healthy in, the plants soon die. *Swainsonias* are free growers, and require to be well supported; much may be done to keep up the requisite amount of vigour by surface dressings with concentrated manure or manure water given frequently during the time of active growth. Large specimens that are already in pots as large as it is desirable to give them should have assistance in this way. So long as the drainage keeps right and the soil continues sweet and porous, the requisite vigour can be kept up by this means. As the young shoots extend, they should be trained to the sticks or trellises that are employed for support. In the case of plants that are used for clothing pillars or rafters, and that are turned out in beds, surface dressings of new soil should now be given. An inch or two of the old material should be removed from the surface to make way for the new.

CAMELLIAS.—A difference of opinion is frequently found amongst cultivators of Camellias as to the advantages attending the use of manure water, some arguing that liquid stimulants do not do much to improve the growth, whilst others hold a contrary opinion. The results depend much on the time that the manure water is applied. It is useless, if not injurious, to give it to pot plants before their roots begin to move at the beginning of the growing season. When the opposite mistake is made of withholding assistance for some time after the young hungry fibres are active, then the time when the manure is most effective passes without the help needed being at hand. Neither is there much use in giving manure water after the shoots have grown fully, that is, after the leaves have attained something like their natural size. If manure water is given in the nick of time, there is no question about its strengthening power. The same holds good when surface dressings of concentrated manure are used. To have the desired effect, they must be applied at the right time. Whatever is given in the way of stimulants I should advise a little soot being added. Not only does soot, when given in moderate quantities, help the growth of Camellias more than that of most plants, but it also frees the soil from worms. Plants that flowered at the beginning of the year will now be about finishing their growth and setting their buds. At this stage they are in the best condition for potting. Any that require a shift and that have reached the state named in their growth should be attended to at once, as if the potting is

deferred until the flower-buds are fully formed the check may cause them to drop.

STOVE TWINERS, such as *Dipladenias*, *Stephanotis*, *Aristolochias*, and *Ipomæas*, should have regular attention in training their shoots as they extend to the wires or strings that are used for their support. If left long to take their course the shoots get into an entangled mass that it is impossible to separate, or they lose their hold of the supports and hang down. *Allamandas* and *Bougainvilleas* grown in pots and that are intended to be trained to trellises or wound round sticks inserted in the soil should have their shoots kept in an erect position until the flower-buds are visible. Sometimes for the sake of giving a supposed trim appearance, the branches of these plants are kept trained closely in as they extend. The result of this is that they flower sparingly or not at all till the season is far advanced.

IXORAS.—Where the plants are at all affected with mealy bug an effort should be made to get the insects well under before the flowers begin to open. Plants that are vigorous and have plenty of roots should be regularly supplied with manure water. Without assistance of this kind all through the spring and summer, it is impossible to keep up the requisite vigour. To grow *Ixoras* well they must be liberally dealt with in the matter of pot room. If the roots are at all crowded the growth will be deficient, and the flower-heads will come proportionately small. Potting may be carried out at any time when the growth is moving freely.

T. B.

THE KITCHEN GARDEN.

RUNNER BEANS.—If the seed of these be sown much before the first week in May, it is liable to germinate very indifferently, and even if sufficient plants do come up, they are frequently crippled by frosts and slugs. Well-ripened seeds of last season's growth, in preference to any older, sown now will germinate quickly and strong vigorous plants result. Should, however, early rows be needed, say for the purpose of providing extra fine pods somewhat early in July, it is advisable to raise the requisite number of plants in gentle heat, the seed being sown singly in 3-inch pots. These Beans may be also transplanted readily from boxes. In any case they must be hardened off and finally planted out before they are far advanced in growth, ample protection being also afforded.

REQUIREMENTS OF RUNNER BEANS.—This important crop well repays for good culture at the roots and plenty of space above ground. Crowded together, as they too often are, the plants weaken each other, and in dry weather especially, soon fail. They should have the benefit of a deep, well-matured root run, the seed being sown thinly, covered with 3 inches of soil, and, in any case, ought to be eventually thinned to a distance of 12 inches apart in the rows. The old-fashioned method of sowing in a double drill 12 inches apart, the stakes used being made to cross each other near the top, where they are duly laced together with a line of other stakes, answers very well if given good room on each side, these also being the least affected by strong winds. We are content with single rows of plants and stakes, the former being disposed 6 feet apart, and stakes from 7 feet to 8 feet in length used. Stakes double that length may be used if preferred, only in this case more space ought to be allowed between the rows.

BEANS WITHOUT STAKES.—Although the method of growing runner Beans answers well in the open fields it is rarely so satisfactory in private gardens, a rich soil and much shelter promoting a too strong growth. In the open fields the plants grow sturdily, the running growths are easily kept under, and abundance of strong flower-spikes is formed. Those who may wish to try this plan should sow the seed on fairly good and rather firm open ground in single rows, not less than 3 feet apart, the plants being eventually thinned to a distance of from 12 inches to 15 inches apart. Further cultural details consist in mulching the ground, this for the double purpose of enclosing moisture and keeping the pods clean, and the early and close re-

moval of all running growths as fast as they show. A single row of early Potatoes may well be planted between the rows of unstaked Beans, and two rows between those that are 6 feet apart, and which are to be staked.

THE EARLIEST CELERY.—If a severe check is experienced by the plants raised early, or indeed at any time, this tends to cause a pipy growth and early running to seed. They move well out of boxes of rich soil in which the plants have been thinly prepared, but successful exhibitors take more trouble in forwarding their earliest Celery. From the 3-inch pots in which the plants are first placed, they are shifted before they become much root-bound into 6-inch pots, a rich porous soil being used. A greenhouse shelf or near the glass in a pit suits them well, and strong plants ought to be ready for putting out from the middle to the end of May. Those prepared in pots are usually more sturdy than any grown more thickly in boxes, and they also experience the least check when first put out. There is, as a rule, no necessity to take this trouble with many plants, from two dozen to fifty being ample in most cases. In the majority of gardens very early Celery is not grown, for the simple reason that there is but little demand for it. September, and in many instances October, is quite early enough for Celery to be fit for use, and if a few dozen or hundreds of plants, according to circumstances, are pricked out now in rather rich soil in a frame on a gentle hotbed they will be ready for the trenches quite as soon as they are wanted.

PREPARING CELERY TRENCHES.—If extra fine Celery is required for exhibition or other purposes, this can be best obtained by planting on well-prepared ground in slightly raised beds rather than below the level in trenches. Nor are deep trenches desirable for any crop if the subsoil is of a cold, moisture-retaining nature. Celery is rightly supposed to be a water-loving plant, but a certain amount of warmth ought to accompany moisture, or otherwise the growth is feeble when the plants are first put out, and what also ought to be taken into consideration, Celery keeps badly in water-logged positions. There is really no necessity for, or any wisdom in planting Celery in deep trenches. Better by far keep the plants where they will have an opportunity of rooting out into the top spit of ground rather than into a cold subsoil. I also find that Celery grows most freely from the first in shallow trenches prepared several weeks before they are required, or long enough for both soil and manure to become warmed, pulverised, and sweetened. The early preparation of the trenches also admits of the spaces between being closely cropped with Lettuce, dwarf Beans, and Radishes, and being got ready at a somewhat slack time they can be quickly planted later on, or before the plants become overcrowded where pricked out. We usually follow Brussels Sprouts and Broccoli with Celery trenches, preparing these according as the previous crops are cleared off.

SPINACH.—Frequent or fortnightly sowings of Spinach have to be made, especially if the old round-seeded is relied upon, as this soon runs to seed in hot weather. Either the *Victoria*, *Long-standing*, or *Monstrous Viroflay* are preferable to the common form, these, in addition to producing much the finest leaves, being also slower to run to seed. Sown rather thinly either among rows of newly-sown Peas, or better still on a cool and well prepared border, a north border answering well, the supply may be kept up till the end of July and perhaps later. We usually make two or three good sowings on a north-west border in drills drawn 12 inches apart, and thin out early and freely. Thus treated the weather must be extremely hot and dry to cause the plants to run quickly to seed.

NEW ZEALAND SPINACH is but a poor substitute for true Spinach, but it can be had in abundance in the very hottest weather, and that is its principal recommendation. A dozen plants are sufficient for most places, and these are best raised singly in small pots and gentle heat. Sown now the plants will be ready to go out at the end of May. A sunny rather than a rich position will

best suit these heat-loving plants, and if they are disposed 1 yard apart each way they soon cover the ground. It is the young tops that are cooked in this case.

SPINACH BEET.—This, again, is another substitute for ordinary Spinach, but, like the preceding, is not appreciated if the true article is forthcoming. It is, however, very easily grown and perfectly hardy, producing abundance of fairly succulent leaves throughout the winter. Sow now in a good open position thinly in drills 15 inches apart and lightly thin out.

W. IGGULDEN.

FRUITS UNDER GLASS.

MELONS.

WHEN the fruit in early pits has attained the size of hen's eggs, the treatment accorded to the plants should be most generous, as feeding cannot be continued after the Melons have finished swelling. Diluted liquid guano and soot water, all of them carefully clarified, form the usual and best liquid stimulants, but the best of deep flesh-producing food will be found in thin top-dressings of dry, heavy, finely broken loam, fortified by the addition of one-tenth of bone-dust or Thomson's Vine manure. Half-an-inch of this laid upon the tops of the pots well rammed and watered in very soon becomes one mass of feeders, when the dressing may be repeated, but in order to get full value out of all bone manures they should be made up in the potting shed some weeks before they are wanted for use. Indeed, those who have the convenience might make up in the spring enough to last them through the season.

Later crops.—Plants in all stages, from the seedling upward, must have plenty of solar heat and moisture after closing, and there must be no stint of root-moisture, but on no account must stimulants be used, a hard woody vine being the most likely to throw fertile laterals. Damp the walls, but not the foliage, on fine mornings, let the house range 80° to 85°, with air at midday, and, if necessary, bathe the plants overhead when the lights are closed for the day. Train the leaders forward, pinching all side shoots as growth proceeds, and stop the points when the plants are strong enough to produce a given number of female flowers for setting and swelling in unison. Pinch the points out of the laterals the moment the female can be seen, and the sub-laterals at the first leaf when the fruit is set. Cross-fertilise in mixed collections, as it is of no use trying to save true seed where two varieties are grown in the same range.

CUCUMBERS.

As old winter plants will now be getting stale, if not infested with spider and mildew, they should be removed as young ones come into bearing, for not only will the latter give finer fruit, but it will be produced at a tithe of the expense and risk. The main points after this date are solar in preference to fire heat, an abundance of atmospheric moisture, and good syringing after closing for the day. If the plants are in pots the balls must be kept thoroughly moistened with warm diluted liquid, especially where former directions as to the avoidance of solid animal manure have been followed. Large sods of fibry turf, with the finer particles beaten out of them, also may be packed round the stems and well over the rims of the pots as an inducement to the development of fresh roots in a medium which cannot possibly become inert and sour under the copious supplies of water from which Cucumbers, like Orchids, like to refresh on their way downwards. Dress the plants three times a week, keeping them thinly trained quite clear of the glass, a circulation of air above the leaves being absolutely necessary where troublesome shading is not resorted to. Keep young plants free from insects by dipping or light smoking—the latter a dangerous operation—and make a point of throwing away surplus stock, so frequently the home of red spider.

Old plants.—If these must be retained, an attempt at renewal of vine and foliage may be made

by cutting off all the fruit and old leaves, also some of the straggling and faulty growths, followed by light shading and frequent syringing with extra warm water, to which a little soft soap and a pinch of sulphur may be added. When young breaks are apparent, remove all old mulching and a good portion of the inert and sour soil from about the balls preparatory to repacking with rough turfy compost through which water can pass very freely. Pieces of turf the size of brickbats, logs of home-made charcoal, and lumps of old mortar or hair-plaster, made warm and packed firmly, little and often, make the best of all composts for Cucumbers; whilst fermenting leaves are unsurpassed for giving bottom-heat.

Frames.—The first fortnight in May is a very good time for turning out plants in frames, as they then have the best part of the summer for battling with the rough treatment they sometimes receive. Very few young gardeners know how to prepare materials or to make them up into a bed, and those who do, think the employment slightly humiliating. A good bed, nevertheless, forms the sheet-anchor, whilst plodding perseverance is the keystone of success. The condition of the bed, then, must be the guide not only to putting in the soil, but also to putting out the plants, as no amount of after-attention can compensate for the overheating of the compost after it is placed in the frame.

ORCHARD HOUSE.

When early Peaches and Nectarines have passed the stoning process, the final thinning must be performed without delay, as every day lost will detract from the size of the fruit now about to commence the last swelling. If any of the shoots, especially those upon the upper parts of pyramids, are still growing freely, they must be persistently pinched to maintain the symmetry of the trees and to throw size into the fruit, whilst those near the base, having a terminal wood-bud only, must be left full length, otherwise they will be useless next season. Top-dressing and feeding, now in force for some time, must be continued until the fruit shows signs of changing for ripening, when pure water only will suffice and improve the flavour. Ply the syringe copiously twice a day; the first time immediately after the night air is shut off, and again when the ventilators are closed for the day, when the house may run up to 75° or 80° with sun heat. Re-open the front ventilators about 8 p.m., and maintain 60° through the night unless the weather is very cold, when the loss of a few degrees can be compensated through the day.

The general house, containing a selection of the best sorts of Peaches, Plums, Cherries and Pears on the floor and Strawberries on the shelves, will now require constant care, as sudden fluctuations may greatly reduce the crop. If arranged in sections, the different batches may be treated in accordance with their requirements until all the fruit is set and safe, when liberal syringing, watering, and free ventilation will suit all alike—the main object being a full crop of fruit, slightly in advance of that obtained from trees in the open air. Disbudding, thinning, pinching and regulating upon the little-and-often principle must now be followed up; and cleanliness being imperative, all kerbs, shelves and floors must be regularly scrubbed, whilst a coat of whitewash with sulphur added will increase the light and sweeten the walls. Spider, as a matter of course, can be kept down by the use of the syringe, but fumigating with tobacco paper must be resorted to on the appearance of the first green fly. If highly concentrated top dressing has been provided for the season, a little may now be placed upon the tops of the pots well rammed and watered in; but the strain being light, stimulants for the present must be used with great care. W. C.

Marguerite foliage.—During the early months of this year I had an unlooked-for demand for cut flowers for vases, &c., indoors, and towards the end our supply of Fern fronds ran out, and compelled me to resort to other greenery. It is an easy matter to find material suitable for large vases in winter, but I do not find this so easy for dinner-

table work. I had some large plants of Marguerites that had been blooming the whole winter, and I decided to use their foliage by cutting off the shoots. Those of the small narrow-leaved frutescens surpassed any Fern fronds. They looked quite as light and endured far more heat without flagging. I am growing on a batch for this purpose for next winter.—J. C. F.

MARKET HARDY PLANTS.

THE trade in these popular flowers does not seem to have been a favourable one so far. This lackness seems to have been due to the long continued spell of drying easterly winds, which with frequent frosts at night have kept things back, and dried them when lifted. I have rarely seen common spring plants later in blooming than is the case this year, Pansies and Violas especially. They make no show for the hawker unless having a few blooms, and so far the best sale has been in supplying florists who undertake the furnishing of parks, square gardens, and other places in which thousands of plants are swallowed up. Where the plants have special shelter—and shelter for all things has never been more wanting than during the early days of the month—they are earlier, but in our flat district, through the folly of farmers and landowners, shelter has been destroyed, and the east winds sweep over the surface of the earth with great force and intense coldness. No wonder all vegetation is so late and growth so slow. The earliest of flowers seem to be the coloured Primroses and Polyantheses, white Arabis, purple Aubrietias, and the crimson and white Daisies. Big masses of the golden tipped Stonecrop have been giving pleasing colour all the winter, but it is not now much in request. The golden Valerian, also, the rich yellow leafage, of which is very effective just now in combination with the dark-leaved Sweet Williams, is strikingly pleasing, but that, too, sells badly. Doronicums should sell well, as they bloom early, but they have found the spring too dry, and bloom has not been good. Probably the most popular of all hucksters' plants now, but they are scarce comparatively yet, are the fine fancy or border Polyantheses. These will in time displace all others in popular estimation, not only because so early, but also because so fine in bloom, so varied, and beautiful. A market grower near me is much chagrined to find that he has put out several thousands of the gold-laced strain. It is not at all a bad strain as gold-laced Polyantheses run, but they make no show. Even Exiles and Cheshire Favourites would not obtain more than 6d. per dozen from hawkers. One of the greenest and still most favoured of plants for the London poor is Southernwood, or, as more popularly known, Old Man. This goes very well, and will doubtless always do so. The foliage just now, even where exposed to the east winds, is of the richest green imaginable, and the perfume always gratifies. Of Daisies the rich blood crimson surpasses all other coloured forms, and the old double red is quite forsaken. Two finer carpet or massing plants for small beds or for edgings could hardly be found than are this rich dark Daisy and the Giant White. Sweet Williams usually are much in request, but during the winter the *Dianthus fungus* has played havoc with the foliage and the plants in some gardens are almost leafless. A remarkably fine strain of broad dark-leaved Sweet Williams seems to have stood very well, but the narrower foliage strains have suffered greatly. I do not find that young plants of the better class blooming sections have suffered, but old plants die away quickly. It would be a mistake to omit sowing seed annually. The market grower, however, does not care for the free-blooming strains. It is rich coloured leafage which sells the plants, whilst the flowers are comparatively worthless. Those who wish to obtain the fine flowered forms of Sweet Williams clearly must not look for plants of them on costers' barrows. If softer weather with showers should come, doubtless the hardy plant trade will improve, but we are getting so close upon the summer planting season that lost weeks are rarely made up. There are yet Hollyhocks, Antirrhinums, Columbines, Canterbury Bells, and similar plants

to go off for summer blooming, but these do not comprise the chief features of market plant growing. Pinks have not done well; indeed the winter generally seems to have been peculiarly unfavourable to the production of cheap hardy plants.

A. D.

GARDEN FLORA.

PLATE 751.

ODONTOGLOSSUM WATTIANUM.*

THE plant, a coloured plate of which is given with this number, was introduced by Mr. Sander, of St. Albans, and I last year saw it blooming in that establishment shortly before Mr. Moon made his drawing. It is dedicated to Mr. J. R. Watt, of The Briars, Chislehurst. I myself should have considered it a thoroughly distinct species, but I am informed by the authorities at St. Albans that they consider it to be a natural hybrid, the parents assigned to it being *Odontoglossum luteo-purpureum* and *O. Sanderianum*. I think, however, that this origin is far-fetched, as the flower does not show any characters of sufficient importance or strength to induce anyone to rely upon it as a fact. I prefer to look upon the plant as another of the new and beautiful species introduced to cultivation by Mr. Sander. *O. luteo-purpureum* is a very variable plant; the vast extent of ground over which it is naturally spread gives rise to many different forms, and then there are many forms put down as natural hybrids of this species, some of which appear to me to be equally as distinct and deserving specific rank as the typical plant. Our hybridisers of the future, however, will doubtless be able to speak with more authority on this point than we can, when the hybrid seedlings grow large enough to flower. The best forms of *O. luteo-purpureum* appear to inhabit the mountains between Quindiu and Medellin, but it is found to exist at from 7000 ft. to 9000 ft. elevation, and in some of the outlying districts a very poor form is to be found. It appears to have been first found by M. Linden nearly half a century ago in the forest of New Grenada.

O. Wattianum in its habit of growth somewhat resembles *O. triumphans*. The leaves are narrow and short, the flowers large and brilliant, resembling those of *O. Harryanum* in the shape of the lip, but without the objectionable habit which *O. Harryanum* has of closing its petals. The sepals and petals are spreading, the sepals broadest, yellow, transversely blotched with brownish crimson; petals narrower than the sepals, ground colour bright yellow at the base, dotted with lines of brown, above which is a large blotch of brownish crimson, the tips being clear yellow; lip white, tinged with lemon in front, and on this bearing a large wavy blotch of rich claret; the base is blotched with a bluish violet hue, dotted on the sides with small spots of cinnamon, the crest very prominent, and the column long and slender. I have no knowledge from whence this plant

* Drawn for THE GARDEN by H. G. Moon in Mr. Sander's nursery, St. Albans, November 27, 1889. Lithographed and printed by Guillaume Severeys.

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ODONTOGLOSSUM WATTIANUM

has been obtained, and I have little doubt but that Mr. Sander will try to obtain more plants before revealing its native habitat. This is but natural. However much those at home may wish to know the exact spot whence this or any other novelty has been obtained, the expense compels introducers of new plants to withhold the exact localities from whence they have been obtained, at least for a time. I have no doubt in the course of a little time Mr. Sander will find it convenient to afford us the information from what part of New Grenada he has obtained this grand new species.

W. H. GOWER.

KITCHEN GARDEN.

BEST POSITIONS FOR PEAS.

POSITION has more to do with the successes and failures with Peas than many are aware of. Too much importance is attached to shelter, or such as is afforded by high walls, and perhaps several rows of tall fruit trees, when in reality Peas frequently succeed far better in a good open spot where nothing but very strong winds will damage them. Tall-growing varieties need strong stakes wherever they are grown, and the more they are unduly enclosed or sheltered, the taller they grow and the more liable to be twisted about. In very many instances gardeners have little or no choice in the matter, there being no outside quarters connected with the gardens, or it may be, as in our case, the proximity of game preserves militates against growing Peas, or any other crops that pheasants and rabbits appreciate, outside of the garden walls. But if we cannot devote good open quarters to main crop and late Peas there is nothing to prevent us from taking note of what happens elsewhere. For several seasons past I have observed what capital rows of Peas have been grown by cottagers and allotment holders who rent gardens on the highest ground in the neighbourhood. Whether the season be wet or dry, bright or dull, the result is much the same, mildew, the greatest enemy we have to contend with, being apparently quite harmless. As far as I can learn, no very special preparation is made for the rows in any case, the ground being merely fairly well manured and dug one spit deep; nor in several instances was it possible for a good soaking of water or liquid manure to be given, and yet the crops were excellent in every respect.

Wherever very profitable rows of Peas are seen they are invariably somewhat favoured as regards room. If the rows are from 3 feet to 6 feet apart, according to the heights of the varieties, the chances are the plants run up, attaining much more than their normal height, and failing to branch properly, mildew, sooner or later, also making its presence felt. Instead, therefore, of arranging them thus thickly, it is a much better plan to dispose the rows from 6 feet to 10 feet apart, the taller varieties having the most room, planting between these two, three, or four rows of Cauliflowers, early Broccoli, Savoy, or Borecole, as the case may be. The latter crops will not be shaded to an injurious extent, while the Peas will be far more vigorous, yet sturdy, branching and productive, than is the case when given much less room. We have repeatedly tried sowing Peas in trenches prepared somewhat similarly to those intended for Celery, and also on trenched ground, but in neither instance have they done so well as have rows grown on flat, slightly-

raised spaces, 4 feet to 6 feet wide, between Celery trenches. Trenches may answer very well where the soil is of a shallow, hot and dry nature, and where much water must be given to keep the Peas in good bearing order, but they are useless in all clayey soils. This, coupled with the fact that Peas succeed well on slightly-raised, much-exposed ground, such as the cottagers' gardens previously alluded to, and the Celery ridges, has done much to convince me that failures may be more often traced to atmospheric causes than to any defective treatment at the roots. That much also depends upon a judicious selection of varieties I also readily concede, it being extremely unwise to sow any known to be of a weakly constitution. All may thrive satisfactorily and crop heavily in a favourable season, but only those with a fairly robust constitution can be depended on to do well in either a wet or dry summer. For this reason I grow tall varieties principally, notably, Ne Plus Ultra, British Queen, and Emperor of the Marrows for the late summer and autumn supplies, these being the last to fail in a bad season. If these are given good room both between and in the rows, they grow strongly and branch freely in spite of all weathers, and are to a certain extent mildew-resisting. The same cannot be said of any medium height variety, other than Latest of All and Autocrat, I have yet tried, all, with these noteworthy exceptions, being very liable to succumb early to mildew or thrips.

If there is a low position in a garden, this is usually chosen for the latest rows, or it may be the bulk of the crops, under the impression that the coolness and moisture prevailing there in excess of higher ground must be favourable to a clean healthy growth. No greater mistake can be made. Such at least I have found to be the case. Plenty of fresh air, or such as only can be had on high ground, is the best antidote for all kinds of fungoid or mildew-like diseases, and this is one strong reason why the late rows of Peas should be located where they are most likely to form healthy growth from the outset. Then, again, seeing that both spring and autumn frosts are most felt in the lower grounds, this is yet another strong point in favour of sowing in the highest open positions. Our garden has a good slope to the south-east, the lowest quarter being nearly on a level with a large lake of water. Not unfrequently strong rows of Peas in good bearing order in the middle quarters have been completely ruined by October frosts; whereas those located in the upper or highest part have escaped uninjured till near the end of November. After having stated my reasons for giving Peas good room and sowing the latest crops especially on high ground, it only remains to be added that they well repay for liberal culture from first to last.

W. I.

Tomato disease.—Requiring a good supply of Tomatoes and over a long period during the last year and not having any pit or house accommodation that I could devote to their culture, I resolved to try them in any place where room could be found under glass or on warm walls outside. In the open air where the Tomatoes were planted so that the glass coping (which is 18 inches wide) kept the foliage dry, not a sign of disease was to be seen, while outside of this coping and on the same wall only a few feet away, where the foliage had nothing to protect it from the rain, all the fruits were diseased. In the Peach case there is a low framed trellis close to the glass, and early in spring I had to remove a Peach tree. Here I placed five Tomato plants in pots, training them to this trellis. Having a shelf over on which I wished to place some plants I wanted to retard in the autumn, I

resolved to leave the front light open continuously. The two lights in front of the Tomatoes were also kept open. This allowed the rain to blow in on the foliage of the Tomatoes, and the water from the plants on the shelf made them damp frequently. On these plants the greater portion of the fruit was diseased, while those growing on the back where they could not get their foliage damp had not one diseased fruit or leaf. The lesson I deduced from the above was to keep the foliage as dry as possible, by placing the plants where the drip from the wall coping will not touch them, also by keeping them in the sun and placing old lights in front of them in the autumn. I remember some years ago seeing in the autumn a grand crop without any signs of disease growing on a board fence with an old frame-light placed in front of the plants.—JOHN CROOK.

KIDNEY OR DWARF BEANS.

THERE are few, if any, more useful and quick-growing crops than these, and few more popular vegetables on the dining-table, yet amateurs are not generally fully alive to the ease with which they may be cultivated or even to their value and quality. In many instances they may not be needed at the same time that runner Beans are plentiful; in others they are given the preference at all times, while in any case they are the first to be productive, and for this reason alone ought to be cultivated in every garden. The earliest crops should be grown on a warm or south border, the middle of April being quite soon enough to sow the seed. Being naturally very tender plants, any thus early raised are liable to be destroyed by a moderately severe frost unless protected in some way, and the better plan to be adopted by those who have the proper conveniences is to sow the seed at once singly in 3-inch pots, and set them in heat to germinate. The seedlings being early placed near the glass and duly hardened off somewhat will soon be ready for planting out, and if they can be covered with hand-lights when these are taken off the Cauliflowers a good start will be made. About eight strong plants are sufficient for each hand-light, the latter being arranged closely together in rows with a little space between them. Very little further trouble need be taken with this crop beyond attending to the opening and closing of the hand-lights, these being raised off the ground with the aid of bricks, according as head room is needed. Whether or not seed has been sown early in the open or plants raised in heat, a principal sowing ought to be made about the first week in May, a good succession being afforded if both an early and maincrop variety are got in at the same time. A sunny position and if possible moderately rich free-working soil ought to be devoted to this important crop, and thus treated the plants grow rapidly and strongly, a heavy early crop of tender pods resulting. In order to have a continuous supply of young pods, it will be necessary to make several large or small sowings according to the demands of the establishment at rather less than monthly intervals up to the end of July. In no case is a rich or moist position needed or to be commended, this class of Beans succeeding well in comparatively poor sunny sites. Dwarf Beans succeed particularly well when grown on the spaces between early got-out Celery trenches, a single line with perhaps a row of Lettuces put out on each side being enough for each ridge. Crowded together anywhere they soon fail, and do not long remain productive unless the pods are kept closely gathered as fast as they are fully formed. If seed is saved, it should be from the earliest-raised rows, gathering young pods from these ceasing directly others are available from the next breadths, and in this manner the crop will ripen to a certainty. We invariably save several quarts of the variety preferred for forcing, as we are then certain of having sound new seed, which always germinates quickly and strongly. If there is a demand for dried Haricot Beans, then ought the white-seeded Longsword to be sown extensively and at once, this variety being very productive and more to be depended upon than the ordinary running Haricot varieties.

Osborn's Forcing is a very dwarf quick-growing

variety, and well adapted for sowing early, but Ne Plus Ultra is a heavier cropper and more continuous bearing, and for this reason is to be preferred. These, however, are not the only sorts suitable for the earliest as well as the latest crops, as at different times I have tried Syon House, Sir J. Paxton, Fulmer's Forcing, and Early Prolific with good results, and there is no reason why those who have them in stock should not rely upon them for this season at any rate. The rows of either of the preceding may well be disposed 18 inches apart, the seed being sown thinly and covered with 3 inches of soil, and the plants duly thinned out to about 6 inches apart. There are several very productive varieties distributed by Continental seedsmen, but nearly all that I have tried have failed to find favour in this country. For the main crop I yet prefer either Canadian Wonder or Negro Longpod, the former producing the largest pods, while the latter has the advantage in point of colour. These being vigorous growers ought to receive more room, the rows being 2 feet or rather more apart, and the plants thinned to a distance of not less than 9 inches apart. All the support needed by the more dwarf early varieties can be given by simply well-moulding them up, but in addition to thus drawing up the soil on either side to the stems of the stronger growers, these also well repay for being lightly staked up. Kept upright and given good room, they grow taller, branch freely, and yield a profusion of long clean straight pods, which are valuable either for home use or exhibition purposes. For the benefit of the inexperienced, I may add that one row, or several short ones equal to a length of 20 feet, is usually sufficient at one time for all other than comparatively large establishments, one quart of seed thinly sown thus going a long way. Blanks may be made good by transplanting with a trowel. I. M. H.

POTATOES AND SUCCESSION CROPS.

UNLESS Mr. Murphy lives in a sort of Potato paradise, it is difficult to understand why so excellent a gardener should risk Potato tops above ground the first week in April out in the open. Here it is tempting Nature to have them through the ground so early as the first week in May, for once cut hard down the crop is half destroyed. Better far, where no protection can be afforded, to plant later, so that the growth shall not be prematurely destroyed by frost. It may be true that with very early varieties a successional crop of some winter vegetable may be obtained, but it is possible only to have as a rule Coleworts, autumn-sown Onions, winter Spinach, late Celery, Lettuces, &c., but the Potatoes must be got off early indeed to enable Brussels Sprouts, Autumn Giant Cauliflowers, Broccoli, &c., to follow. Planting even in rows 3 feet apart to allow of a successional crop to be planted between them is rarely a gain, even with early breadths, whilst on good land strong growing late Potatoes will allow but little light and air for plants between the rows, even when they are 4 feet apart. Almost always both crops are spoiled and much labour is lost. It is not merely that in the planting out, let ever so much care be taken, that the Potato tops are not materially injured, but during the lifting of the Potatoes in the autumn the winter crop is materially harmed also. I have never seen a good winter crop resulting from this double-cropping plan. It is a method, on the whole, much the best left alone. Almost the only successful double cropping seen about here is found in sowing Runner Beans in rows 4 feet apart and planting out rows of Brussels Sprouts between them. As the Runner Beans are pinched and kept dwarf, and the Brussels Sprouts are got out ere the Beans are half grown, both crops fairly start on even terms. The growth out in an open field, however, never exhibits that coarseness found in ordinary garden soil. Even where space is limited, it is wiser to reserve ground for strong-growing winter crops than it is to attempt too much and fail by double cropping. Brussels Sprouts, Autumn Giant Cauliflowers, early white Broccoli, Savoy Cabbages, Scotch Kale, and some other strong growers must be got out early—in fact, during June—if they are to do themselves

justice and produce in the winter all that is expected of them. If the soil be deeply trenched and manured to carry the double exaction imposed upon it, then growth in both cases is so gross that the expected result is defeated in that way. If, on the other hand, it be needful to plant so very wide to allow the two crops ample room, then nothing is gained, and the rows of each kind might better have been planted more closely, and thus let each plot of land carry its one crop. It is particularly objectionable to Potatoes that their top-growth should be crowded by other crops. One great essential to Potatoes is plenty of light and air. Where the soil is even of moderate quality I plant in rows 3 feet apart, and would not attempt the planting out of any other crop between them, and yet a better crop of tubers is produced than is got from rows closer together. Succession of crops is good practice only when one crop is cleared before the other is planted. A. D.

IMPROVEMENT AMONGST PEAS DURING THE LAST QUARTER OF A CENTURY.*

THE Pea is so well known as constituting an important part of the vegetable food of the inhabitants of this kingdom, and is so highly appreciated by all classes of the community, that I think the committee of this conference has acted wisely in giving the subject prominence; for although the time of year for practical illustration is somewhat inconvenient, the opportunity for discussion is appropriate, and it cannot be surprising that the matter should have a peculiar fascination for the writer, who has, during thirty years, found Pea breeding and selecting a laborious and interesting, if an unprofitable, occupation.

Time and the syllabus set before me will hardly permit of more than a cursory glance at the work which has been done towards the improvement of Peas during the period covered by my paper, for it is probable that in this time more has been effected than was ever previously attempted. The work has chiefly been confined to this country, but recently cross-breeding and selection of Peas have to some extent received successful attention in the United States and Canada, where Peas would seem also to be popular. On the continent of Europe, with the exception of the well-directed efforts of Messrs. Vilmorin, of Paris, and a few others, I am not aware that much has been attempted, the requirements for green Peas and their use being there different from and much more limited than in Great Britain—Peas, as we know and grow them, are essentially a favourite vegetable of John Bull and his relations.

It will be neither possible nor necessary for me here to enter upon a discursive history of the Pea, but authorities affirm that its origin has been lost in obscurity. Certain it is that it was known to the Egyptians, Greeks, and Romans, and probably to our Saxon forefathers and the prehistoric occupants of the Lake Dwellings.

Botanically, the Pea (*Pisum sativum*, the garden Pea, including *Pisum arvense*, the field Pea, as a variety only) belongs to the natural order of the Leguminosæ, and has a papilionaceous flower, the corolla being formed of a large and, when expanded, erect back petal called the standard, two wings, or side petals, and the keel, consisting of two smaller petals united in front; these enclose a style with a carpel or legume (the incipient pod), and ten coherent stamens, five long and five short. Fructification or fertilisation of the Pea, as with some other papilionaceous flowers, takes place naturally, when the blossom is yet unopened and about half-sized, and a day or two before it expands. The original plant was most likely, in its normal state, of a tall scandent or climbing habit, the stalks of the compound leaves of all the varieties, whether dwarf or tall, terminating in tendrils which enable the plant to grasp neighbouring objects for its support. I take it, then, that all dwarfing is unnatural, and has been secured by cultivation and selection, this feature, neverthe-

less, proving an advantage in many cases to the gardener, and a consequent improvement. On the other hand, a fair length of straw is often of material value to agriculturists and large growers of Peas for boiling, &c.

Taking the Pea as a cultivated food plant, we may divide it into two sections—garden and agricultural. These are again usually separated into early, main-crop, and late varieties, according to their respective periods of maturing; into tall and dwarf sorts, according to the length of straw; and into wrinkled and round or plump and indented seeded kinds, as indicated by the shape and appearance of the seed.

GARDEN PEAS.

Garden Peas may be again divided into Shelling Peas, containing such as are used for shelling green;

Boilers, which are those varieties usually grown in large breadths for their seeds to be used for soups and cooking in the dry state; and

Mangetout or Sugar Peas, which have thick and fleshy pods, which in some parts are cooked and eaten green with the Peas, in the same manner as we use Runner and French Beans.

In prospecting for improvements in Shelling Peas we have to look to the purpose for which the particular variety will be useful. I propose, therefore, dividing them again into three classes, with names which I shall call as follows:—

CLASS I.—Lamb Peas: those usually eaten in the early season and in this country frequently with lamb, and consisting of the smaller round and wrinkled seeded early varieties—the *petits pois* of the French—and which require to be gathered and eaten young.

CLASS II.—Ham or Bacon Peas, which are generally required and liked of a more farinaceous nature, as eaten with ham or bacon, and which may be used when somewhat more mature than those of Class I., and for this purpose the main or second crop round or plump seeded sorts are best adapted.

CLASS III.—Marrowfats or Quality Peas, which include those of a rich and sugary flavour and buttery texture, and are usually of the larger wrinkled seeded and mostly main crop or late varieties.

From this classification it will be seen that a Pea, although good for Class I., would be unsuitable for the purposes of Class II.; and that the varieties in Class II., although useful and desirable Peas, would be unfitted for the purposes of Classes I. and III. This classification will also tend to show that for all these purposes as well as for the many variations of climate, position, and seasons, for which the British gardener has to provide, a great many sorts of Peas are necessary; and if all these requirements are to be met, a good many varieties must yet continue to be grown, and it will be impossible to limit ourselves to the half-dozen varieties, more or less, so often urged as sufficient.

Boiling Peas, usually known as "boilers," and used for cooking in the dry state, split or whole, are usually obtained from the large and plump seeded hardy and heavy-cropping sorts, such as the Blue Imperials.

Sugar or Mangetout Peas, with thick and fleshy pods, although largely used on the Continent, may be dismissed as almost unknown in English cookery.

AGRICULTURAL PEAS.

Our second principal division of the cultivated Pea, although strictly within the limits of my paper, can only claim a passing mention here, as but little improvement has been attempted amongst them—an advance in earliness only, as hereafter shown, having been secured.

I will now endeavour to see in what directions improvements in the garden Pea should be looked for. These appear to me chiefly to be—

In shelling Peas:

Increased precocity and earlier and later fitness for gathering green, coupled with a hardier and more vigorous plant.

* A paper read by Mr. T. Laxton at the Vegetable Conference at Chiswick, September 24, 1889.

Increased productiveness, especially for market and large culture.

Larger size, with ample filling of the pod and proportionate size of the Peas; and especial attention to the beauty and colour of the pod for market purposes.

A more continuous period for gathering green in the second early, main-crop, and late classes; and in some cases

A more protracted and simultaneous maturing amongst the earlies, in order that the ground may be quickly cleared for re-cropping.

A reduction of the extreme leafy propensity in the later varieties, so as to counteract mildew.

And where large pods have been obtained through the intervention of the Sugar Pea, to endeavour to reduce or eliminate the excess of thickness and fleshy substance of the shell.

In boiling Peas:

Increased productiveness and hardness of plant, combined with a fair length of straw and easy solubility in cooking of the ripe seed, which should be also of good size.

And all new introductions should be capable of setting their flowers freely in moist weather.

We now come to the means by which these advantages have been and are hereafter to a further extent likely to be secured.

Firstly, by selection, following a rare natural or insect cross-fertilisation, but more generally by watching the natural tendency of the Pea to vary and run back or revert; and, secondly, by artificial cross-fertilisation and carefully continued selection.

Regarding natural or insect cross-fertilisation in the Pea, I had up to a recent period concluded that it was practically impossible, but later observations have tended to modify that opinion, and I now hold that this does occur more often than had been anticipated, through the agency of thrips and other minute insects, which appear to feed on the pollen prior to the expansion of the flower; and that the presence of "rogues," as the irregular plants are termed, in a crop of Peas is sometimes due to this agency. Up to the beginning of the present century selection was probably the only means by which the then varieties of Peas had been obtained; but about that period the great master of horticulture, the late Mr. Thomas Andrew Knight, President of the Horticultural Society of London, turned his attention to the artificial cross-fertilisation of Peas, and with what good success is attested by his famous tall and dwarf marrows, still grown and in vogue in some localities. The work was subsequently taken up by the late Dr. McLean, Colchester—who must be considered the father of modern Pea improvements—and has since been largely continued by numerous workers, whose productions have become mostly available during the past twenty-five years.

During that period the writer alone has, wisely or unwisely, contributed to the ever-increasing catalogues about fifty existing or departed varieties. It will therefore probably be expected by practical listeners that I should briefly state the means adopted; and as I have during that period effected some hundreds of crosses between most of the best and approved sorts of Peas, the crosses in many cases being repeated and reversed, and all recorded, I will describe the mode of procedure in artificial cross-fertilisation of the Pea, an operation which has frequently been considered a difficult one, but which in fact, where a good eye, steady hand, and a pair of small sharp-pointed scissors are available, will with but slight practice be found a very simple one.

As I have previously shown, natural fertilisation usually takes place in the flower of the Pea before expansion, and therefore, in order to secure a successful cross, the operator must let his work precede this, and it will be necessary to operate two or three days prior to the opening of the flower, and when the incipient blossom is about one-third its mature size. This is done by carefully slitting up with a scissors' point the front of the keel petal and removing the anthers before the pollen be shed, for should this have taken place in the slightest degree, it will be well to abandon the

operation and recommence on another flower. The foreign pollen of the desired variety can then be applied through the opening made in the keel of the flower to be fertilised, either from a camel's-hair pencil or by direct application of the ripened pollen-bearing anthers to the upper edge of the carpel. This is best accomplished by an easily acquired movement of the thumb and finger of the right hand holding the pollen-bearing flower, the keel of which, with its point inserted in the opening made in that of the flower to be operated upon, may be drawn back over the anthers, and the pollen will be delivered by a jerk or spring into the desired position. I rarely use a camel's-hair pencil in cross-fertilisation, as it brings considerable risk of introducing other pollen or undesirable foreign matter in combination with the pollen to be used. After the operation has been performed, it will be desirable to pinch out the crown and all the flowers and pods on the plant except those cross-fertilised. If in conducting the operation care has been taken not to injure the organs of fructification, and these are in ripe condition, and sufficient pollen has been applied, the pod, if the weather be not too wet or moist, will probably set, and in due course ripen its complement of seeds. By means, however, of cross-fertilisation alone, and unless it be followed by careful and continued selection, the labours of the cross-breeder, instead of benefiting the gardener, may lead to utter confusion, because, as I have previously stated, the Pea under ordinary conditions is much given to sporting and reversion, for when two dissimilar old or fixed varieties have been cross-fertilised, three or four generations at least must, under the most favourable circumstances, elapse before the progeny will become fixed or settled; and from one such cross I have no doubt that, by sowing every individual Pea produced during the three or four generations, hundreds of different varieties may be obtained; but, as might be expected, I have found that where the two varieties desired to be intercrossed are unfixed, confusion will be confounded, and the variations continue through many generations, the number at length being utterly incalculable.

We must therefore still largely look to selection as the final means of obtaining permanent improvements in the Pea, and I fear the results of the recent work of Pea-crossers can hardly be fully appreciated for some years to come, during which their labours must be carefully followed by those of the seed-grower.

To the late Dr. McLean I am deeply indebted for the introduction of his then fine new varieties, Little Gem and Advancer, the blood of which being mingled with that of my own Prolific Long-pod, raised in 1858 by crossing Sangster's No. 1 with Beck's Prizetaker Green Marrow, formed the base of a good many of my earlier productions. Alpha originated from a cross between Little Gem and Ringleader. William the First comes from Little Gem and Prizetaker, and Supreme from Advancer and Prizetaker. Subsequently, with a view of increasing the size of the pod, I introduced the blood of the large tall Sugar Pea, which led to the production of Superlative; and although this Pea was much abused for its fat sides and puffy interior, it served its purpose, and has left its mark unmistakably in the increased size of the pod of many of our best newer varieties, and has since been well displaced by its more comely progeny.

My own endeavours have been directed chiefly towards gaining in earliness with both garden and agricultural Peas, towards the increase of size, well-filling of the pod, improvement of the quality, and to the production of later garden varieties, and these of moderate height, so as to continue the supply of Green Peas over a longer period. Recalling advances made in earlier maturing, I may refer to Laxton's Earliest of All and Harbinger (now more generally known as Eclipse) as earlier round blue-seeded half-dwarf garden varieties, equalling if not exceeding in precocity Dilleston's Early Ringleader or Prince Albert; to one new agricultural variety, Laxton's Early Maple, obtained by crossing the old Maple, or Partridge Pea with Ringleader, and in precocity quite equalling the

earliest garden Pea. Amongst dwarf Peas to American Wonder (apparently a reproduction of the original type of Little Gem), Mulum in Parvo, William Hurst, and Chelsea Gem, all excellent early dwarf wrinkled sorts, and Blue Peter, a good round blue dwarf variety. Laxton's No. 1 (the wrinkled form of Harbinger), Alpha, and Dr. Hogg, as good quality half-dwarf wrinkled earlies, preceding most of the old round early white Peas; but, although possessing higher quality, combining more tender constitutions, a defect which seems almost inseparable when high quality is sought to be coupled with precocity; these early wrinkled Peas having also, during our cold protracted springs, to contend with slugs, snails, birds, and insects, which all appear able to distinguish between these and the round varieties, and to single out the more tender and sweeter plants of the wrinkled forms. We have, however, in William the First, and especially in its recently re-selected earlier and originally dwarfer form, a decided advance in quality, fertility, and beauty of pod, combined with a good constitution and in earliness approaching Earliest of All, and the earliest round white varieties, the ripe seeds of William the First being of an indented or semi-wrinkled character. I might mention that this Pea, originally $2\frac{1}{2}$ feet in height, had in some trade stocks become fully 2 feet higher, and probably it will ever require constant and continuous selection. Other promising and larger-podded and larger-seeded early sorts, including Gradus, will doubtless soon be forthcoming, but as such are not actually in commerce, time alone can justify their adoption into the Horticultural Studbook. It is, however, in the second early and main-crop varieties that so much has undoubtedly been achieved in increased size and beauty of pod.

To Mr. Culverwell we are largely indebted for these. In Telegraph he gave us a decided improvement in size and beauty of pod and a good and useful Pea. From this would appear to have been selected the fine large-podded dwarfer varieties, Stratagem and Pride of the Market, which in some seasons are unapproachable as half-dwarf, large-podded main-crop varieties. Telephone and Duke of Albany seem also to be results selected from the same cross, each of which are material gains on Telegraph, Telephone being a wrinkled form of that variety with a paler pod, and Duke of Albany wrinkled with a dark green pod. This Pea in most respects approaches nearly the highest standard possible in main-crop Peas, as the pods are very large, handsome, of good colour and well-filled, the quality excellent and fertility fair, the straw being also of moderate length, the only shortcoming appearing to be a constitution which renders it unfitted for some seasons and situations. Many other second early and main-crop sorts, with fine pods and showing advances in one or more directions, have been obtained, notably Paragon and Alfred the Great as earlier editions of the Telephone type; and amongst the useful, hardy, and free-bearing 3-foot Peas of medium season, introduced during the period covered by this paper, I may note Prince of Wales, Fillbasket, Invincible, and Laxton's Standard (now more generally known as Wordsley Wonder), Dr. McLean, and G. F. Wilson, and two good all-round 4-foot Peas in Mr. Standish's Criterion and Laxton's Charmer, both high quality, handsome, and productive wrinkled sorts, and whose merits have hardly been fully recognised. Amongst the later main sorts we have John Bull, a fine half-dwarf wrinkled Pea, but of an over-leafy habit, and consequently succeeding only in certain seasons and localities. In the later varieties we have gained Superiority (Eckford) and Walton Hero (W. H. Laxton), both, I believe, from crosses between Telephone and British Queen, and advances in size and earliness on that much-improved tall Pea. Amongst the latest Peas we have added Omega, Latest of All, and Perpetual-bearer, all dwarfed types of the well-known Ne Plus Ultra, and to these no further commendation can be accorded, for undoubtedly Ne Plus Ultra, syn., Jeyes' Conqueror, or rather its broad-podded selection, known formerly as Buckley's General Wyndham, is still the Pea of Peas; but though Ne Plus

Ultra is of high quality and good-looking, it is tall and very late, and we still want its earlier and dwarfer prototype, which will probably be soon provided for us in some of the newer varieties not yet thoroughly fixed. Lastly, we have the remarkably fine, but unfixable Pea, Evolution.

In the endeavour to enumerate the principal introductions of the past twenty-five years, I fear I may have unintentionally omitted some sterling varieties, but, as my experience is only limited, I must ask your indulgence and correction. For the purpose of comparison I have drawn up from my own recollection, and the slight sources of research open to me, the following list of some of the best and most popular varieties of garden Peas previously in cultivation:—

POPULAR GARDEN PEAS IN CULTIVATION ABOUT 1864.

Early varieties.	Main-crop varieties.
*Dilleston's Early Ring-leader	*Blue Scimitar
Double-blossomed Frame	*Bedman's Imperial. Imperial Blue
*Sangster's No. 1, Daniel O'Rourke	Woodford Marrow
Early Emperor	James' Prolific
Danecroft Rival, or Early Danecroft	*Veitch's Perfection
*Advancer	*Yorkshire Hero, Hair's Dwarf Mammoth
Tom Thumb	
*Little Gem (?)	

Second early varieties.

*Prizetaker, Defiance	*British Queen, Ward's
Rising Sun, or Belamy's Green Marrow	Incomparable
Dickson's Favourite	Tall Green Mammoth
*Champion of England	*Ne Plus Ultra, Jeyes' Conqueror, General Wyndham
Auvergne	*Knight's Tall White Marrow
Fairbaird's Surprise and Fortyfold	*Knight's Dwarf White and Green Marrows
*Harrison's Glory and Perfection	
Burbridge's Eclipse	
*Blue Prussian	

and out of these I believe the varieties marked with an asterisk (*) are still grown on a considerable scale, and that few only in the list have become altogether displaced.

Comparing the above with the recent introductions referred to, it will be seen that we have added to our useful Peas good first early round and wrinkled blue-seeded varieties, a good early indented green marrow, and several fine early dwarf wrinkled and round varieties for garden and market culture.

Amongst second earlies we have gained both in size and filling of the pods, and in fertility and hardiness. In the main-crop sorts perfection in size and beauty of pod has been nearly approached, and in the direction of new late Peas we have reduced the height without loss of quality, by the introduction of the dwarfer types of Ne Plus Ultra, and in the British Queen race we have advanced somewhat in earliness and size of pod. Great further gains have doubtless been obtained in the fine varieties recently certificated by this society, but whose good qualities have not yet been fully realised; and although it has often been urged that we are getting too many new Peas, it is necessary that a good many should be brought forth, in order that, after a crucial trial of years, which can only be carried out by the public as consumers and by growers in quantity, the fittest alone may eventually survive, for it can hardly be expected that more than a good percentage will reach that enviable position, as in every new introduction, however sanguine its foster-parent may be, the public test will frequently bring to light some unlooked-for weakness, rendering it only partially fitted, or totally unfitted, for its intended position.

When, therefore, we consider the advances made, the numerous requirements for improved varieties adapted for particular purposes, soils, and seasons, and the loss by natural elimination, one improved variety soon becoming displaced by a better, I think Pea raisers have done only what was necessary to keep pace with the times; they have achieved many advances, and have in the numerous cross-fertilisations laid the foundations for still

greater improvements, but there is scope for new work in the direction of greater hardiness or improved constitution and fertility. The gain in large well-filled pods has sometimes been the subject of ridicule, but where Peas are grown by the acre, and the produce reaches several hundreds of bushels, 1d. or 2d. per bushel saved in gathering may often represent an average rent of the land, and the time saved in shelling the larger-podded Peas is also of some value. The advance, therefore, in the size of pod has been consequently a material improvement; gain in earliness is also well appreciated both by the consumer and the grower. To the former a few days gained often represents by no means a trifling profit; it may double or treble the value of the crop. I maintain, therefore, that we have secured during the past quarter of a century many important and material improvements in our favourite vegetable—the Pea. But we have yet room for new varieties, especially in the production of good hardy market Peas, with large handsome deep green pods, medium short-jointed straw, and producing freely at each joint from the ground upwards; and for market purposes it is essential that the pods should be of a deep green colour, for however good the quality may be, the higher-coloured sorts will always command a higher price. The producer of such a Pea would not only benefit himself and the consumer, but if he can add a hundred, or even fifty, bushels of green pods per acre to the present yield, he may put into the pockets of the grower an additional £5 or more per acre, and at the same time do something towards counteracting the present depreciation of the land.

For other reasons besides those I have mentioned, the labours of the grower and selector ought never to cease, for the character of precocity in the Pea gradually becomes reduced. If all the advances in earliness claimed during the past twenty-five years were added together, each new early variety generally aspiring to be from seven to fourteen days ahead of all its compeers and predecessors, early Peas would now come in with the new year; but, in fact, these allegations are not altogether wide of the truth, for those who grow early Peas largely will probably have noticed that certain portions of the stock ripen off before the bulk, and shell out and are lost before the crop can be harvested, and this process being frequently repeated the stock ultimately loses considerably in earliness. Similar loss also arises from the attacks of birds, mice, &c., on the earliest pods; and again, when early Peas are gathered green, the first gatherings include most of the earliest to ripen, and the remnant, consisting of the latest, is often saved for seed. In reality, therefore, there is ground for the claim of extra earliness, the new founding being in advance to some extent of the old stock or sort, which has not been carefully preserved or selected. This loss is a constant one, and has to be met either by the selector or cross-breeder. A similar process also goes on with regard to the height of Peas; the dwarfer plants get lost or left in harvesting, and ultimately the stock consists of its longer-strawed portions only. We must therefore ever be watchful and on the move in order to counteract these persistent tendencies to deterioration of our existing stocks of Peas.

STIRRING THE SURFACE OF THE SOIL.

WHAT an immense amount of good is done by a frequent stirring of the surface of the land when under crop. I do not mean a mere scratching with the rake, but a deep honest moving of all the surface with the hoe or fork, that will leave all the pores open to let in the air and sunshine, which are also beneficial to root action in spring. Plants growing in a hard baked soil soon show signs of distress. Sometimes these signs are misunderstood by the inexperienced cultivator, who rushes off for his water-pots instead of seizing the hoe, breaking up the soil around the plants, and filling up the cracks through which the moisture was rapidly escaping. Again, there are quite a number of ways of hoeing. One man slides the hoe along the surface, raising a dust, but neither kills the weeds nor yet stops the outlets through which the precious moisture is escaping,

and if such work is examined next day its want of thoroughness will be painfully manifest. If the surface is stirred from 1 inch to 2 inches deep the weeds will all die, and the plants will benefit from the loose mulch of soil which protects and encourages the roots. A good old gardening friend years ago, when good work was more valued than it appears to be now, used to stir the soil deeply among his crops regularly once a week from the time they came through the surface till they pretty well covered the land. He said it paid, and doubtless he was right. Very little watering is required where the surface is properly managed and stirred systematically. But this surface-stirring should only be done when it is dry. Hoeing or forking in wet weather is not only throwing time away, but it injures the land by destroying its elasticity. Soil that is trodden upon in wet weather loses tone, and the roots of the plants will not work in it freely. Even light land may be injured by much treading in wet weather, and working upon heavy land when it is wet will ruin its fertility for that season. In planting out seedlings during a showery time I never tread upon the land, but use a light board that will reach across the bed and wide enough not to press unduly upon it. It is always best, where one can manage it, to do the planting just before the rain comes, not after. E. H.

STOVE AND GREENHOUSE.

CARAGUATAS.

THIS is a genus belonging to Tillandsiæ. It contains many handsome species, which well deserve recognition, and require only the treatment given to Tillandsias. The kinds noted here I consider the best:—

C. ZAHNI.—This plant has several claims to our attention; first, the beauty of its leaves; second, the richness of its inflorescence, which when in flower, coupled with its foliage, renders it a plant of great elegance; and thirdly, because it bears the name of its discoverer, who was collecting for the Messrs. Veitch, and sent them this plant shortly before he perished by drowning, adding another to the long list of those who have perished when plant-collecting. The plant was discovered just twenty years ago, but it has been but very little known or seen in English gardens. I saw this species flowering in the establishment of Messrs. Veitch at Chelsea, but I have since seen the plant much finer with Belgian growers. The stems form a rosette of long lanceolate leaves, which are sheathing at the base and smooth, each a foot long. The base is rich yellow, streaked with brownish crimson, the middle portion of the leaf crimson. This, again, becomes yellow higher up, and the tips pass into bright green; the inflorescence is erect; the bracts below the flowers are long, narrow, and bright scarlet, and a few bracts between the flowers are rich yellow, tipped with scarlet, the remaining bracts being simply yellow, which is the colour of the flowers. The combination of yellow, crimson, scarlet, and green is wonderfully brilliant. It comes from the mountains of Chiriqui, Central America.

C. LINGULATA is another brilliant plant of somewhat more robust habit, forming a dense and handsome rosette of leaves, which grow individually some 18 inches long, and are quite unmarked. The colour is green, streaked on the back with reddish-brown. The inflorescence is erect, attaining to about a foot in height. The lower bracts are red, tipped with green; the upper ones bright red; the flowers yellowish-white. It comes from Columbia and Ecuador.

C. LINGULATA CARDINALIS.—This plant is similar to the last, but the upper bracts are more brilliant in colour, and have the extreme tips green, the corolla also being more orange-yellow. It is a very beautiful variety from Western and New Grenada.

C. VAN VOLXEMI.—In this plant the leaves are plain green, each some 2 feet or more long, sheath-

ing at the base, and tapering to a sharp point. The spike is erect, a foot long, the flower-bracts being deep red, the flowers yellow. It grows in New Grenada at considerable elevations.

C. ANDREANA.—This is a very pretty little species, and when in flower very showy. Its leaves, plain green and slightly scurfy, are each from a foot to 2 feet long. The spike is erect, about 18 inches long; the stem bright red, bearing numerous green bracts; flower-bracts reddish-green, enclosing in each a few bright yellow flowers. It comes from New Grenada at an altitude of 11,000 feet.

C. DEVANSAYANA.—This is a somewhat strong-growing plant, but still very handsome; the leaves are very broad at the base, the outside streaked with dark brown at the back, which, extending upward, becomes lost in the green of the upper and narrower part of the leaf. The inflorescence does not attain so great a height as the leaves, and the flower-bracts are bright scarlet, streaked with yellow. It is a native of Ecuador.

C. OSYANA.—This is a large plant with a spreading habit, bearing a somewhat large rosette of leaves, which are each about a foot long, tapering to a point and sheathing at the base. Flower-stem very short, supporting a dense globose head of scarlet bracts and yellow flowers. It comes from Ecuador. W. H. G.

Vitis heterophylla.—We now have this pretty variegated climber in good condition. Although quite hardy, I have never seen it out of doors in such fine condition as it may be had as a pot plant. We propagate it from cuttings and the plants are grown on freely, that is, they are potted in good rich loamy compost, and given every encouragement to make fine growths. Of course, the variegation is not very good, but they make nice plants for the next season. They are placed in the open late in the autumn and allowed to remain to let the wood finish ripening off. The first batch is started early in January, and if the plants do not break freely they are stopped, but if they start with three or four shoots from the base, they will make good plants. The first leaves have very little variegation, but as they advance the white markings become more distinct, and the ultimate leaves are almost all white, the lateral shoots also producing very prettily variegated foliage. When the leaves at the points of the shoots are almost all white, the plants are at their best. After a time these fall off. This pretty vine cannot be too highly recommended for decorations.—F. H.

Lilium Harrisii (the Bermuda Lily).—It is extremely difficult to start the dry bulbs of this Lily into growth, though otherwise it is an almost continuous grower. The smallest bulbil even when shifted, if not allowed to become dry and lose its root-fibres, grows on unchecked. Last November I received some splendid bulbs, each about 10 inches in circumference. They were quite dry, without a root, but perfectly sound—indeed, they are perfectly sound to-day. They were then potted up in a mixture of loam, leaf mould with some old rotten manure, peat, and silver sand, and put in my greenhouse close to the hot-water pipes. I examined them several times, repotted them, gave them tepid water when required, and after six months' waiting they are now only slowly moving. It cannot be for want of heat, as the temperature rarely went below 50° Fahr., and with sun-heat often reached 90°. Besides, at least two dozen others in various stages of development beside them never ceased to grow during that time. One in an 8-inch pot has eight splendid blooms just about to open. Is the Bermuda Lily grown and exported by the Japanese? Certainly my bulbs were as dry as if they came as far. My experience with *Lilium auratum* and the deliciously-scented *lancifolium* group when imported is just the same. Millions of bulbs have been imported, and most of those who have thought over the matter maintain that there is not a bulb more in the country than was the case ten years ago, and a large percentage of the millions never bloomed at all. Now, this does not apply to the same extent to home-grown bulbs, especially if the root-fibres can be kept alive, so as to commence

root-action after being received. Three conclusions seem warranted: 1, home-grown Lilies (bulbs) are more certain to start into growth than imported, and amateurs had better not order them until the spring; 2, nurserymen when executing orders should pack the bulbs either in damp Moss or other material, so as to preserve the roots fresh; 3, very little water can be safely given in winter.—W. J. MURPHY, *Clonmel*.

STRIKING COMBRETUM PURPUREUM.

THAT this plant can be struck from cuttings of the shoots is very often disputed. At p. 366, in April last year, I gave some details as to striking this plant and *Ipomœa Horsfalliæ*. Mr. Lynch, at p. 526 (June 8), gave an account of the success he had had in rooting cuttings of the *Combretum*, with some useful hints, which, if followed, will, I know from experience, enable anyone to strike it. "Scepticus" (June 22, 1889, p. 574), who informed us that he had been propagating for the trade for some years, questioned the accuracy of Mr. Lynch's statement, which he refused to accept without further proof. I am not now engaged in the cultivation or propaga-



Rooted cutting of *Combretum purpureum*.

tion of stove plants; consequently I am not in a position to substantiate what I had written. But I recently received a photograph (here reproduced) from Mr. Harrow, of the Cambridge Botanic Garden, of a rooted cutting of the *Combretum* which he had struck, and also a strong rooted cutting of the *Ipomœa*, which tells its own tale so far as regards that plant; whilst the engraving sets the matter at rest respecting the *Combretum*, and perhaps may convince those who, because they do not succeed in what they attempt, jump to the conclusion that everyone else must fail. Anyone who is desirous of propagating the plants in question, and will follow the course stated by Mr. Lynch, or act upon the hints which I gave, will find that he can soon raise a stock of these handsome climbers. T. B.

Asparagus plumosus nanus and **A. tenuissimus**.—I have both of these fine kinds turned out in borders in a house where the temperature is not much, if anything, beyond that of an ordinary greenhouse in the winter season. They are growing in stiff loamy soil, and by their luxuriance are evidently quite at home. The growth continues throughout the season, the plants apparently not minding being occasionally cut rather severely. They are trained to wires fixed perpendicularly to

keep them well within bounds, and when any shoots are needed to be cut they are merely thinned out of the thickest parts. The warmer end of any greenhouse would, I consider, be a safe place to grow these beautiful plants, especially if the temperature does not often fall below 40°, but where 45° is considered an average. Treated in this way I do not think they would be troubled with so many insect pests; neither the bug nor the scale would thrive so well upon them.—J. H.

PANCRATIUMS.

(FAIRY LILIES.)

IN the interesting article by "J. H." on these lovely Lilies in *THE GARDEN* (p. 303), the writer suggests that they should be called Fairy Lilies, a very appropriate name. I quite agree with "J. H." with regard to the treatment of *Pancratiums*. Only a few months ago I divided some which were then in a bad state of health. I removed all the soil from the roots, and cut away those that were dead. I then potted the bulbs singly, putting the small ones in 2½-inch pots, and the largest in 7-inch size. The compost used was loam, leaf-mould and sand, and the pots are now full of clean healthy roots, the plants making some good leaves. I fail to see the force of "W. I.'s" notion (p. 372) that these and other allied plants should not be divided, especially as he has succeeded well with plants thus treated. I believe the fault is in not dividing them often enough, or in doing it at the wrong time. It must be admitted that a lot of bulbs crowded up together in the same pot will in time weaken each other, and the result will be the same as with other subjects, viz., some must die out and in doing so will bring decay and disease, which will spread and gradually weaken the whole stock.

I believe there are many who hold the same opinion as "W. I.," especially with regard to *Eucharis*, yet the fact that they are frequently divided without harm being done proves the fallacy of such a notion.

A few years ago I had to deal with a lot of *Eucharis* which had been standing in the same pots for a considerable time. The plants in question were in good health and produced a fair crop of bloom in December, but the blooms were small and the plants showed signs of weakness. It was about the middle of January that I divided them. All the soil was shaken from the roots and the bulbs sorted out, the strongest being potted in 10-inch pots, six bulbs in each pot. They were not allowed to get withered, but were placed in a brisk stove temperature with a moist atmosphere. Of course, the plants were checked for a time and lost a few leaves, but they soon recovered and grew away freely. By the end of March we had a good crop of bloom, but probably not from the same bulbs which flowered in December. I may here remark that I have experienced failures with *Eucharis*, but it has been with plants which have shown evident signs of decay before being disturbed. I believe decay is sometimes brought about through cutting off the flower-stems too low, as they then rot off down into the bulb and provide a good nest for the mite to breed in. When this enemy gets a fair start, it is difficult to arrest its progress.—F. H.

— IN *THE GARDEN*, April 19 (p. 372), I note remarks by "W. I." on my article relative to the culture of the *Pancratiums*. I must at once admit that I have never experienced the slightest difficulty in their culture; I could not therefore give practical instances of any failure. The experience I recorded was the outcome of several years' practice in a successful manner. In "W. I.'s" concluding remarks he names the true cause of many a failure in a nutshell as follows: "But if the drying-off or resting-in-cold-pit process is attempted, &c." I never attempt either one or the other (neither did I recommend it), and should consider it bad practice to do so. It need not be wondered at if failures in such cases did occur, for it would be contrary to all common sense to treat *P. fragrans* or any other tender species from similar tropical localities in such a manner and expect suc-

cessful results. Under the treatment which I recommended, the bulbs would not be shaken out of the soil in order to get at the offsets more than once in three years. Surely that could not be considered "frequently pulling them to pieces." When the work of division and repotting is done, if every care is taken, as "W. I." must have done with his stock at the start from divisions, nearly all the roots may be preserved intact. Afterwards, if watered to an excessive extent, then comes in the probability of an attack of mite upon the roots and eventually the bulbs. When plants have had such treatment every care is needful until they are re-established, and when this is given them I do not for my own part fear the mite in the least. In my opinion the soil after a few years needs renewal, more particularly in the case of such moisture-loving plants as the *Pancratiums*; and, again, after a few years in the same pot, there must have been from year to year many of the roots in a decaying state, for it could not be supposed that the plants could go on constantly making fresh roots and never losing any. These roots that thus decay would offer a refuge for the mite. In my remarks I never alluded to either *Eucharis*, *Amaryllis*, or *Vallotas*, and should not think of advising the same treatment for these as I did and still do for *Pancratiums*. My impression is that "W. I." will find that his plants in a few more years will be disposed to decline in vigour, the more so as the bulbs continue to increase in numbers; these ultimately will, I think, starve each other, and the question will be simply the "survival of the fittest" instead of every one. I hope not, however, but wish him every success, and thank him for his kind remarks and good intentions for the guidance of others.—J. H.

DEUTZIA GRACILIS.

THIS valuable and most useful plant for early blooming frequently meets with rough treatment after its flowering season is over. If the flowers have been cut off, the plant itself is often deemed of but little value, at least as far as its utility the following season is concerned; consequently it gets thrust aside, owing to the pressure of so many other things in the spring season. If the plant has been used for conservatory decoration it is not deemed of any moment after the flowers are faded, and is not therefore again brought back into the growing temperature in which it unfolded its blossoms, but probably placed out of doors, possibly sheltered somewhat, but still barely existing until more congenial weather sets in, when a second growth is made, which has no possibility of ripening for another season's flowering. This all occurs through the plant happening to be a hardy one when under the usual out-of-doors cultivation, and therefore not considered to be a subject requiring any special treatment. With this haphazard mode of culture it is no wonder a good crop of flowers cannot be had but once in every two years. If, however, due care is taken of the plant after blooming there is no reason why it should not flower every season and increase in size and vigour. My practice for several years has been to treat the plants when out of flower in a similar way to Indian *Azaleas*. In this way they make a good growth, and afterwards only need to be carefully hardened off. When first replaced into a growing atmosphere the weakly and scrubby wood should be thinned out and all old flower-spikes picked off. This not only improves the appearance of the plants, but is productive of a better growth, especially if the plants are well attended to by frequent syringing and abundance of water at the roots, with occasional doses of liquid manure in the case of plants that are pot-bound. Strong shoots are what should be aimed at, for such make by far the best display when in flower, and are most useful, therefore, whether for cutting or otherwise. Frequent potting is not at all necessary when the plants have reached a sufficient size. I have had some under my charge that were never re-potted for more than a dozen years, yet they retained their vigour to the last. These plants were, in their growing season, treated more like

aquatics than anything else. I used to manage to get them after their growth was completed in a vinery at work, shifted out of their growing quarters into a cooler place, and then out of doors about the end of May, under the protection of a friendly tree for a week or so, and then they were plunged in a bed of coal ashes fully exposed to the sun for the rest of the season. Here they would remain till again required for introducing into warmth to forward them once more. The last were always brought in as the flowers commenced to show, otherwise they would not open in a perfect manner, a failing which this *Deutzia* often has when grown out of doors in the shrubbery. When the flowers commence to unfold the plants should never be allowed to become dry at the roots; if this occurs often, or even twice or thrice only, the flowers will drop to pieces prematurely. This *Deutzia* is well worthy of having proper attention paid to its requirements, and when well flowered it is still one of the best of its class, being more graceful in habit than the stronger growing kinds. J. H.

ERANTHEMUM TUBERCULATUM.

SEVERAL of the *Eranthemums* form very handsome flowering plants of easy culture for the stove, and they bloom at different periods of the year, one of the best in full flower at the present time being *E. tuberculatum*, a small shrub with a profusion of branches, clothed with small oval leaves. The flowers, which are from 1 inch to 1½ inches in diameter, are pure white, and borne in such numbers that the entire plant is quite a mass of them. The specific name is derived from the curious little tubercles with which the branches are studded. It is a native of New Caledonia, from whence it was introduced more than a quarter of a century ago, but for some reason or other these *Eranthemums*, beautiful as they are, have never become popular. A selection of the best, from a flowering point of view, would include *Andersoni*, white, beautifully blotched with purple; *albiflorum*, pure white; *laxiflorum*, purple; *aspersum*, white, marked with purple more heavily than in *Andersoni*; *cinnabarinum*, magenta-crimson; and *pulchellum*, blue. From this it will be seen that there is a very wide range of colour in the flowers as well as in their season of blooming. In two or three of the *Eranthemums* the foliage is the more interesting, as in *reticulatum*, whose lanceolate leaves are of a bright green tint, heavily netted with gold; tricolor, with oblong foliage, marked with olive green, greyish purple, and salmon-pink, in ever varying proportions; *albo-marginatum*, leaves dark green, edged with white; and *atro-purpureum*, with purple foliage. All the *Eranthemums* are easily propagated and grown, and most of them are first-rate subjects for a cool stove or an intermediate house under conditions such as the flowering *Begonias* (other than the tuberous-rooted varieties) delight in. A good time to increase the stock of *Eranthemums* is during the spring and early summer months, as the young shoots then so plentifully supply the very best of cuttings, and besides this they root quickly, and consequently there is a long growing season for them before winter sets in. Most of them will yield more satisfactory results if propagated annually and grown on freely, but of course where extra-sized plants are required they can be cut back after flowering and shifted on as soon as they start into growth. In selecting the cuttings good clean shoots should only be chosen, and it matters little whether they are put singly into small pots or a few around the edge of a 4-inch or 5-inch pot. In the latter case care must be taken that the roots do not become too much matted together before the plants are potted singly. Any open sandy soil sifted moderately fine will do well for the cuttings, and in potting off a very suitable compost is equal parts of loam and peat, or in place of the last well decayed leaf-mould, with a liberal sprinkling of silver sand. During the summer months they will require little heat, the object being as far as possible to encourage a good sturdy growth, and consequently by shutting up early and utilising the sun-heat as far as possible artificial heat can, to a

great extent, be dispensed with. When they have received their final shift, and the pots after that get full of roots, a little artificial stimulant, such as liquid manure, will be of benefit, but plants fed up in this way are not nearly so desirable to propagate from as those that have not received such an amount of stimulants. H. P.

BORONIAS.

AMONGST the comparatively few Australian plants that still obtain anything like general notice a high place must be given to the few better known kinds of *Boronia*. With the exception of *Epacris* and *Acacias*, they are unsurpassed in general usefulness by any of the flowering plants of that region. Their neat and dwarf, yet elegant habit makes them especially suitable for establishments where space is limited, whilst for wealth and fragrance of bloom they are certainly remarkable. The generic name was given to these plants by Sir J. E. Smith to commemorate the services to botany of an Italian named Francis Borone, who accompanied Dr. Sibthorpe in his travels through Greece, and ultimately died whilst in his service through an accident at Athens. About fifty species are known, inhabiting heathy and rocky places in West Australia, where, along with *Tetrathecas* and various members of the *Epacris* family, they are said to form one of the most attractive features of the scenery. They belong to the natural order *Rutaceæ*, and are thus allied to the Orange and Citron.

Boronias require treatment in most respects similar to that given to *Heaths* and *Epacris*. From these plants, however, they differ in their thicker roots and more succulent growth, and may, therefore, be accorded somewhat more liberal conditions. For those who do not possess these plants there is no more suitable time than the present for obtaining them. Some of the species are flowering and the others shortly follow, so that a clear start for another year can be almost immediately made. After the blooming season is past, the plants should be cut rather closely back and given a slightly warmer and moister atmosphere for a few weeks; as most greenhouse plants require such treatment, this entails no inconvenience. When the growths are an inch or so in length, the plants, if necessary, may be given larger pots. If they are young, that is, one or two years old, this will almost surely be the case, and if in a vigorous state a pot 1 inch or 1½ inches more in diameter may be used. The compost should consist of moderately close peat, with a sufficient addition of silver sand to keep it open. After the plants are fairly started more air may be given them, until during July and August they should have a position in an unheated frame, allowing them to be exposed, except on the coldest nights and during beating rains. About the middle of September they should be returned to the greenhouse and given the ordinary conditions of that house until spring again. At all times *Boronias* like a cool and moist condition at the root, but the soil should never be in anything like a sodden state, and for this reason a little extra care is required in watering for a few weeks after potting. The potsherds used for drainage need not occupy much room—for plants which so rapidly fill their pots with roots this is a waste of space—but they should be carefully placed, and some Moss or other material should be spread over them to keep out the finer particles of soil.

With regard to propagation, I have seen advice given to the effect that cuttings should be taken in the autumn. I have never tried this method, but the following, which I always adopt for the under-mentioned species, inva-

riably succeeds. After the plants are cut down I wait until the new growths are about 1½ inches long, and these are used with a small heel of the older wood attached. My experience is that the points of the old shoots are worthless for propagation. In order to get the cuttings early one of the least ornamental of the old plants may be cut back in March. Four-inch pots are half-filled with crocks, the remainder with a mixture of fine peat and sand in equal parts; the cuttings are then inserted and firmly pressed in, and a rather thick layer of the finest silver sand spread on the top of the soil. I have occasionally struck the cuttings in an ordinary propagating case without the aid of bell-glasses, but these are a great help, and as they enable the cuttings to root in shorter time, should always be used. I stand them on, but do not plunge them in a mildly heated bed of Cocoa-nut fibre. When rooted they should be potted off singly into 2½-inch pots. During the early stages careful attention is needed in pinching the shoots in order that stout, bushy specimens may eventually be obtained.

Some of the kinds of *Boronia* that have been introduced have not been sufficiently easy of cultivation to ensure their survival to the present day. Although one cannot help regretting the disappearance of many interesting and beautiful plants, this is not to be wondered at, considering the vast number of additions that have been made to our garden flora during the last generation. In view of this, the small selection of species given below includes none but what may be made, with ordinary care, to well repay their cost and trouble.

B. HETEROPHYLLA.—This was first discovered by Drummond in the Swan River region as far back as 1842. It did not until about five or six years ago obtain any recognition as a plant of horticultural value. It was found in Western Australia by Miss Marianne North, who collected seeds and sent them to Kew. The plants raised from these seeds flowered for the first time in 1886, and it is from them that all the plants now in cultivation have been obtained. It is at once the most beautiful and useful of known *Boronias*, and is altogether the most valuable greenhouse plant that has been introduced in recent years. It flowers freely the second year after striking. I have plants varying from 6 inches to 1 foot high now crowded with flowers. The branches are slender, bearing deep green, narrow, and variously divided leaves, in the axils of which the flowers occur. These are in drooping clusters of two to four and of a bright rosy-crimson, measuring about half-an-inch in length, and are produced in the greatest abundance.

B. MEGASTIGMA.—Although devoid of the colour of the previous species, this surpasses all the *Boronias* in the strength and sweetness of its perfume. I can call to mind no other greenhouse plant that rivals it in this respect. It is a plant of slender habit with thin arching branches, bearing small, sessile leaves consisting of three to five narrow pinules. The flowers are produced singly or in pairs at the axils of the leaves, and are of a brownish-purple on the outside, greenish-yellow within. In a young state this species requires frequent attention in the matter of pinching; unless this is given the plants are certain in a year or two to become leggy and unsightly. There is now a variety in cultivation differing considerably from the type, examples of which have recently been shown at Westminster. It produces numerous lateral branches, and is more easily brought into a presentable shape. Counterbalancing this advantage, however, is the fact that it has not to such a marked degree the fragrance of the former.

B. ELATIOB.—Before the advent of *B. heterophylla* this was the best and most generally known species. Although not so graceful as that species, nor possessing such brightly coloured flowers, it grows as well and blooms with equal freedom. In Sir George Macleay's garden at Pendell Court some

splendid specimens, several feet in height, are planted out in a cool greenhouse. It is a native of South-west Australia, whence it was introduced by Messrs. Veitch. In an adult state it forms a dense and numerous branched shrub. The leaves are pinnate, and from 1 inch to 2 inches long. The almost globose, deep rosy red flowers, produced on short peduncles, are very fragrant and produced in great numbers.

B. POLYGALÆFOLIA.—Although introduced to cultivation in the early part of this century this species does not appear to have been at any time extensively used. According to my experience it is the quickest growing and most easily cultivated of all *Boronias*, whilst it may be propagated almost as readily as a *Geranium*. It is of very distinct appearance, having pale green, obovate, and quite entire leaves. The flowers open almost to their full extent, and measure each about half an inch in diameter, with petals of a pale reddish lilac. It blooms with great freedom from February through the spring, and if not altogether so valuable as the other species mentioned is well worth growing along with them. The plant is of erect, slender, and somewhat sparse habit. A native of Port Jackson.

B. PINNATA.—Introduced from New South Wales but little under 100 years ago, this species enjoyed a long popularity until somewhat superseded by the later discovered kinds. Twenty years ago it was much in favour as an exhibition plant, and may still be occasionally seen in good condition at the Regent's Park shows. The leaves are smooth, pinnate, consisting of five, seven, or nine pointed leaflets. The flowers are pale rosy purple, each three-quarters of an inch across, and have a sweet Hawthorn-like fragrance. It was first raised from seed in this country in 1794 at the nursery of Messrs. Lee and Kennedy, of Hammersmith.

B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Carnation Mme. Warocque is a fine addition to the Malmaison varieties: the flowers are not so large as those of the pink form, but of a fine scarlet colour, and telling, especially in a group. A batch of it in the Forest Hill nursery is in full bloom now.

Polygala myrtifolia grandiflora is finely in bloom in the temperate house at Kew, where there is a large specimen quite 5 feet in height. The flowers are rich purple, and very pretty against the mass of leafage. It is very handsome planted out.

Viburnum plicatum flowers in the open rockery at Chiswick, but it is now a feature in the temperate house at Kew, where there are plants bearing several of the heavy heads of ivory-white flowers. Thus seen it is an admirable plant for the cool house.

Carex variegata.—This pretty Sedge, certificated last October by the Royal Horticultural Society, is being much used for the decoration of dinner tables. Plants in 3-inch pots make dainty ornaments, as the leaves are Grass-like, and each has a broad white midrib.

Toxicophlœa spectabilis.—This plant, which is one of the introductions of Mr. B. S. Williams, of Upper Holloway, is now blooming very profusely in the nurseries there, even quite young plants being laden with the white, sweet-scented flowers. This plant grows freely and blooms more profusely than *T. Thunbergii*, another species previously introduced by the same firm.—W. G.

Jacobean Lily (*Amaryllis formosissima*) is well grown at Syon House, Isleworth, in a warm house. Mr. Wythes has several bulbs of it, which average two spikes each of the intense crimson-coloured and showy flowers. It is useful thus grown at Easter. Of course it need not be grown in heat, as it will thrive in a warm well-drained border, as at Kew.

A new break in tuberous Begonias is a seedling in flower now in Messrs. Laing and Sons' nursery at Forest Hill. A small plant is bearing several blooms, each of large size, rich self crimson, and semidouble, with the edge of the florets also handsomely frimbriated. Such a margin relieves the flower of much formality.

Rhododendron Countess of Haddington.—One of the finest specimens of this beautiful *Rhododendron* we have seen is in full beauty with Messrs. Laing and Sons. It is smothered with trusses of

bloom, numbering sixty-seven in all, and each carrying about five flowers. When in this perfection *R. Countess of Haddington* makes a lovely picture.

ORCHIDS.

PHAIUS TUBERCULOSUS.

I AM asked by several correspondents various questions respecting this plant and its nearly ally, *P. Humblotianus*. I have observed that quantities of these plants have been sold by auction lately, and hence these questions. *P. tuberculosus* is a native of Madagascar, but I have never been able to ascertain from what district. I imagine, however, it must come from the low grounds near the coast. This supposition is borne out by the fact that it appears to thrive in a strong moist heat. The plant hitherto has not succeeded well under cultivation, but this year it has been flowering in numerous collections, and when its cultivation has been mastered I feel persuaded it will be a much finer species than we can imagine from anything yet seen of it in this country. I think that the plant has suffered to a considerable extent from "coddling," and I believe that, instead of being grown in *Sphagnum Moss*, it would succeed better if potted in a mixture of light turfy loam, peat, and leaf-mould. In this I am confirmed, to some extent, by a number of plants which have been growing in this mixture for the past twelve months. The pots in which the plants are grown must be well drained, as this *Phaius* enjoys liberal waterings during the growing season, both to its roots and also overhead from the syringe.

The plants should be grown in the warmest house, and require to be kept moist all the year round; indeed, moisture appears to be specially necessary, for unless this is well attended to, black thrips make their appearance and soon disfigure the leaves. When grown well *P. tuberculosus* is one of the most beautiful of the whole Orchid family. It has club-shaped pseudo-bulbs, which are deep green, curiously ringed with the scars of the fallen leaves, the base of the leaf sheathing, and ultimately developing into an oblong acuminate blade, which is somewhat thin, plaited, and rich deep green. The scape is lateral, erect, and, as at present seen, bears five or six flowers which are each some 2 inches and a half across, the sepals and petals pure white, the lip large, curiously funnel-shaped and dotted with crimson on a dull yellow ground. The front portion of the lip is white, spotted on the edge with rosy purple, with a small tuft of pale yellow hairs at its base, whilst the disc is crested with three or four raised and frilled ridges of orange-yellow. It blooms during the months of February, March and April.

W. H. G.

Oncidium superbiens.—This is like *Oncidium macranthum* in habit, forming a very long spike, and bearing many flowers. I saw a good variety in flower recently in the nursery of Messrs. Veitch and Sons, of Chelsea. Each bloom was some 3 inches across, the sepals being of a bronzy hue, whilst the petals were white, tinged with mauve, and streaked with lines of brown. It must be treated quite as a cool Orchid; in fact, it grows well with *O. macranthum*.—W. H. G.

Cypripedium Roezli.—Although somewhat despised for its want of colour, this is a plant which has been one of the parents of many handsome hybrids, and a flower sent to me recently from Mrs. Studd's collection in Bath shows what a continuous blooming plant it is. Mr. Cypher, the gardener, in a letter to me, says the flower is from a spike which has been blooming

for three months and is still in flower, so that one has a long show of *C. Roezli*, and, moreover, some of the forms are distinct and pretty. This may be said of the kind called *Hartwegi*.—W. H. G.

Odontoglossum excellens.—A flower of what appears to me to be this comes from Messrs. Charlesworth and Shuttleworth. It is truly a beautiful bloom, measuring upwards of $3\frac{1}{2}$ inches across. The sepals and petals are spreading, the petals being slightly the broader and toothed at the edges. All are of a soft clear yellow, blotched with bright chestnut-brown. The lip is not white, but of a soft, clear lemon-yellow, with one large irregular-shaped blotch in front of the crest of chestnut-brown, the sides of the lip also being dotted with smaller spots of the same colour. The front lobe is somewhat delicately fringed. The plant has just the appearance of *O. Alexandræ*, and is beautiful as well as rare. —W. H. G.

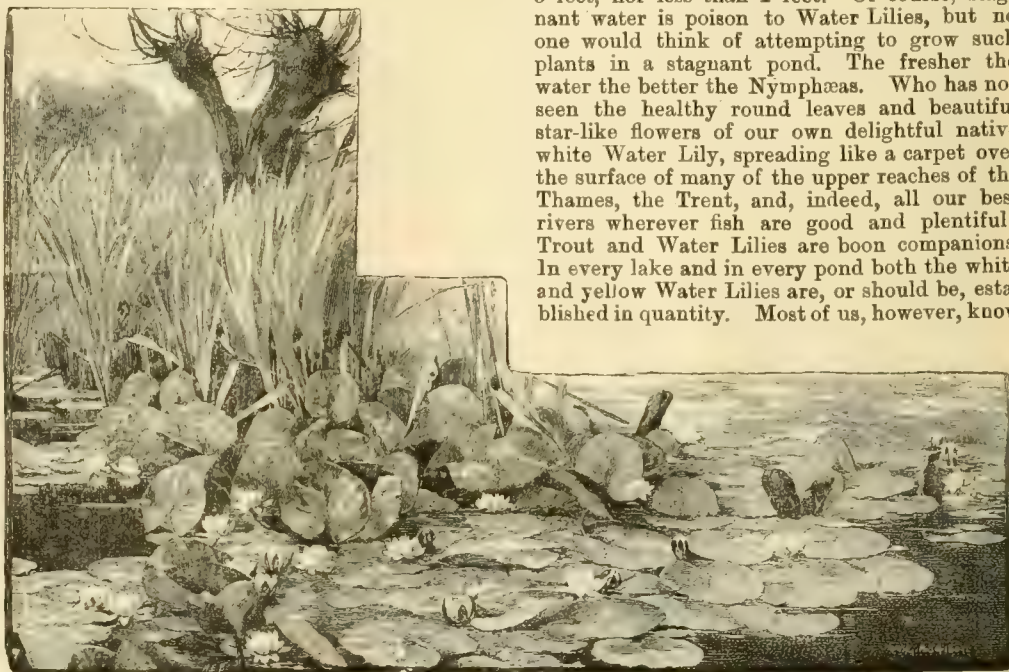
Odontoglossum Reichenheimi.—This appears to belong to the same set of plants as *O. Schröderi*. The plant here referred to was named in honour of Paul Reichenheim, who had a considerable collection of these plants, and whose place was situated in the Thiergarten, Berlin. A very fine variety was blooming there when last I was in Berlin, and now I find a similar plant and variety flowering in Mr. Larkin's garden at Highbury New Park. The plant has been known for about fifty years, but one seldom sees it in collections. It does not appear to be rare in its native country, which is Guatemala and the southern parts of Mexico, and from being so widely distributed it varies considerably. All the forms appear to be nearly related to *Miltonia*. The sepals and petals are about equal, all cinnamon-brown, and transversely barred and tipped with yellow, in some varieties greenish-yellow. The lower half of the lip is white, the basal part rosy-lilac. It forms a large branching spike, bearing many flowers which last long in full beauty, and are very fragrant. It grows up to about 8000 feet elevation, so that it succeeds under cool treatment. —W. H. G.

Oncidium tetrapetalum.—This is a pretty small-growing species, which I recently saw blooming in Messrs. Seeger and Tropp's nursery at Dalwich. The plant has much the habit of *O. triquetrum*, and like it comes from Jamaica; its erect spike of bloom is, however, a foot or more in length, and frequently branched, bearing many flowers. The name is derived from the lateral sepals forming one, thus reducing the number to four. We are told that the colour of the flowers is yellow and brown, but in the plant now under consideration the ground colour of the sepals and petals is white, transversely streaked with lines of brown; the lip has a somewhat transversely reniform front lobe, pure white, stained at the base with numerous marks of bright brown, the teeth of the disc being yellow. It is a very elegant and pretty species, and succeeds best on a block of wood, or in a shallow pan with very little soil about the roots. —W. H. G.

Cœlogyne pandurata.—Although this species, probably the most striking of *Cœlogyne*s, has been known since 1853, it is seldom seen in bloom. The amount of notice gained by a plant exhibited at the Orchid Conference in 1885 showed that to many it was new or unfamiliar. It is a native of Borneo, where it is commonly found on the branches of trees in the neighbourhood of water. The pseudo-bulbs are 4 inches or more high, broadly ovate in outline and much compressed, occurring at intervals of a few inches on a stout woody rhizome. The leaves are from 1 foot to $1\frac{1}{2}$ feet long, stout and leathery, and bright green. A plant at Kew now bears a raceme of five flowers. The scape depends from the base of the pseudo-bulb and is 18 inches long, the flowers being somewhat over 4 inches in diameter, with narrow pointed segments of a pale green. As in the case of many *Cœlogyne*s, the lip gives individuality to the flower. In *C.*

pandurata it is about $1\frac{1}{2}$ inches long, with two erect concave lobes at the base; a constriction in the middle renders it somewhat of the shape of a violin, a character implied by the specific name. The ground colour is similar to that of the petals, a pale green, but is strikingly and curiously marked by blotches of black, a large triangular patch occurring on the front. This plant should occupy a position in the warmest house throughout the year. It loves abundant moisture, and on account of its rambling habit soon over-reaches the bounds of an ordinary pot; a long shallow basket, therefore, is the most convenient to grow it in.—B.

Malformed flowers of Cattleya.—I here send flowers of *Cattleya*, cut from three plants imported two and a half years ago, and bought by me at the sale-rooms, and shall be very grateful if you can tell me the cause of the malformation. The plants are growing well, this last season's growths being as good as the imported ones. The pots are full of healthy roots, and they have been grown in a very light house with other *Cattleyas* which flower very freely. All the flowers on the three plants are deformed in some way—some have lip perfect, some the petals, and others the sepals. I have only seen one flower without the column which I send you. I got two perfect flowers the



Group of Water Lilies.

first season from one of the imported growths, and it seems to be an extra good *Mendeli*, which makes me anxious to flower it again. The plants were sold as *labiata* species, but the district from which they came was not given. If you can help me with advice I shall be greatly obliged.—R. B. L.

** Only malformed flowers. When the plants have become stronger the flowers will, no doubt, come all right.—Ed.

SHORT NOTES.—ORCHIDS.

Dendrobium not flowering (*J. B. T.*).—I cannot account for your *Dendrobium* not flowering. Either it is not strong enough or it has been mismanaged; you do not give the slightest clue.

Odontoglossum odoratum (*Deronian*).—The flowers of the *Odontoglossum* sent are those of *O. odoratum*. It is said to be the same as *O. gloriosum*, but I do not think them synonymous. They may be told by the delicious fragrance of Hawthorn pervading them.—W. H. G.

"*Vernacular Names*" asks for the names of the plants known by the following appellations: Wig tree

is *Rhus Cotinus*; Opera-girls, *Mantisia saltatoria*; Vesi, *Afzelia bijuga*; Sasa, a word used in India for the oil obtained from Cucumber seeds; Jabuti is the edible fruit of *Psidium albidum*; Pisang, *Musa paradisiaca*; Shreetaly, *Corypha umbraculifera*.

Disa graminifolia.—For the introduction of this beautiful blue-flowered *Disa* we are indebted to the untiring efforts of Mr. J. O'Brien, and for flowering it we are equally indebted to Mr. Cowley, who has succeeded with it in Mr. Tautz's collection at Shepherd's Bush. The plant has narrow, Grass-like foliage, which comes up after the flowers. It is a charming species.

HARDY WATER LILIES.

THERE are at least half-a-dozen kinds of Water Lily which may be grown in the open air in this country. They are not difficult to establish if planted at the proper season, and if a little pains be taken as to suitable soil and position. The rhizomes should be procured in February or March, and planted in large flat hampers of good loam, across which a few Willow sticks should be fastened to keep the soil in position. The baskets should then be sunk in a sunny part of the pond or lake, and, if possible, where the depth is not more than 5 feet, nor less than 2 feet. Of course, stagnant water is poison to Water Lilies, but no one would think of attempting to grow such plants in a stagnant pond. The fresher the water the better the *Nymphæas*. Who has not seen the healthy round leaves and beautiful star-like flowers of our own delightful native white Water Lily, spreading like a carpet over the surface of many of the upper reaches of the Thames, the Trent, and, indeed, all our best rivers wherever fish are good and plentiful? Trout and Water Lilies are boon companions. In every lake and in every pond both the white and yellow Water Lilies are, or should be, established in quantity. Most of us, however, know

of more than one fine stretch of naked water which would be greatly improved by a few patches of the leaves and flowers of these plants.

Besides the two Water Lilies which are wild in England, there are other kinds at least as beautiful, and as well able to take care of themselves when once planted as these two. Such is the rose-coloured variety of *N. alba*, a native of Sweden, but now naturalised in a few parts of England. Another large white-flowered variety of *N. alba* known as *candidissima* is even better than the type, and quite as robust in constitution. Then there are the two sturdy North American species, viz., *N. tuberosa* and *N. odorata*, both white flowered and both quite hardy. A variety of the last named and which is called *rosea* has the flowers coloured a delicate blush rose perfectly lovely in tint and form. There is also the supposed variety of *N. tuberosa* known as *flavescens*, or as some prefer to call it *Marliacea Chromatella*, the best name for

which, however, is Canary Lily, for its flowers are of the clearest canary-yellow colour, whilst it is one of the most prolific flowered kinds. Another species, hardy and yellow flowered, is *N. flava*, but this is too shy a bloomer to be recommended for pond culture here. Thus we have in Nymphaeas, white, red, rose, and yellow-flowered kinds all quite hardy. The other colour, viz., blue, is still wanting amongst hardy kinds, but the hybridiser may yet succeed in giving us one. W.

SOCIETIES AND EXHIBITIONS.

ROYAL AQUARIUM.

THE Royal Aquarium was transformed on Tuesday and Wednesday last into a pleasant indoor garden, a reflex of a Royal Botanic show if only we could forget the opaque roof, din, smoke, and bad light. It was the brightest exhibition we have ever seen there, the groups numerous, tastefully arranged, and the exhibits sufficiently varied to interest a flower-loving public. The great attraction was the show of Auriculas, which in its extent quite surpassed expectations, every prize being keenly contested, and the flowers, especially those of the alpine varieties, were as fresh and finely coloured as at any of the exhibitions of the National Auricula Society itself. The show flowers were in many cases rough and somewhat stale, but there was nothing to suggest that this show was the remnant of the previous exhibition at Victoria Street. Auriculas are unfortunately placed when exhibited at such a place as the Royal Aquarium, the colours are obscured by the bad light and murky atmosphere, even those of the brightest of the Polyanthus and Primroses lose brilliancy of tint and freshness. To appreciate the softness and richness of shade in the flowers they must be seen in the open air or in a tent, not in a dark and smoky building. We refer to the prize list given in the advertising columns for a detail of the prizes, but may notice a few of the more important exhibits. The first prize for a collection of Auriculas was won by Mr. James Douglas, The Gardens, Great Gearies, Ilford, who had excellent plants of Frank Simonite, Sapphire, a beautiful rich sapphire-blue flower, Dr. Kidd, King of the Belgians, Midnight, a lovely show self flower, rich crimson, shaded purple, the paste yellow; and Rev. F. D. Horner. Mr. Charles Turner, Slough, was a good second. The Reading growers were unusually successful, Mr. E. Wheelwright, Oxford Road, taking the first prize in the class for twelve distinct show varieties, the prettiest in the exhibition, and containing the premier flower of the show, a fine plant of Prince of Greens, one of the best of the green-edged flowers. C. J. Perry, Mrs. A. Potts, Heather Bell, and Lancashire Hero were also in good character. Another Reading grower, Mr. T. Henwood, won the first prize for six show varieties, exhibiting flowers that were a credit to the grower. There were several exhibitors in the classes for single specimens, Colonel Taylor, Elaine, Rev. F. D. Horner, and George Lightbody being amongst the finest varieties; and of the selfs especially good was Black Bass.

The alpine varieties are, to our mind, the prettiest and richest of the Auriculas; their delicate fragrance also wins them many cultivators. Here again Mr. Douglas was a successful prize-winner, showing a charming collection of twelve varieties, in which was the premier alpine Auricula, a new seedling named Nellie Hibberd. The truss is large and each pip well shaped, bold, and broad; the colour rich crimson at the edge, deepening to a velvety maroon-purple, intensified by the clear yellow paste. Another fine variety is Love Bird, bright reddish colour, with a ring of purple, the centre yellow. Miss Moon and Torjours Gai are also two striking novelties. Mr. T. E. Henwood had the finest six plants, comprising Love Bird, Mary Frances, Mrs. Martin, Defiance, and Homer. Several of these kinds were repeated in the class for yellow ground and creamy-white varieties, two striking divisions,

and which throw into the shade the fancy types. This sickly class of flower no doubt has its admirers; but it appears to show us how wretchedly weak and washy an Auricula is without colour, or with very little tint but milky yellow. It is pleasanter to note the splendid basket of Primroses from Mr. Dean. The varieties were strong in colour, and each grouped together to present a mass of one tint. Such exhibits as this and the twelve pots of hardy Primroses from Mr. Douglas brighten any exhibition. Gold-laced Polyanthus were exhibited well by Mr. J. Nicholson, Sewardstone Lodge Gardens, Chingford, and fancy varieties by Mr. R. Dean, the last mentioned showing a kind named Charmer, which has large, bold flowers of a lovely rose-pink shading. A good collection of Primulas, comprising several of the leading types, was exhibited by Mr. Douglas.

OTHER CLASSES.

The above are confined to Auriculas and Primroses, but there was also an exhibition of flowers of a general character, as Genistas, Deutzias, &c. Several beautifully arranged groups were staged, especially by Messrs. J. Laing and Sons, Forest Hill, who had tuberous Begonias, particularly fine, being a variety called Juarez, and described as a new break on page 423, and Princess of Wales, a rich pink single form of great beauty. In another class for a group, in which Orchids were excluded, Mr. W. Morle, Regent Street, was first, having a tasteful arrangement, in which standard market plants were finely associated, as *Saxifraga pyramidalis*, *Erica magnifica*, *Hydrangeas*, and *Azaleas*. The same exhibitor also had the finest twelve specimens of *Cytisus*, *Mignonette*, and *Spiraea japonica*. There were other classes for six specimens, the whole well filled and making gay blocks of colour. A large collection of *Clivias* came from Messrs. J. Laing and Sons, who were first. The varieties were numerous, and are described on page 400.

The largest exhibit was the splendid show of Daffodils from Mr. T. S. Ware, of Tottenham, who was placed first in the collection for a group of cut blooms. There were nearly 300 bunches with large masses of one variety, and arranged so as to break the monotony of single lines. The old Butter and Eggs, odorous plenus, bicolor grandis, now called Grandee, Nelsoni major, incomparabilis Beauty, Cynosure, and Emperor, with the several Poet's varieties, were finely exhibited, also Empress and aurantius, brightened by an orange-scarlet cup. Messrs. Barr & Son, of Long Ditton, were second. The last-mentioned firm was first for thirty-six bunches of Daffodils, not less than twelve varieties, and in which was a selection of the finest types, including such gems as Pet, a Burbidge variety, the perianth white or almost so, and the cup soft yellow; Mrs. Langtry, Princess Ida, a pretty, compact-flowered, white trumpet variety; and G. Nicholson, an incomparabilis kind, which has a white perianth and yellow cup. Mr. C. W. Cowan, Valleyfield, Penicuik, was first for eighteen bunches in the amateur section, showing fresh and excellent flowers of leading kinds.

There were several miscellaneous exhibits. Messrs. B. S. Williams and Son, of Upper Holloway, showed a large and striking group comprising principally *Clivias*, the plants well grown and finely flowered; specimens of *Rhododendron Williamsi*, and *Amaryllis*. An excellent collection of pot Carnations was shown by Mr. Charles Turner, Slough; and a tasteful arrangement of Tree Peonies and Japanese Maples by Mr. Gordon, Twickenham. The varieties of Tree Peony were principally single and delicately beautiful, both in colour and shape. Lady Lottie, ivory-white with a blotch of crimson at the base of each petal, and Lord Randolph Churchill, brilliant vermilion, were the most striking. The *Calceolarias* and alpine varieties of Auricula from Messrs. Sutton and Sons, Reading, were worth a special note. The *Calceolarias* represented a strain of compact densely-flowered plants, in which the colour is clear golden yellow in the variety Cloth of Gold, and in the other kinds deep crimson and other shades on a ground

of yellow. The Auriculas were varied and beautiful in colour. A large group of *Viola Snowflake*, a fine white variety with a yellow eye, from Mr. J. Chambers, Isleworth, showed the beauty of this flower; the pots of it were one mass of bloom. Mr. R. Dean exhibited plants of Wallflower Bedford Yellow, a rich yellow-coloured variety, fine for massing. Messrs. H. Lane and Sons, Berkhamsted, showed a large group of *Rhododendrons*, including such varieties as Michael Waterer, brilliant scarlet; Purity, white with a yellow shading on the upper petals; and Blandyanum. Mr. W. Morle exhibited excellent flowers of *Maréchal Niel* Rose, and Messrs. Barr and Son, Anemones, Tulips, and other hardy flowers. A large collection of cut Tulips was shown by Messrs. Van de Shoot and Sons, Haarlem, but the flowers were much damaged by packing and the hail.

A full prize list is given in our advertising columns.

Bedford Park Gardening Society.—At the usual monthly meeting of this society held on Saturday last in the Club, Bedford Park, Chiswick, Mr. Jackson, curator of the museums in the Royal Gardens, Kew, read an instructive paper on the "Economic Products of the Vegetable Kingdom," illustrating his remarks by a number of specimens. Mr. J. G. Read also exhibited beautifully dried specimens of wild flowers collected in the neighbourhood of Paris.

Death of Mr. Stuart H. Low.—We regret to hear of the death, at the age of 63, of Mr. Low, a member of the firm of Messrs. H. Low and Co., Upper Clapton, and Bush Hill Nurseries, Enfield. Few men in horticultural circles were better known, and the formation of a large business is due in no small measure to his energy and skill.

Mr. James Alexander.—We regret to announce the death of Mr. James Alexander, of Redbraes, and of the firm of Dicksons and Co., seed merchants, Edinburgh. Mr. Alexander had spent the winter in the south of France, and had only recently returned to England. A native of Banff, he came to Edinburgh about twenty-five years ago to join the firm of Dicksons and Co., of which his uncle was at that time senior partner, and of which until recently he was an active member. Of singularly quiet and unassuming manners, he, nevertheless, through his worth and business habits, enjoyed the esteem and confidence of a very wide circle of friends. He was a member of the botanical and other societies, took a deep interest in all horticultural matters, and gave liberally to their support.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information." No. 40. Royal Gardens, Kew.

"Annals of Bird Life." A year-book of British ornithology, with illustrations. By Charles Dixon. London: Chapman & Hall, Limited.

"Villa and Cottage Gardening especially adapted for Scotland, Northern England, and Ireland." By Alexander Sweet. London: Walter Scott, 24, Warwick Lane, Paternoster Row.

Ants in pots.—I have a Cactus in a pot, and the soil is completely undermined. I shall be glad to hear of a plan to destroy them.—G. W. N.

Names of plants.—H. B. P.—*Ansellia africana*, fairly good form.—H. A. B.—*Odontoglossum tripudians*.—E. Hudson.—*Dendrobium Jamesianum*.—A. M. D.—*Epidendrum alatum*, quite the normal size and colour; it has nothing but the size to recommend it.—*Odonto*.—*Miltonia Phaenopsis*, the worst variety I have ever seen.—J. S. M.—A form of *Epidendrum alatum*.—W. J. Mitchellson.—*Cypripedium hirsutissimum*.—J. Barry.—3, *Oncidium flexuosum*; 4, *Oncidium sphacelatum*.—J. G.—*Rivina humilis*.—Mrs. Layard.—*Amaryllis* not recognised.—Anon.—1, *Vanda tricolor*; 2, *Lycaste* or *Maxillaria Harrisoniae*.—W. S.—1, Tulip, one of the florist varieties; 2, *Celsia cretica*.—Andrew Kingsmill.—*Homeria spicata*.—Captain Markham.—Dark leaf and flower is true *Anemone ranunculoides*; pale-flowered form, A. r. var. *pallida*.—Fairlight.—*Clanthus puniceus*; apply to any London nurseryman.—G. W. Ryder.—*Dendrobium macrophyllum*.

WOODS AND FORESTS.

THE BARKING SEASON.

THE peeling and drying of bark are important branches of the forester's duty, and should be commenced as soon as it can be easily removed from the wood, as when early saved and well handled it always realises the highest price in the market. When the trees are allowed to stand until they are in full leaf, the tanning property of the bark is reduced about 50 per cent., and this explains the necessity of having it saved at an early period of the season. In the management of Oak coppice, it is likewise an advantage to have the trees cut as early as possible, in order that the whole energy of the plant may be directed to the formation of strong suckers from the stool, and thus lay a good foundation for the following crop. In cutting down Oak trees that are intended to reproduce another crop from the roots left in the ground, care should be taken to dress the top of the stool in such a way as to prevent the lodgment of water, otherwise the stools are apt to contract rot, which is detrimental to their productive powers in after years. I have found a carpenter's adze to be a very suitable implement for this purpose, and an expert workman accustomed to its use can efficiently dress a large number of stools in a short time, and at a trifling cost. The tools used for removing the bark and cutting the trees are a heavy axe, cross-cut saw, a light axe, a short bill, a mallet, duck-bill-shaped chisels, and hand-saw, these varying in size and shape in different parts of the country. The bark is generally removed from the trunk and larger sized branches in pieces of about 2 feet in length, and in cases where it cannot be raised from the wood by the barking-iron the mallet must be used to render it more pliable. The bark is then dried upon stages erected in open airy places in the plantation or its vicinity. These stages are generally erected by driving a series of forked stakes into the ground with the prongs uppermost, to render them convenient for the support of a sufficient number of small poles in a horizontal direction. In placing the bark upon the stages the smaller sized pieces should have the first place; the larger pieces should then be laid in a regular manner, outside uppermost on the top, to form a sort of roof to protect the small stuff from being damaged by rain. It should likewise be borne in mind that bark is liable to be damaged to a large extent by exposing the inner side to the influence of the sun, as it is not only reduced in weight, but likewise loses a considerable amount of its tanning properties through evaporation. During damp or wet weather the bark should be occasionally turned or moved to prevent it from becoming mouldy or contracting black inky spots, which reduce its value to a large extent. As soon as the bark is dry and ready no time should be lost in having it delivered to the tanner or stored away in a dry airy shed to prevent its being damaged by the weather. The cost of saving and preparing bark varies considerably, owing to the size of the trees, rate of wages in the locality, and last, although not least, the kind of weather experienced during the barking.

The Birch, Chestnut, Larch, and Willow are sometimes peeled in the same way as the Oak. The bark of the Birch is the most valuable, and is used by fishermen for the preservation of their fishing material. The mode of peeling and drying the bark is the same as that required for the Oak, with this exception, that it is unnecessary to erect hurdles for it, as

it is more easily dried than that of the Oak. Spreading a quantity of branches and twigs upon the surface of the ground, and placing the bark thereon, is all that is requisite. In order to facilitate the removal of the bark as much as possible, the person in charge of the work should try as far as he can to have the trees peeled as soon as they are felled, for if they are allowed to lie for any length of time after having been cut, the bark cannot be removed in many cases without the use of the mallet, which occupies extra time, and destroys the appearance of the bark. The bark of Larch and Chestnut being of less value than that of Oak, it is only the trunk of these trees that is generally peeled, as it would not pay to have it removed from the branches. Sometimes trees of different species exhibit a rough furrowed bark from the ground upwards for a distance of several feet. When such occurs, the rough, corky substance had better be removed before the trees are felled, which will not only give the bark a better appearance, and add to its value when brought to market, but likewise assist the drying. J. B. WEBSTER.

WOODS AND FORESTS AND LAND REVENUES OF THE CROWN.

THE select committee of the House of Commons which is inquiring into these questions met again on Friday, Mr. H. H. Fowler in the chair. After the evidence of Sir Nigel Kingscote and Dr. Robinson, Bursar of New College, Oxford, Mr. Auberon Herbert was examined with reference to the New Forest, and said that the thing upon which he laid the greatest stress was that the old woods should be left entirely untouched; that there should be no cutting, no planting, and no interference with them of any kind. In the past the woods had been left entirely to themselves, and that was what had made them unique, and personally he did not know of any woods exactly like the New Forest. It was the one ground in the whole country where people could watch forest development. He would also put forward a plea that, on historical grounds, the forest should not be interfered with, these woods being just what they were 300 or 400 years ago, and parts of what were known under the name of the "old greenwood," which entered so largely into English imagination. It had been said that cattle had broken into the woods and done damage, but he did not think they would do much damage to the trees, as there was always plenty of feed. The great winter food of the cattle was the Heath, and the great winter food of the ponies was the Furze; the preservation, therefore, of the Heath and the Furze was of very great consequence, and it was a matter for the committee to consider whether the verderers should not be given some equal power with the Crown in the treatment of Heath and Furze. The greatest amount of harm was done in the early months of spring, when the leaves were green, and it was a matter of doubt whether much harm was done after that time. They had in the forest a saying, "Where there's a bush there's a tree," and that was one of the most interesting points in the struggle between Nature and her enemies. The whole matter of the preservation of young trees turned upon the question of the tangle which protected them. The best protectors of all were the Thorn, white and black. The Holly was another excellent protection, though not so good as the Thorn, and the Bramble, again, was another good protection, which saved the young trees until they had attained a sufficient growth. He was quite willing to admit that in a number of instances the tree was gnawed off when it had grown up through the Bramble to a height of 2 feet or 3 feet, but a person would be surprised to find how many young trees there were growing in the woods that were quoted as the least favourable. It was quite clear from indications in the woods themselves that at one time some of them had been enclosed, but that did not affect the question at all, because the stock of deer that was kept

on those enclosures was very large; and deer, like donkeys, were very destructive animals to young trees, as both of them were very fond of what was known in the forest as "maggoting"—that is to say, picking and wasting. Cattle, on the other hand, did good as well as harm, because the cattle, to a certain extent, thinned the young trees, and if a plantation were left to thin itself the result was always bad. The evidence of Mr. Auberon Herbert was not concluded when the committee adjourned.

SHORT NOTES.—WOODS AND FORESTS.

Bismarck as a forester.—Bismarck speaking of his own affairs says: "I am so glad to get rid of official harness and have time to reflect a little before I come to the end of my tether. Country life agrees with me. I have become quite a forester, and plant more trees than I cut down. I have 40,000 acres of forest. It is more interesting now to be looking after them than fretting about State affairs."

Counting the rings of a tree.—A good way is to have the section planed, then fix a straight-edge on it from the centre to the bark, and mark with a pencil the place where the edge of the straight-edge cuts the rings; you can then readily count the marks on the straight-edge. This method is, of course, only approximately correct. It is sometimes desirable to varnish a piece of wood with close rings when evidence as to its age is sought for in this manner.

Scotch Fir for floors.—Stepping into a quiet little inn at Betchworth, I was struck with the floor of a room evidently laid with home-grown Scotch Fir. It was slightly waxed or oiled, and its quiet red tint and heavy marking of growth had a fine effect. But the chief feature was its evident solidity; not the smallest bit showed any sign of fraying up. It is old and shows much wear, but no wood I can think of would have resisted so well. It has a tough, compact, non-splintering character, and does not wear all down in the white and leave the ridges of the growth rings, like so many foreign sorts do. The joints were also close. It had evidently been properly dried before it was laid, and consequently now stands well. Such trees grow quickly and take up little room, and would surely pay a person who has a lot of suitable land not quite good enough for profitable farming. It is imperative that the wood be properly cut, and seasoned or dried, and if so it will do credit to all concerned.—A.

Pine woods.—Pine woods possess attractions of a peculiar kind; all lovers of Nature are enraptured with them, and there is a grandeur about them which is at once felt when we enter them. Their dark verdure, their deep shade, their lofty height, and their branches, which are ever mysteriously murmuring as they are swayed by the wind, render them singularly solemn and sublime. This expression is increased by the hollow reverberating interior of the wood, caused by its clearness and freedom from underbrush. The ground beneath is covered by a matting of fallen leaves, making a smooth brown carpet, that renders a walk within its precincts as comfortable as in a garden. The foliage of the Pine is so hard and durable that in summer we always find the last autumn's crop lying upon the ground in a state of perfect soundness, and under it that of the preceding year only partially decayed. The foliage of two summers, therefore, lies upon the surface, checking the growth of humble vegetation, and permitting only certain species of plants to flourish with vigour.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

SMALL GARDENS.

ONE great advantage in gardening as a pursuit of pleasure is that a small garden affords almost as much amusement as a large one. In some respects a small garden has the advantage over a large one. For instance, in a small garden almost every plant becomes a sort of personal acquaintance; it has a well-known history; it came from such a place, or it was given by such a person, and so it has associations and a place in our memories as well as in the garden. Then again, in a small garden the owner can do some part of the work himself which he is not likely to do when the place is large and workmen are to be seen in all directions. It is the work done by your own hands which gives special pleasure. Nothing else can equal that, neither the pride of possession nor the variety of fresh acquisitions. The poor woman who nurses her few pot plants of Geraniums and Fuchsias, dusting them, washing them, watering them, and turning them about every day, probably enjoys her gardening more than the lady who walks through her conservatory filled with stately plants, about which she knows very little more than the names, if she knows as much as that.

But in order to enjoy a small garden thoroughly, a good deal of change is almost essential. When I wrote about "Tub Gardens," I proposed that the spring bulbs should give way in their turn to summer flowers. Your correspondent "A. H." objected to this, as entailing "a lot of labour." But suppose that labour is the very thing required, and that the owner of the tub garden sometimes sighs because "he has no work to do." Is it not so occasionally with those who have a garden, say the size of an ordinary vicarage garden, when the whole "grounds" do not exceed two acres, and a great portion of that is taken up with shrubs, grass, and kitchen garden? I once knew a doctor who was exceedingly fond of his garden, but knew very little about gardening. He often consulted me. His one idea was to be constantly transplanting his flowers, partly for want of something to do with them, and partly, no doubt, because he thought that as change of air was good for his patients, so change of place was good for his plants. "Oh, do you think it would do better here?" he would say, and so, before you could stop him, an *Osmunda* or a patch of *Gentianella* was torn up from a place in which it was just beginning to feel comfortable, and put into an entirely new and altered position, where it would have to make a fresh start.

"A. H." speaks of moving tubs about with plants of *Agapanthus*, &c., in them. Now my whole staff is like that of many other parsons, viz., a factotum in the shape of a gardener, who is my *Fidus Achates*, and a boy, who is about as high as the tub in question. It would be no easy matter for us to move a tub, and when moved there comes the very serious question, Where is it to be located during winter? Such a large thing requires a large greenhouse, and even then it would be very ugly in such a place during the winter months.

In order to make the most of a small garden, a rockery is an essential element in it. There are rockeries and rockeries. Some are like a giant's pincushion with his stone pins stuck in

the earth; some are more like walls than rockeries; but a rockery made up of large stones, rough, grey, and mossy, not too high, and with plenty of room for flowers, is a place in which a wonderful variety of plants can be grown in a very small space, and affords more interest in their cultivation than can be otherwise obtained.

I have a rockery about 8 feet by 6 feet which contains, I find, no less than twenty-one different species of plants without the least overcrowding, and all of them doing well. They are the following: *Anemone sylvestris*, *A. apennina*, *A. hortensis*, autumn *Crocus*, *Osmunda regalis*, various Primroses, white Pink, *Gentianella acaulis*, *Dodecatheon media*, *Auricula*, *Columbine*, Solomon's Seal, *Aubrietia*, *Houseleek*, alpine Poppy, Cheddar Pink, Winter Aconite, *Hepatica*, *Cyclamen hederifolium*, *Helleborus atro-rubens*, and a good Bamboo. These with a sprinkling of *Crocuses*, which come up here and there of their own sweet will, make an interesting garden in themselves. Another small rockery on the other side of the lawn has many other different species grouped about among the large stones in the same way, and affords constant interest at all seasons of the year.

Roots of trees again make an excellent situation for growing *Cyclamens* and other things which like the shade afforded by the leaves in summer, while in winter the sun can reach them through the bare branches. *Fritillaria Meleagris* looks exceedingly well in such a place, and coloured Primroses will nestle into a little nook, while the *Anemone apennina* will soon make itself at home, and if on the shady side of the tree, its flowers will be prolonged and have a deeper shade of blue. The Winter Aconite, too, is pretty among the roots, though its leaves are apt to look ugly later on in spring, and *Aubrietia purpurea* will at this season form itself into a beautiful purple cushion, and look exceedingly well against the trunk of a tree.

A GLOUCESTERSHIRE PARSON.

ORCHARD AND FRUIT GARDEN.

FIG CULTIVATION IN SUSSEX.

It is very curious to note the time it takes some of our well-known fruits and vegetables to find anything like universal favour with the English people after their first introduction. The Tomato, for instance, introduced in the year 1596, or close upon 300 years ago, has only within the last two decades been used to any great extent by the people of Britain, and it has yet to make its way among and to be fully appreciated by the masses. On the contrary, its congener, the Potato, which followed the year after, at once found favour with all classes throughout the length and breadth of the land, and its cultivation was at once taken up and it made rapid strides as an article of food. The Fig has taken even a much longer time than the Tomato to be considered one of the most luscious and healthful fruits grown. This, no doubt, can be accounted for by the fact of the trouble and difficulty attending the outdoor cultivation of the tree in all but a very few favoured districts in the British Isles. One of these tracts—perhaps the best of all—lies on the Sussex coast, extending between New Shoreham on the east and Tarring on the west. Beyond these points, either to the east or west, the cultivation of the Fig tree ceases to be remunerative. The tree will grow, and grow luxuriantly, but it will not bear to the extent it does within the limits above indicated. The Fig is said to have been first brought over to England from Italy by

Cardinal Pole in 1525, and the earliest notice we have of its culture is by Turner in 1562. It is, however, also asserted that the first tree was planted at Tarring, in Sussex, by Thomas à Becket 800 years ago, and that the identical tree is still in existence in the Fig garden there. Be that as it may, it is quite certain that Figs, although they have been produced in pretty large quantities for a very long time, have not till within the last ten or fifteen years found much favour with the public, notwithstanding that the fruit produced has been of the very best quality. The old-established market gardeners of this part of Sussex can remember the time when Figs realised only from 1½d. to 2d. per dozen; whereas they now fetch from 1s. 6d. to 2s. 6d. per dozen in the London and Brighton markets.

The best gardens of Figs are situated at Lancing, Worthing, and West Tarring. There does not appear to have been any systematic planting of the Fig tree. You will rather find in the different gardens a row here, a couple of rows there, and in some gardens single trees all over the place, and fine pictures some of these old trees are. The celebrated Fig garden at Tarring deserves first notice on account of its antiquity and historical associations. It is a walled-in garden, with an area of about an acre, and containing nearly 150 Fig and a few standard Apple trees. In the centre of the garden stands the famous tree said to have been planted by Thomas à Becket, and the oldest Fig tree in England. It stands in the middle of a raised circular bed, edged with flint stones, and at the time of my last visit thickly covered with the pretty wood *Anemone* (*A. nemorosa*) in full flower. Five years ago this tree was a magnificent and interesting object, covering with its tangled and knotted branches an immense area of ground. During the summer of 1885, however, it was unfortunately struck by lightning, which broke off the main trunk of the tree, which now remains in a dry, barkless state, propped and chained against the only remaining living stem, which is comparatively a small one. The dead trunk, although now speeding rapidly to decay, yet speaks eloquently of the former glory of the tree. The stem in its dry state measures 50 inches in circumference at the base, branching into several stems 2 feet from the bottom. The variety is said to be the White Ischia.

The other trees of the garden are, with one or two exceptions, of the Brown Turkey variety, and although very old, and more or less showing signs of decay, yet produce large crops of good fruit annually. They vary from 12 feet to 20 feet in height, mostly with from two to four stems, many of which are from 20 inches to 30 inches in circumference. The garden is neatly kept, with clean gravelled walks, the centre one being completely arched over by the branches of the Fig trees, which, when in leaf, form a delightfully shaded colonnade during the summer. Flowers of various kinds are not wanting to make the place yet more attractive, and the flint walls are literally clothed with the beautiful little *Cotyledon umbilicus*, the masses of cup-like leaves of which give a charmingly finishing touch to the old place. Perhaps the largest and most productive Fig trees in Sussex are to be found in the commercial gardens of Lancing, which is frequently called the "Madeira of England." It consists of North and South Lancing, the latter situated close to the sea, and the first named about one and a half miles inland at the foot of the Southdown hills, and well sheltered from the north winds. In North Lancing there are two Fig gardens which deserve notice, the first, belonging to Mr.

Thomas Butler, being well worth a visit. It contains many splendid trees in the fullest vigour and bearing powers. They are mostly of the Brown Turkey variety, and from this garden Mr. Butler has succeeded in winning the first prize for Figs for six successive years at the Horticultural Society shows at Brighton against all comers, and in September, 1888, he carried off the first prize at the Crystal Palace in competition with all England. When the fact is taken into consideration that Mr. Butler had to compete with both outdoor and indoor growers, his securing the premier prize speaks highly both as to his abilities as a cultivator and to the capabilities of Lancing as a Fig-producing district. Most of his trees are quite from forty to fifty years old, but he has some younger ones planted by himself. Two of these deserve special mention. One is nine years old, of the Brown Turkey sort, but slightly differing in appearance of tree and fruit from the common Brown Turkey. The second tree is somewhat older, and both yield abundance of Figs annually. A year or two ago Mr. Butler had no less than five Figs in his collection of two dozen with which he gained the prize from the nine-year-old tree of his own planting, a very suggestive fact for those who have any thoughts about forming a Fig garden and who have doubts with regard to the trees yielding at a comparatively early date.

The two trees referred to above, from some cause unexplained, lose the points of their shoots to a considerable extent each winter, but this does not seem to affect their bearing powers, for the branch immediately sends out fresh shoots, healthy and strong, so that the trees are kept well furnished with young wood by this self-pruning system, as it may be called. The soil of this garden consists of a dark-coloured loam with a chalky bottom, and in many parts is over 2 feet in depth. The trees are manured annually with whatever comes to hand. This is lightly forked in, care being taken not to injure the roots in the slightest degree. The garden of Mr. F. Grover in the same locality contains some handsome specimens of the Brown Turkey Fig. On a border, 63 feet in length by 30 feet wide, three trees are growing each having several stems of stout proportions. They are from 10 feet to 12 feet in height, and completely cover the whole area of the border with a tangled mass of stems and branches, the lower ones being kept off the ground by rails supported on stout forked sticks inserted in the ground.

Another border, 63 feet in length by 30 feet wide, contains ten trees of the same variety from 10 feet to 12 feet high, and which completely cover the ground. The soil here is the same and the trees are well cared for, but never pruned, as this is considered by every grower of outdoor Figs in this part of Sussex to be quite unnecessary. In the garden of Mrs. John Walls at South Lancing some very fine examples of the Fig tree are to be seen; and here, if report be correct, is to be seen the longest row of Fig trees in Sussex, or perhaps in England. These trees were planted by the late Mr. John Walls some thirteen or fourteen years ago, and have for many years borne heavy crops. There are fifty-six trees in the row, planted about 9 feet apart. They are, with the exception of three trees, all Brown Turkey. The trees are on an average 9 feet in height, bushy and well shaped, and nearly the same number of feet in diameter from outside to outside. The soil here is of a different texture to that of the Fig gardens of North Lancing, being an unctuous clayey loam of a light brown colour and of considerable depth, the subsoil being generally of clay.

Mrs. Walls has a large number of finely developed Brown Turkey Fig trees in an adjoining garden, and which have borne remunerative crops of fine fruit for a long term of years. It is difficult, however, to ascertain their exact age. The superintendent informed me that he has known them since the year 1852, and they had very much the same appearance then as now, so that in all probability they will continue to be a source of considerable revenue for some generations to come.

The fruits just before ripening are placed singly in small muslin bags, which are tied to the branches to protect them from the birds, the greatest depredator being the common starling. This, of course, entails a considerable amount of labour.

PREPARATION OF THE SOIL.

It does not appear that any preparation of the soil previous to planting was undertaken in any of the Fig gardens in the district, the plants having been simply placed in the natural soil. Here, however, it may I think in truth be said that art might step in to the assistance of Nature very much to the advantage of the cultivator. It is universally admitted among the Fig cultivators of Sussex that the trees succeed best where the subsoil is of a gravelly nature, and when lime rubbish and such like material are largely added to the surface soil, which at the same time is all the better for being a strong rich loam. As an instance of the advantage of a well-drained subsoil over that of a clayey or wet one, I may mention that part of the long row of Fig trees alluded to above is planted on a clayey bottom and part on land where the gravel or "beach," as it is called in Sussex, takes the place of the clay, and the difference in the growth and general appearance of the trees is most marked. Where the clayey subsoil exists the trees are much more stunted and less vigorous in every way than those on the gravel. On my last visit to the garden, in company with the manager, Mr. Blaker, I noticed this very striking fact, and on inquiring the cause, Mr. Blaker replied: "Where the trees present a stunted growth the subsoil is wet, but where the more luxuriant trees are growing the subsoil is 'shravey,' which is the local term for gravelly."

In forming new plantations of Figs in Sussex, I lean to the opinion that a wise system to adopt would be to remove the surface soil to a considerable depth, place a foot or so of rough chalk in the bottom, replace the soil, which would then form ridges, and on these plant the young Fig trees. This system, of course, is open to the serious objection of being too expensive, in which case a cheaper one might be adopted, viz., of mixing with the upper strata of soil large quantities of rough chalk, which might possibly have the effect of keeping the roots on the surface and preventing them penetrating the objectionable strata beneath. Chalk in unlimited quantity can be had for the cartage, so that this system would not be open to the objection of expense. The addition of this material to the natural soil might not only be the means of prolonging the life and fertility of the Fig tree, but also of ensuring early maturity.

PRUNING.

This, as I have already mentioned, is never resorted to by the growers of Sussex. Only the deadwood is removed annually, and, as a consequence, the trees present rather a wild and neglected appearance, yielding crops in inverse ratio to the ground they cover, the space between the outside circumference of the branches and the trunk or trunks being lost. I

do not advocate the constant cutting back of young wood, but rather the thinning out of the branches annually, thus inducing the growth of vigorous young shoots, as more likely to produce fruit of a superior quality. It is, I believe, a fact that, generally speaking, the best fruit is produced on the branches nearest the ground. This, I think, points to the benefit that might accrue from keeping the trees lower than they are usually seen in Sussex. The removal of the second crop of fruit, which, of course, never ripens, is never dreamed of at any stage, and even now (May 1) the trees are to be seen literally covered with Figs of various sizes. If these, instead of being allowed to remain to exhaust the tree and detract from the crop, which is just now making its appearance and will ripen in the coming autumn, were removed not later than August, a better chance would be given the tree of bringing to maturity larger and better fruit than it now produces under the non-removal system with the present system of cultivation and with special reference to the plan adopted of letting the trees run wild, and allowing them to prune themselves, as it were. I am firmly of the opinion that the trees are planted much too closely together, not allowing for a sufficient circulation of air among the branches. The Fig gardens have, generally speaking, high walls or equally high hedges to protect them, and to make matters worse, standard Apple and Pear trees overshadow them, so that they grow in a comparatively still atmosphere. The Fig, I think, if planted in more open situations would give better results. A very large Fig, locally called the Madagascar Fig, which is evidently a misnomer, is frequently met with at Lancing. Probably it is the White Marseilles. The finest specimen I have seen is growing in the beautifully situated gardens of Mr. R. Came. The tree is very old, covers a great extent of ground, and bears freely. The fruit is of very large size and splendid flavour, but the tree is easily damaged by frost and is rather a shy bearer.

The fact of the *Ficus carica* requiring soil of a gravelly nature for its fullest development would appear to be equally true of the whole of the genus *Ficus*. During a sojourn of some years in the jungles of Malabar, in Southern India, I had many opportunities of observing the habitats of the numerous species of wild *Ficus* in which the province abounds. I will only enumerate a few. *Ficus religiosa*, the most sacred tree of the Hindoos, on account of the legend that their god Krishna, the Preserver, was born amongst its branches, and since that time the leaves quiver in commemoration of the event. The tree is deciduous, and the leaves are almost identical in shape and size with those of the Aspen, and with every breath of wind quiver and shake, making the same sound as of pattering rain; hence the legend. The tree is always found in the midst of the temple grounds, surrounded by a brick wall, the space between the wall and the trunk being filled up with little else than stones and rubbish, into which the tree roots and thrives wonderfully. In a wild state it is mostly found growing out of the fissures of rocks, fissures of old walls, and clefts of large trees, sometimes in stony soils, but never in rich soils of any depth. *Ficus asperma* is also a deciduous variety, and, so far as its leaves are concerned, a marvellous plant. These, on the upper surface, are so rough as to have gained for the tree in India the name of the Sandpaper tree, and it is quite a common thing to see the native carpenters use the leaves as a substitute for the genuine article. The habitat of this tree is identical with the first named, and is never found growing in loose, deep soil. *Ficus glome-*

rata is a very curious and handsome tree when in fruit. It puts out immense clusters of bright-coloured and very tempting fruit all along its thickest branches and round its stem, even to the surface of the ground, about the size and shape of our English Fig. When these fruits are quite ripe, they are exceedingly pleasing to the eye, but, unfortunately, unfit to be eaten. This also affects situations similar to the two first. Numerous other species exist in the same locality, including some of the elastica type, and all growing where the quantity of stones and gritty soil predominates over rich mould. J. L.

A new enemy to Gooseberries.—During the past few days I have met with cases of quite a new departure in the way of destructive pests among Gooseberries, and the enemy being undiscoverable only serves to aggravate the matter. In a letter received from a friend in Essex who grows fruit very extensively for the markets were enclosed several tiny Gooseberries completely and mysteriously denuded of the calyces and fructifying parts generally, these being samples of what is very general in large breadths of bushes. As this means a heavy loss, my friend is naturally anxious to learn the cause of and remedy for this serious calamity. Not having previously heard or seen anything of the sort, I took the first opportunity of inspecting our own bushes and some in other gardens in the neighbourhood. Apparently there are no signs of the Gooseberries being tampered with in our case, but in a private garden near the town of Frome fully one half of the crop is spoilt in the manner already described. The fruit were not touched in any single instance, only the whole or greater portion of the flower part being eaten, and which, it is almost needless to add, completely stops all further progress. These bushes have been frequently and closely examined during the day as well as at night, and as yet without discovering what agency is at work. Birds are not blamed, and there are no caterpillars nor grubs to be found. I am strongly of opinion the mischief has been done by a beetle or some strong-winged insect, and in all probability it will not be detected this season, the worst of the attack evidently being over. Instances having occurred in such widely separated counties as Essex and Somerset, we may reasonably conclude that many other gardens have been similarly visited by this new and most unwelcome pest. It may be someone among the many readers of THE GARDEN can offer a solution to the difficulty.—W. IGGULDEN.

Vine leaves injured.—I have enclosed lateral and roots of Vine grown in a cool house without any fire heat whatever. Could you kindly tell me what the disease is? The Vines look well, and until the shoots were 6 inches long they seemed to be doing well.—G. S.

* * The Vine roots and leaves forwarded to me are perfectly healthy, but the latter are badly scalded, no uncommon occurrence in unheated vineries, which become very cold through the night, heavily charged with condensed moisture, and are allowed to remain closed until the sun has raised the temperature to a figure favourable to ventilation. Do not interfere with the scalded leaves, as half a leaf is better than none, but cut off the injured points of the laterals. Keep the house drier through the night, also give a chink of night air, and increase it before the sun gets full upon the roof on bright mornings. Trying to grow Grapes without the aid of fire-heat is uphill work which does not pay, but if there is no way out of the difficulty, the breaking of the Vines should be retarded by the fullest ventilation until the buds are ready to burst into leaf, when early closing with dry sun heat becomes imperative. From the advanced condition of the shoots and laterals now before me, it is quite evident that the Vines have been pushed forward to a state which necessitates 60° at night and 70° to 80° by day; but nights having been cold and frosty, the moisture given in excess has condensed and destroyed

the tender tissue of the foliage and laterals. The next complaint will read in this way: "My Vines and Grapes are eaten up with mildew. What must I do to save the remnant of a crop which once looked promising?" To this question but one reply can be given. Give up the penny-wise-and-pound-foolish system, heat your house with hot-water pipes, and treat the Vines rationally. Slow combustion boilers, which can be set in the thickness of a 14-inch back wall, are cheap enough. Screw joint pipes can be fixed by any handy unskilled man, and, independently of the certainty of a good crop of Grapes, the thousand and one uses to which a heated house can be put will recoup the cost in a single season.—W. COLEMAN.

FRUIT PROSPECTS FOR 1890.

THE idea of an early season suggested by the wonderfully mild January of the present year was soon dispelled by the cold weather experienced in March, and now the spring of '90 cannot rank as early. Ornamental exotic trees and shrubs are even rather later than usual, and at the time of writing (May 1) some of the latest of these, the Kentucky Coffee for instance among trees, and Chionanthus virginicus among shrubs, are only just plumping up their buds; indeed, I have noticed one or two things in quite a dormant state, notably Asimina triloba, a remarkable, but little known, ornamental tree. It is impossible to pronounce a decided opinion as yet in the matter of fruit prospects, but I fancy the outlook is promising. We were fortunately able to spare some nets for the Apricots, and to this protection must be placed the credit of a better crop of this fruit than we have had for several seasons, as the glass on one occasion registered 24° of frost when the blossom was fully expanded. There was quite a spell of frost at this time, but the weather, fortunately, held very dry, and the frost appeared to do very little serious damage; indeed, its agency in retarding the progress of vegetation was probably on the whole rather beneficial than otherwise. Plum blossom is rather scarce, and all the earlier flowers were cut, so I fear our crop of this fruit is likely to be much below the average. Standard trees in orchards suffered severely from the attack of bullfinches in early spring. Dessert Cherries, protected with a double thickness of one-inch mesh fish netting have set well, and promise an abundant crop. Morellos are in bloom. We have not had such a display of bloom for several seasons on our old Pear trees, Bon Chrétien, Beurré Superfin, Glou Morceau, and Van Mons Léon Leclerc being specially noticeable. This last is rather a favourite here; the fruits attain a great size, and the peculiar flavour seems to be appreciated. I think there will be a fair crop of fruit, but a large proportion of the blossom is cut and blackened. On a portion of the Pear wall planted last autumn with cordons, I thought of fixing to the brick coping a narrow hinged board; this should enable us to protect with fish-netting to swing clear of the trees—in spring against frost, and in autumn against birds. Peaches and Nectarines are safely through the setting period, and are a very good crop. We were obliged to remove the nets rather earlier than usual to give the trees a drenching, as fly had thus early made its appearance. There should be no difficulty this year in connecting the in and outdoor fruit, as some of the early varieties (outdoor) are very full. I have only young, comparatively untried trees of the larger early sorts, Early Beatrice, Alfred, and Crawford at present representing our early outdoor varieties.

We want our promised Peach conference to decide (1) the best varieties in the order of their ripening, and (2) the adaptability of these best sorts to different soils and situations. There are, indeed, many mysteries in outdoor Peach culture that would pay for careful investigation—why, for instance, particular varieties should be specially subject to mildew on different soils, and why a variety grand in one locality should perfect very few high-class fruit in another.

Of Apples it is at present premature to speak. There is a fine show, and we are relying on the

double-barrelled hope of a fine setting-time, and that the precautions taken against the moth may prove effectual. Strawberries are looking well, and the earlier sorts, Vicomtesse and La Grosse Sucrée, are beginning to push some strong flower-stalks. I was sorry to notice, from the remarks of one or two correspondents, that Noble was not likely to prove any great acquisition. If, as stated, it is neither as good nor as early as La Grosse Sucrée, it is difficult to understand the advisability of including it in a collection. I have always grown a few Black Prince as the earliest outdoor Strawberry, and it would seem that it cannot yet be discarded. It is a little extra trouble, requiring, as it does, the thinning of trusses and berries to secure table fruit of presentable size. It is one of the varieties that must always be grown on the one-year system—that is, if the object of the cultivator is to obtain dessert fruit. If required for the kitchen (for which its dark, rich colour is sometimes a recommendation), it can remain two or three seasons. Gooseberries will be a good crop where the trees were coated with lime and soot or covered with netting in winter and early spring. Birds were more troublesome than usual, and had a share of the buds in the open quarter; but dessert varieties on trellis, and also under north wall for late picking, were fortunately able to preserve from their attacks. E. BURRELL.

Claremont.

NOTES ON STRAWBERRY FORCING.

VARIETIES RECOMMENDED.

I WAS much interested in the useful notes of "I. M. H." (p. 311) in THE GARDEN, as they so fully corroborate my own experience. I have used Laxton's Noble for early forcing, and have been very much disappointed with the results. Fortunately, I only had a couple of hundred for trial to test its early forcing qualities, and it set badly and the fruit was very inferior, being badly shaped and not swelling at all well. It did so well as a first early in the open that it would have proved of great value as a forcing Strawberry if it could have been used for that purpose. With us on our light soil as an early Strawberry it is very good. The flavour is not first-rate, but that is overlooked when a Strawberry of its size and earliness is required a few days in advance of other and better-flavoured varieties. Of this new Strawberry I have within the past week or two seen fairly good fruits and of a better shape. A few fruits were sent to the fruit committee of the Royal Horticultural Society on April 8, and were very nice shaped, but the flavour was deficient; therefore I think at that date as good fruit of Keen's or any other well-known and better-flavoured sort could have been had. If Noble be used for later forcing, I am sure it will not equal in flavour other kinds and of better quality. As an out-door early variety I do not complain, but for a first early for forcing I maintain it is inferior. I have this season tried King of the Earlies; but it is no better, in fact not so good as the old Vicomtesse Héricart de Thury. It sets freely, but is deficient in size and does not do so well as the Vicomtesse with us; but it may do better in a clearer atmosphere with more sunlight. As a first early kind I prefer Vicomtesse. It sets well and travels well, and can be relied upon for very early forcing. For this variety I advise rather small pots (5-inch), as if the plants have been specially prepared they will give good returns. I can also speak well of La Grosse Sucrée for forcing and would recommend it for early work. It sets well, is of good size, and fair flavour. I do not think the flavour is equal to that of Vicomtesse, or that the fruits travel so well. The only drawback to Vicomtesse is the small size of the fruit. Thinning the fruits after setting and abundant feeding should be resorted to. For later forcing larger pots should be used. I only advise 5-inch for fruiting in February and early in March. I do not like the old system of using saucers; they often in dull and sunless weather, if not carefully attended to, sadly deteriorate the flavour of the fruit. Turves are better, but are not necessary. They have an untidy appearance, and do not answer where a large quantity of plants are

being constantly removed. They take up a considerable amount of room and time for cutting and fixing that I question very much if there is much gain. I think for exposed shelves they answer well during May and early June, but if practicable low pits and frames are much the best places for Strawberries for late forcing, as the fruits come larger and are of a better flavour if thus grown. When on shelves exposed to hot sunshine it is almost impossible to keep the plants supplied with moisture. A board 4 inches or 5 inches deep placed against the front of the pots will do a deal of good and prevent the sun from drying up the roots. We force some thousands, and for early work find *Vicomtesse* most useful for the first lot.

I would advise those who have not yet tried *Auguste Nicaise* to give it a trial as a succession Strawberry to the above. With us it has done well for two seasons. The fruits are of large size, set well, and are of good flavour. I believe this variety is better liked in *Covent Garden* than any other, and is more valuable. I have not tried it for very early work—I mean to fruit in February, but as a second early it is most valuable, and I prefer it at that time. For outside cultivation I prefer the older kinds, although *Auguste Nicaise* is useful if the flower-spikes are thinned and a few large fruits are required for special purposes. The fruits being of large size soon damp off if not kept well elevated, and when forced should get a few sticks to support them. This variety I find gives much better fruit when a stiff loam is used; some kinds do fairly well in light soil, but if possible the two should be combined. We cannot grow our forced Strawberries nearly so fine if light turfy loam is used. For mid-season forcing *Keen's Seedling* is difficult to beat, followed by *Sir Joseph Paxton* or *Sir Charles Napier*. I prefer *Sir Joseph Paxton*. Those who have to pack their fruit prefer *Sir Charles Napier*, as the fruits set freely, are of large size, and travel well. Many market growers use *Sir Charles Napier* for forcing, and it commands a good price. President is also a grand variety for forcing, and some people prefer it to *Keen's Seedling*. It should be grown close to the glass to get good fruit, as it soon draws and gets weak, and also sets badly if not fully exposed. For very late forcing for use just before the outside fruit comes in, I advise a few plants of *Oxonian*. It is useful for this purpose when grown in a cold frame. The fruits are large, but the flavour is not so good as that of some varieties, but it does well for a few late dishes, requiring scarcely any heat.

Many Strawberries are grown too hot, and therefore lack flavour. Our best Strawberries are those grown in intermediate house temperature at this date from 60° to 70° maximum. These we give plenty of time, and bring them on gradually. If forced in a hot dry house they do not swell well and the fruits are badly shaped. We grow our earliest lots in Melon and Cucumber pits after they are set, but these are not equal to those grown in a lower temperature. We usually force ours in batches of 500 at a time, placing the pots at first starting into a warm bed of sweet fresh leaves in pits, and in a temperature of 45° at night, 50° to 55° by day, keeping the plants close to the glass, and covering at night in order to maintain an even temperature. The plants remain in the leaves till the fruit is set, when they are removed to shelves. High feeding and attention to moisture, removing the plants to a cool house, or, what is better, when the pits are devoted to Strawberries, lowering the temperature and the atmospheric moisture when the fruits are ripening are the main points of success. We are in the same position as "I. M. H."; therefore, cannot devote a house to Strawberries, and grow them chiefly on shelves; but for late work find frames most useful, fitting up temporary stages for the plants. Many are often grown in houses where it is difficult to supply them with moisture; consequently the plants are attacked with spider, and the fruits are very indifferent; in fact, do not pay for labour bestowed on them. Many Strawberries are much weakened by being placed in warm places in the autumn to winter; this excites the plants, and they suffer

in consequence. They are much better simply protected with coal ashes and left in the open. Where possible, plunging in cold frames is best, but this is not practicable where large numbers are grown and the stacking system has to be resorted to. Many of the large growers pot up in the early spring runners planted in the previous autumn in rows; when taken from the plant these do well for late forcing if placed under a wall after potting and succeed the potted plants. To get good plants special treatment is necessary, getting strong runners from plants planted for this purpose the previous autumn and taking all the flower-spikes away as they appear, thus securing a few strong runners from each, potting up early and not using too much manure. For potting I prefer quarter-inch bones and strong loam, giving plenty of room between the pots to admit air and sun and keeping the plants free from runners and weak growths, so as to build up a strong crown for forcing.
Syon House. GEO. WYTHES.

Bramley's Seedling Apple.—A dish of very fine fruit of this Apple, shown by Mr. T. H. Burroughes, Ketton, Rutland, was one of the features of the recent spring show of the Royal Botanic Society, Regent's Park. It came prominently before the Apple Conference, held at Chiswick in 1883, and was then awarded a first-class certificate of merit. It was seen again in 1888, and then its value was confirmed. It was raised at the Nurseries, Halam, Southwell, Notts, by Mr. H. Bramley, and it had been grown in the neighbourhood before its obvious good qualities were made more widely known. I should think it came from a pip of *Dumelow's Seedling*, for in external appearance it partakes very much of the character of this standard variety. But *Bramley's Seedling* has a deeper colour than *Dumelow's Seedling* is said to have, yet I have seen the latter magnificently coloured, and appearing almost as if modelled in wax. It is when *Bramley's* is cut that the difference in texture and flavour is apparent. It is regarded as the finest market Apple in cultivation, very free bearing, and of a very hardy character, the blossom not being so much injured by frost as that of some other varieties. That it is a good keeper was abundantly shown by the fruit staged by Mr. Burroughes.—R. D.

The orchard and home nursery.—Growth now will be active, therefore newly-grafted trees should have their ties examined and loosened if by any means tight, also any damaged clay or grafting-wax repaired. If this is not attended to the free access of air will prevent the necessary complete union, and the grafts will dry up and wither. If the grafts were not, previous to grafting, dipped in a solution of Gishurst compound, 6 ozs. to the gallon, or some other safe insecticide, it will be necessary to look over the expanding leaves, with the object of freeing from insects, and if any curled or rolled up leaves are noticed, the grub or larva of the winter moth, or its allied looper species will be found snugly ensconced within. He can only effectually be eradicated at this stage by crushing with the finger and thumb, a most tedious and troublesome business. Nevertheless, if not at once seen to, irreparable mischief will be done, for the check given by this wholesale devouring of the leaves as made will prevent the grafts making any progress. It should be said the eggs of this family are so minute as to be scarcely visible to the naked eye, and many of them are already hatched. White woolly aphid, or American blight, may appear on the stocks, and may be dealt with by first wetting an ordinary paint-brush, then rubbing to a lather on a cake of Gishurst and painting the affected parts, or strong soapy water will remove all the aphid family. The application by a good syringe or garden engine, repeated at short intervals, of a slight quantity of tobacco water, say half a pint to 2 gallons, or half the quantity of paraffin, but kept well stirred, will add to its efficacy and be found quite safe for syringing or dipping. Stakes should be prepared and got into position, and as soon as the grafts have made a few inches' growth a tie should be given, otherwise the first strong wind will blow out

many of them. All young stocks grafted near the ground must have all stock shoots springing from below the graft rubbed off as soon as visible, but old standard trees, grafted out on the branches, would be the better were a fair proportion of stock shoots allowed to remain for a time, in order to encourage the flow of sap following so barbarous an operation as beheading an old tree, and frequently resented. Young trees one or more years grafted near the ground should also have their side shoots encouraged, as by this means the stem thickens and becomes strong enough without the help of stakes, always considered a necessary evil. Keep the hoe in constant use and encourage clean healthy growth.—W. CRUMP, *Madresfield Court, Malvern.*

BRITISH FRUIT GROWERS' ASSOCIATION.

THE executive committee of the above association held a meeting in the Horticultural Club room, Hotel Windsor, on May 1, Mr. T. Francis Rivers in the chair. A number of members having been elected, the hon. secretary announced that Mr. Shirley Hibberd had consented to give a paper on the origin of the cultivated Strawberry at the June meeting. The proposed report on the present condition and prospects of fruit culture was discussed at some length, and letters were read approving of the scheme. The Duke of Bedford sent a cheque for £25, and Earl Fortescue wrote as follows:—

I heartily wish you success in your work. I have long been of opinion that fruit culture may be largely extended in Great Britain and Ireland with advantage to the owners and occupiers of land and to the general public. Your association has been rendering a real public service, both by directing public attention to fruit culture for profit in this country, and by helping to dispel the erroneous idea too freely circulated respecting the enormous returns obtainable from a small capital employed in fruit cultivation. Your report truly observes that much harm has been done by ill-informed advisers, for fruit-growing cannot be made to pay a fair profit without practical knowledge of the work, starting with a carefully considered scheme, and sound judgment in carrying it out.

A sub-committee was appointed to prepare a scheme to deal with the matter.

Mr. L. Castle submitted a note upon Paris green as an insecticide for special application to fruit trees, and described some experiments. The strongest mixture of this poisonous substance appeared to have no direct effect upon caterpillars, and it is only when it is lodged on the surface of the leaf and consumed by them that it becomes destructive. It had little or no effect upon the leaves as tried, and except when the mixture is not properly stirred there seems little danger in this respect. Experiments were also tried on plants in pots to ascertain if any ill effect was produced by the Paris green passing through the soil to the roots; but the plants were quite uninjured, and being insoluble it is not taken up by the roots. It was mentioned that Miss Ormerod had kindly sent much information upon the matter, including her recent Report upon Injurious Insects. A large fruit grower also wrote as follows: "We have a plentiful crop of caterpillars; we are, however, vigorously attacking them with Paris green, London purple, and Quassia. We can hardly determine yet which will answer best, but the Quassia appears to be quickest in its action, as it kills by contact, but with the other two you have to wait until they have consumed the poison."

SHORT NOTES.—FRUIT.

Tasmanian Apples.—These, from some samples that have come into our hands, appear to be very disappointing. In the case of those we have, every one is quite rotten in the centre, and totally unfit for use, although from the appearance on the outside the sample appears sound and good.

Apple Baddow Pippin.—Do you know the Baddow Pippin? A small, but sound sample is really A 1.—W. MANNING.

* This, also known under the name of the Spring Ribston, is a first-rate dessert Apple. It comes into use in November and will keep in good condition until April.—ED.

PUBLIC GARDENS.

BATTERSEA PARK.

THIS park, designed by the late Mr. Gibson, is one of the prettiest in London, a changed place indeed to those who remember when what is now a beautiful public garden was a flat, uninteresting marsh, under high water mark. Originally 320 acres were purchased, 200 of which were enclosed for the park. In 1854 the work of formation commenced, and to give some idea of the labour to convert this marshy tract into a stretch of trees and flowers, more than 500,000 cartloads of earth were necessary to bring the ground

was sorely wanted. Unlike the older parks, Battersea has few blemishes; there is no multitude of straight paths intersecting the ground here and there, no monotonous roads, and no flat stretches, but the whole is pleasantly diversified with rising knolls, serpentine walks, rockery, and lakes, while the grand frontage to the Thames makes a pleasant and shady grove in the spring and summer. There are, of course, blemishes, and one of the most conspicuous is the avenue of Elms, which cuts almost into the centre of the park. The object of Mr. Gibson was doubtless to provide a shady walk in summer, and this he has certainly accomplished, but there is no reason why such a feature should not run from one entrance to another or

Thorn. There is a large and graceful tree of it by the side of the walk leading from the steamboat pier at Battersea, and we only wish that private gardens would take a lesson from Battersea Park in respect of the use of the white double-flowered Cherry. In early May the London parks and gardens are in their prettiest dress. The Elms at Battersea are now in tender leafage, the Lilacs in full flower, and the white Poplars overhanging the lakes give delightful colouring to the landscape, especially in the full sunlight; while here and there bushes of Barberry make brave masses of yellow and orange. It is effects such as these that we desire. There is usually a repetition of common things, as Privet, which produce a sense of deadness



Waterfall in Battersea Park. Engraved for THE GARDEN from a photograph sent by Mr. W. T. Goodhew, 23, Blackstock Road, London, N.

above the river Thames, which forms the front to the park between the Albert and Victoria suspension bridges. The made earth, in some places, was quite 12 feet thick, and over 700,000 cubic yards were used in all, about 1000 cubic yards being unloaded each day at the works for over two years. The cost of this great undertaking was considerable. No less than £315,000 were expended—£232,000 in preparing the land, £51,000 in actual laying out, and £33,000 for contingencies, whatever that may mean. Even in these days, when we are realising the full need of great breathing spaces to maintain the public health, such a sum expended in creating a park would have been thought more than considerable, even excessive; but in populous Battersea, with its crowded and none too refined neighbourhood, such a garden

by the riverside boundary, where an avenue would lend dignity and beauty to the surroundings. The park itself, as is well known, is enclosed by a high embankment, now covered with trees and shrubs, large bushes of Lilac beautifying the scenery and loading the air with fragrance. In no park are the Lilacs finer than at Battersea, and this season the bushes are bending with the weight of their precious burden of blossom. The Lilac is not the only good tree, as Thorns have been well planted, also Broom, Mock Oranges, Barberries, and other good things. The prettiest sight at the present moment is the double-flowering Cherry, a lovely and none too common tree, wreathed in the early days of May with countless double flowers as pure as the driven snow and as beautiful in the landscape as the pink

totally unnecessary when we have a host of hardy trees and shrubs that might be used. Where could we find a tree like the Caucasian *Prunus divaricata*, which is as easily grown as an Elm, and which even before March has begun to be covered with a multitude of white flowers? Such a beautiful thing is restricted to a botanic garden, when it might be planted largely to the signal benefit of park scenery. The thinning out has been done carefully and judiciously; thus we are rid of the wretched cutting in and pruning that are carried out on the Thames Embankment and other places, where each year the shrubs are cut in severely, the result of this surgery being to keep the branches within a certain space and to form an unsightly growth, the leaves in summer fortunately hiding the bare ugliness of the shorn and mangled stems.

No attempt is apparently made to thin out the plants to permit each to develop its own characteristic beauty. There is much to be done yet in the planting of good trees. The beautiful Birch is almost unknown in a London park, and it is rare to find a Willow overhanging a lake with its drooping branches. Our gardens, even the best, can tell the same tale of neglect in the many fine hardy flowering trees and shrubs; but now the glare of the bedders is removed, and the eternal round of work consequent on growing these, attention is directed to the crowded shrubberies of common plants which disfigure the stateliest of English homes.

THE ROCKERY at Battersea Park is not the least interesting feature of the grounds. It was constructed by Mr. Pulham, of Broxbourne, who designed a bold and picturesque formation, like some rocky gorge cut out by the mountain torrent, as shown by the engraving, which represents one of the two ravines, both of which face the large lake. In winter the bold masses of stone have a bareness not altogether pleasing; but as spring gives way to summer, hardy Ferns send up their fronds. As will be seen by the illustration, there are large tufts of the Royal Fern, while Clematises, Brambles, and Ivies spread about in a charming way. More still might be done with this object, but the pretty view accompanying this description will show that the luxuriant growth, tangle of Bramble, Fern and vine are in excellent keeping with the huge boulders and waterfall. Ravines, as the one portrayed, could be made the home of many plants, as the alpine Pinks, Candytufts, and Sun Roses, which would overhang the ledges and make bright pieces of colour when in full flower.

SPRING FLOWERS.—The subtropical garden has made Battersea Park more famous than any other, and the crowded condition of the houses, filled with Scaforthias, Palms, and fine-foliaged plants in preparation for the summer display, shows the amount of work that subtropical gardening, when carried out to any extent, entails. Of the arrangement of the beds and borders sufficient has been written, but we may direct attention to the rapid increase in the culture of bulbs and hardy flowers, which a few years ago was unthought of. A great reaction has taken place during the past few years in the aspect of our public parks and gardens. What was nothing but a stretch of carpet bedding and gaudy blocks of Pelargoniums and tender plants is now changed to a kind of sub-tropical arrangement, light and beautiful in itself when not, as in Regent's Park, disfigured by the undue use of the variegated Abutilon. In itself, the substitute for carpet bedding of finicking designs is good, and last year the masses of old-fashioned Fuchsias, once the pride of English gardens, in Hyde Park were again evidence of a desire to make the parks truly beautiful. Another great revolution has taken place with respect to the flowers of spring, and this season we have seen not only Tulips, Hyacinths, and Crocuses, but breadths of the common blue Squill (*Scilla bifolia*) and the pretty Chionodoxas. This is a welcome change, and at Battersea Park the spring flowers this season have made an unusually fine show. In some of the borders the yellow and other Crown Imperials are in full flower—unfortunately only single plants, which seem small in a large extent of ground. Better would it be to have bold masses to show the thousands who frequent the parks the glory of our old-fashioned cottage favourites in their fulness. Along the drive from the Albert Bridge entrance are beds of Tulips of well-known varieties; and in the sub-tropical garden

itself the double red and yellow Tournesol, and double scarlet are very showy, while the bed filled with the variegated *Vitis heterophylla* edged with *Primula Sieboldi* or Japanese Primrose is an unusual and pretty feature. Also flowering in bold handsome clumps is *Megasea cordifolia*, one of the latest of the large-leaved Saxifrages, and striking both for its broad, leathery leaves and pink bloom. This is another plant that might be seen frequently in London parks, as it is of large growth, and the bronzy tone of the leafage is in itself striking. Mr. Coppin has made good use of the old bulbs of Hyacinths discarded from the beds, planting them in the sub-tropical garden with excellent effect as regards colour, and associating with them the many kinds of Daffodils. This good use of the old bulbs should not be overlooked. Very frequently they are thrown to the rubbish heap as soon as they have given their quota of colour to the bedding. Such wanton destruction is unnecessary, as the broad acres of our London parks afford ample scope for the planting of these discarded bulbs. The Hyacinth must be used carefully. We see it planted in the Grass in St. James's Park, a poor way to use it. The spikes are too heavy and clumsy for the Grass, which should be associated with the slender Daffodils, which bending in the soft breeze have a charming gracefulness and beauty. The prettiest piece of Daffodil planting at Battersea is on the banks that slope down to the water of the lady's pond or small lake. There is no attempt to produce what is too often laboured for—a mere stretch of colour, but the bulbs had been planted with such rare taste, that one might readily believe them to be Nature's wildings. We hope Mr. Coppin will extend this delicate planting still further, and do away with the mounds of soil, like miniature pyramids and about as ugly, which disfigure a piece of the park near the Fern dell. There are several of these sugar-loaf piles, one or two now covered with bulbs, and very rich is the effect, but it would be better to sweep them away, or so cut into them as to make a Fern glen or rockery. At present they are eyesores, which even a wealth of bulbous flowers does not improve. Some of the borders are edged with seedling Auriculas, which show a variety of colours and make an interesting break from the Tulips. An edging of Auriculas is very pretty, especially when decided colours are obtained, but the mixtures of uncertain blue and white tints are of no value for creating a distinct effect. The variously coloured Snake's-head Fritillary, Spanish Squills, common Bluebells, and Primroses are other flowers that now adorn Battersea Park, which we may rank amongst the finest in England for its display of spring flowers. More yet will be done, as it is the intention of Mr. Coppin to depart from hard and fast rules, and to plant the hardy flowers in bold groups, giving increased attention to bulbs that bloom early in the year. A good beginning has been made with the Daffodils by the lake, and the breadths of Hyacinths, *Megaseas*, and other hardy things, while we hope in time something may be done to relieve the bare edging of the lakes, where, fortunately, the common English Iris of the brookside has made its home. Of course there are certain plants that should not have space, and standard Roses are amongst the first we should destroy as paltry in themselves and ill-suited for the smoke and dust of a park in the midst of a none too clean neighbourhood. Annuals of many kinds would do if care were taken with them, and we understand that they will receive considerable attention in the future. They would be a relief from the trim border of one or two tender things, which are usually

repeated at every available opportunity with determined regularity. Then, again, we have Clove Carnations, which thrive magnificently in the Embankment Gardens near Charing Cross, proof of their hardihood in a city atmosphere, and such lovely bright coloured plants as *Coreopsis lanceolata*. The old-fashioned Fuchsias, as F. Riccartoni, are also plants eminently suited by reason of their spreading habit and beauty of flower for London parks; but the bedding craze, which overshadowed everything else in the garden, completely shut out the several kinds of Fuchsias now again appearing in good gardens. Those who have the formation of new parks and open spaces in hand should not lose sight of the value of the many fine hardy flowering trees and shrubs and herbaceous plants, beautiful things which we are only now beginning to make good use of, nor the bad effect of unsightly band-stands and refreshment saloons which spoil many an otherwise beautiful place. Southwark Park is one instance of an open space disfigured by a large band-stand, built with solid masonry and iron, as ugly and heavy as it was possible to make it. Such a structure not only occupies a large space and is in itself an eyesore, but for some distance around the ground is asphalted by reason of the crowds that congregate for the music. Such a "building," if wanted, might have been placed in a more secluded spot, and we may say the same of the refreshment saloons at Battersea, Finsbury, and other parks.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

RIDGE CUCUMBERS.—To raise plants of these long before they can be planted out is a great mistake. They soon become stunted and starved, and from this state are seldom recovered satisfactorily. Strong plants can be prepared in less than three weeks, and if no handlights or frames are used for giving them a good start in their final quarters, the first week in June is quite early enough to plant. Sow the seed now singly in 3-inch pots and place in gentle heat. As soon as the seedlings are up, raise them to near the glass in the frame or moderately warm house in which they are prepared, and harden off prior to turning out in the open. If beds are formed with material that will give a gentle heat for a few weeks, this being duly soiled over, the seed may be sown now or shortly where the plants are to grow. Two or three seeds dropped in at intervals of about 3 feet each way are sufficient. Stockwood Ridge is perhaps the most generally reliable variety, the Gherkin being the best for pickling.

VEGETABLE MARROWS.—These are of far greater importance than ridge Cucumbers, and much more remunerative. In common with Cucumbers they can be raised in a few days, and are best planted out before they become much root-bound. Being strong growers, 4-inch pots are none too large for each single plant. The earliest crops are obtained with the aid of large square heaps of manure, leaves, rubbish, or decaying materials generally, surmounted by about 9 inches of fairly rich loamy soil. A sunny sheltered position ought to be selected for these heaps and good room given, as the plants must be allowed to ramble unrestricted. If either a common garden frame or several handlights are available these might be utilised for starting the plants, withdrawing them directly the growths require more room. A few plants given good room will produce much heavier crops than a greater number crowded together. Long White, Long Green, and Pen-y-hyd are about the best varieties that can be grown, the bush forms of the two former, and which require much less room, also being well worthy of a trial.

SIMPLE METHOD OF GROWING VEGETABLE MARROWS.—The bulk of the Marrows grown for

the markets are cut from plants raised in the open ground. In the more favoured southern counties if the plants are put out on heaps of rich decaying matter, they are apt to grow far too luxuriantly to be profitable, or at any rate the market growers' plan is found to answer much better. A sunny open position is chosen for the ridge or ridges, spaces 4 feet wide being lined out and the top spit thrown out on either side. In the trench thus made is placed from 18 inches to 2 feet of old and somewhat fresh heating material, nothing being better than leaves and stable manure in equal quantities, on this being returned the soil previously thrown out. If this be done at the present time, the seed may be sown, directly the soil is warmed somewhat, in patches of three or four at 3-foot intervals through the centre. It is advisable to cover the spots containing the seeds with inverted flower-pots, the plants being also subsequently protected during cold nights in a similar manner. Our beds are usually formed in this manner towards the end of May, the plants being raised under glass and put out during the first week in June, a little temporary protection being afforded for a few days. Failures never occur.

GOURDS AND SQUASHES.—It is doubtful if these will ever become very popular, very few people caring to use them in any way after they are grown. They belong to the more ornamental class of plants, and may well be grown in the kitchen garden as such. There is a great variety of them, many of the forms being remarkable for either their great size, curious shapes, or bright colours. Much that has been advanced concerning the too early raising of Cucumbers and Marrows also applies to these. Raise them singly in 4-inch pots and plant against the foot of warm walls, fences, pillars, archways, or in any sunny position where the plants can ramble and fruit at will. A good spit of solid manure ought to be dug into or buried under the intended site.

CARDOONS.—If these are wanted somewhat early, the plants ought to be raised under glass in gentle heat. The usual plan is to sow about three seeds in each 4-inch pot filled with rich loamy soil, one plant of those that come up being eventually left in each. They must be hardened off and planted out before they become badly root-bound, or premature seeding may result. Good late crops can be had by sowing the seed where the plants are to remain. In a somewhat dry, hot position trenches may be formed for Cardoons in much the same way as for Celery, but though a moisture-loving plant the Cardoon cannot stand or thrive in a cold and wet subsoil. If therefore trenches are opened in the latter unfavourable position they ought to be more shallow, all the soil thrown out being returned to the top of the manure. The exceptions to this rule are when the surface soil is of a heavy, lumpy nature, and in this case it ought to be replaced by about 6 inches of good light compost. The rows should be about 4 feet apart and the seed sown thinly, a plant every 18 inches being ample.

GLOBE ARTICHOKE FROM SEED.—Globe Artichokes are very nearly allied to Cardoons, and may be raised in exactly the same manner. They will naturally be much earlier if reared in gentle heat and planted out before they are starved in any way, but really good late crops can be had in most southern localities by sowing seed now where the plants are to remain. Either prepare a trench as advised for Cardoons, the whole of the soil being returned to the top of the manure freely forked into the bottom spit, or else sow the seed on trenched, well-pulverised ground, the rows in either case being 3 feet apart. Unfortunately, a great percentage of the seedlings are invariably of a worthless character, being, in fact, no better than Cardoons. In anticipation of this, thin the seedlings to about 18 inches apart, and as soon as it is seen which are of no value, cut them out. Some of the seedlings of the Green Globe variety are distinct and good, and the best of these are well worthy of being preserved and cultivated instead of worn-out old stocks.

LETTUCE.—The time will soon arrive when these

will transplant badly, and in order to be certain of a constant supply, the seed should be sown where the plants are to remain. Preference ought also to be given to varieties that have been proved to be good drought and heat-resisters, and in any case the old black-seeded Brown Cos should be sown, this being remarkably good in the hottest weather as well as in the autumn. It is useless to attempt Lettuce culture in shady positions, good open spots answering by far the best, and, notably, the ridges between the early-dug Celery trenches. Shallow drills, from 10 inches to 12 inches apart, should be drawn, these, if at all dry, being moistened prior to sowing the seed thinly. Fresh sowings ought to be made every fortnight, a close look-out kept for slugs, the plants being early thinned out to about 9 inches apart, and blanks made good by transplanting with the aid of a trowel.

W. I.

FRUITS UNDER GLASS.

VINERIES.

EARLY Grapes now beginning the colouring process should receive the last supply of warm liquid, as an excess after this stage affects the flavour of the fruit. Pure water, of course, may be given, but if the borders are well littered down a proper watering should carry them through. Ventilate as freely as the weather will permit, especially through the early part of the day, and again at night, but shut up with sun heat on fine afternoons. Watch for red spider, sponge the leaves before it has time to spread, also put in a syringe of soft water about 7 p.m. wherever this can be done without spraying the fruit. If these preventive measures do not answer, apply a wash of sulphur to the pipes when they are hot and the house is shut up dry for the night.

Midseason houses.—Push on thinning when the Grapes are the size of swan shot and manipulate the Vines at short intervals, as neglect of laterals means loss of vital force. Mulch all inside borders with well-worked, but fairly fresh horse litter, and on no account err on the side of keeping the roots too dry. Let outside conditions regulate the inside temperature, that is, to a certain extent, as rest on cold, wet, and windy nights can always be made good by early closing the following day. Some few fanatics insist upon the maintenance of certain figures in all weathers, and generally they have an abundance of spider, but badly coloured and inferior Grapes.

Early Muscats confined to inside borders must now be well fed and helped forward with all reasonable speed, their great value consisting in having them ripe for the London season. Run the scissors over the bunches now for the last time, and lift the shoulders of any that are locked or likely to bind. If Gros Colman is grown in this house see that the berries are very freely thinned, as this Grape is not worth growing for summer use unless the individual berries attain enormous size.

Late houses.—Tying down, stopping and reducing the bunches will form the principal work amongst Lady Downe's and other bottling Grapes, which may be helped forward by early closing with sun heat and plenty of moisture on bright afternoons. If Hamburg pollen has been preserved for fertilising purposes it must be kept dry, otherwise it will be of very little use. The varieties which require the most careful attention are Black Morocco, Mrs. Pince's Muscat, and Lady Downe's.

PEACHES

now taking the last swelling must have all the light and air that can be admitted to them, the first to ensure colour, the second flavour. The trees may still be regularly syringed with pure soft water, but on no account must the leaves be found wet after nightfall, neither must the house be kept close through the hours of darkness to economise fuel; a free circulation of warm, buoyant air being as necessary in the Peach house as it is in the early vinery. Discontinue the use of liquid manure, but do not let the roots feel the want of pure water, as the one spoils the flavour, and the falling off in the other induces premature ripening. Pinch the

points out of all shoots that will be cut away after the fruit is gathered, not only to increase its size, but also to prevent the crowding of the foliage, which must be kept fresh and healthy, as the trees still have a long summer before them.

Midseason trees carrying good crops up to stoning must be kept as steady as possible, 60° by night and 70° to 75° by day being figures which favour safety through this trying process. If hitherto well tied in, a little latitude just now will be beneficial to the trees and fruit, but once the latter is safe and dropping is over, a general tying and regulating will be necessary. The fruit also must be thinned, a Peach to each square foot of foliage being ample for the crop, which must be kept as much as possible on the upper side of the trellis. Ventilate freely through the early part of the day and reduce the air in good time in the afternoon, but defer final closing until it is safe to syringe, and there is no danger of exceeding 80° from solar influence.

Late houses, in which the fruit has been thinned, may have greatly increased ventilation whenever the weather is mild, as it is better to proceed slowly now than to retard when the Peaches are taking their last swelling. Follow up disbudding and heeling in, as late trees, above all others, should not carry one superfluous shoot to maturity. Let warm soft water be very freely used twice a day, especially in the afternoon when the temperature is highest, shut up for an hour or two to give the fruit a start, and give night air when the outside temperature exceeds 40°. Point up the hard surface of outside borders and mulch with rotten manure or good fresh stable litter, as the time is at hand for copious watering.

CHERRIES.

If not already ripe the fruit upon the earliest forced trees will now be approaching this stage, a condition which will necessitate still more fresh buoyant air and a discontinuance of direct syringing. The walls, floors, and stems, nevertheless, must be regularly moistened, but not to an extent that will induce cracking, as so often happens when firing is discontinued. If fly is present or suspected, fumigate for the last time and syringe the following morning, not only to clean the fruit, but to prevent the possibility of an unpleasant taste from the fumes of the Tobacco. When quite ripe, keep dry and cool, and prevent the entrance of birds by the use of fishing nets in front of the ventilators.

PLUMS

which require more time may still be syringed with water free from sediment, top-dressed at short intervals, and fed with weak warm liquid. Shut up for two or three hours in the afternoon, but give air at night, and let the temperature range from 50° to 56° as the minimum, 60° to 70° as the maximum, the lowest figures being safest until after stoning. Keep the trees well pinched and regulated, fumigate on the appearance of green or black fly, and carefully avoid overcropping.

FIGS.

Moderate the moisture in houses when the fruit is changing for ripening, also be more careful in the use of liquid, but, mindful of the fact that the second crop is now swelling, see that these elements are used to an extent that will ensure steady progress. Tie or turn aside any leaves likely to shade the ripening fruit, and gather the latter when the eye shows signs of opening. Keep the pipes constantly warm through the night and on dull days, and give a free circulation of air, as Figs ripened without the aid of this element are not worth eating.

Late houses in which the trees have a moderate root-run may be kept at 60° to 65° at night, 70° to 75° by day, and 80° to 85° after closing. Ply the syringe most vigorously twice a day both backwards and forwards, and see that dry corners, the home of spider, are not neglected. If scale, to which the trees also are prone, is suspected, ply methylated spirits with a bit of sponge tied to the end of a stick, and use soot water two or three times a week both as a stimulant and preventive. The fruit in late houses and wall cases will now be forward enough for thinning, an operation too often ne-

glected, and not unfrequently the cause of wholesale dropping. If the trees have been root-pruned and the run is poor, mulch well and give an abundance of water.

HARDY FRUITS.

PEACHES ON WALLS.

ALTHOUGH the season is late, trees on walls, especially those facing south and west, are now making rapid growth, and certain branches already are showing where there is a superabundance of sap. In the matter of disbudding Apricots, Peaches, and all vertically trained trees, the balance should be maintained by the thinning and pinching of these vigorous shoots first. It is not, however, a good plan to risk a check or too sudden exposure of the tender fruit by taking all the superfluous shoots away at one time, as a great number of these may be pinched at the third or fourth leaf, and finally removed later on; then, in dealing with certain vigorous shoots which must be retained, suppression may be practised when they are 6 inches or even a foot in length. The first lateral, and in some cases the second, where there is room, may then be laid in with every prospect of their setting flower-buds and carrying fruit. In my own practice I thin the upper parts of Peach trees first and leave the lower or more horizontal branches intact until the young shoots are in full and free growth. Trees which have been lifted and transplanted or have been weakened by heavy cropping also have more freedom as leaves make roots, and in all cases these operations are performed when the weather is mild. Many owners of Apricots do not make a point of disbudding and pinching, at least to any great extent, but this is a mistake, which becomes apparent when sheets of breastwood must be cut away when the time arrives for exposing the fruit. When a tree is properly disbudded and ready for heeling in, the young shoots should be about 5 inches apart, with plenty of room for extension in a straight line; the operation of tying in by this means is greatly simplified and facilitated, the leaves have full exposure to sun and light, the shoots studded with perfect buds become hard and brown, and the fruit attains its fullest size, colour, and flavour when ripe.

Thinning the fruit is another important operation which should be carried on with disbudding and finished when the fruit is stoned. All inferior and badly placed fruits, especially those which have set in doubles and trebles, should be taken off first, then as growth proceeds the good ones may be further reduced, care being taken that those intended for the crop occupy the upper sides of the shoots. A Peach to every square foot of foliage represents a heavy crop, but in order to secure this average over the old and young wood the Peaches will be much closer in the centre of the tree, as extension growths of the current year are fruitless.

Mulching and watering.—Taken at all points, I question if good fresh stable litter can be beaten for mulching purposes, as it ensures a clean foot-path, it absorbs warmth from the sun, and admits fresh air; it prevents water from running off the surface and throws off ammonia, at all times beneficial to the foliage and obnoxious to insects, especially to red spider. A thin layer laid on prior to nailing in may suffice until the fruit is set, when frequent additions on the little-and-often principle will produce a good hot weather mulch by the time the trees feel the strain of the crop and feeding becomes necessary. Solid manure is often recommended, but in two or three ways it is objectionable, as it keeps the borders cold when genial warmth from the sun is beneficial, not only to the surface roots, but also to the opening and fertilisation of the flowers. The young growths, moreover, become gross and unmanageable, and it is a very unpleasant underfoot material in wet weather, which does not absolve the grower from daily attention.

Then as to watering, the Peach in a well-drained border is an everlasting candidate for more, no

matter how copious the rainfall throughout the summer and autumn. South borders at the present moment are dry, and on our heavy soil even would take 3 inches of water with the greatest advantage to fruit, wood, and foliage. It is very simple work allowing the hose to run for hours and days upon receding borders, but rule-of-thumb work is as uncertain as it is misleading, a single crack or opening being equal to the conveyance of a brisk stream direct to the lower regions. To prevent this a semi-circular dam should be formed 4 feet or 5 feet from the bole of each large tree; then if the interior is slightly pointed up, the hardest of old balls may be soaked through by repeated charges of water; if tepid so much the better. One thorough soaking upon this principle is worth more than a dozen surface dribbles, as it reaches the lowest roots and prevents the spread of insects. Water through the hose or garden engine at the same time should be freely and frequently used for washing and refreshing the foliage.

W. COLEMAN.

PLANT HOUSES.

BEGONIAS, WINTER-FLOWERING.—Cuttings of the fibrous-rooted Begonias intended for winter blooming that are now struck should be potted off. The stronger-growing sorts may be at once put into 4-inch or 5-inch pots, the less vigorous kinds in a size smaller. Begonias like a moderately free soil—that is, not heavy in texture. Rotten manure and leaf-mould should be added, with enough sand to keep the whole porous, for though they are free-growers, their roots will not live in soil that is too retentive of moisture. Attend to stopping in good time, so as to secure compact bushy specimens that are well furnished at the bottom. Let the plants have sufficient warmth to keep the growth moving freely, so that they may attain sufficient size before autumn to produce a full crop of flowers. By the end of the present month the weather will doubtless be warm enough to dispense with fire-heat, provided that due attention is given to closing the house early in the afternoon.

BEGONIAS, TUBEROUS-ROOTED.—Large tubers, that when first started were put into small pots with the intention of giving them a shift afterwards, should have larger pots before their roots get cramped. Plants of this description will do with less room provided they are regularly supplied with manure water later on, when the nutriment contained in the soil gets partially exhausted. Seedlings that have been raised from seed sown early in the year must have more room as it is required. In most cases 6-inch or 7-inch pots will be large enough for the first season. Though the tuberous Begonias do not require more than a greenhouse temperature after they have made some growth, it is better to keep seedlings in a little warmth until June. Let them have plenty of light by standing them moderately near the glass, and not shading except during the middle of the day in bright weather.

CALCEOLARIAS, SHRUBBY VARIETIES.—Plants of the shrubby kinds of Calceolarias will last for years if properly cared for, increasing in size and in the display of flowers they produce. But to admit of this a proportionate amount of pot-room must be given. Plants that after blooming last summer were cut back and have since been repotted should now have plenty of room, so as to allow of the shoots being tied well out so that the light may reach their lower leaves. They will now be pushing up their flower-stems. Calceolarias like more manure water than many things, and after the flowers appear this kind of stimulant may be given every time the soil requires moistening, provided that the liquid is not too strong. Whatever fertiliser is used in the preparation of the liquid, a little soot should be added. Not only does the soot when so used help the growth of the plants, but the smell it leaves helps to keep away insects. Young stock raised from seed sown about the end of last summer, if not already in the pots in which they are intended to flower, should be at once put into them.

HERBACEOUS CALCEOLARIAS.—These may shortly

be expected to make a fine display. They should be looked over every week to see that they are free from aphides, which are very partial to this section of Calceolarias. In fumigating it is necessary not to overdo it. It is better to repeat the operation two or three times than to run any risk by attempting to kill the insects at once.

SPARMANNIA AFRICANA.—The time of this plant flowering depends more on the way it is treated than is the case with most things. Plants that have been given a little warmth through the winter will now be showing flower. Where the pot room has been at all limited, they should be assisted regularly with manure water or surface dressings with concentrated manure. Cuttings may now be struck and will make fine examples for another year. Old specimens that after flowering last summer were headed down will generally give shoots suitable for cuttings. Choose those that are of medium strength, sever them at a joint, and put them singly into pots large enough to hold them filled with sand. They will root readily in an ordinary stove temperature if kept moist, close, and shaded. As soon as well rooted move them into 5-inch or 6-inch pots. Loam with sifted rotten manure and sand is the material in which the plant does best. When a little growth has been made cut out the tops. Another shift into considerably larger pots will be required during the summer, and a second stopping may be necessary to get the plants sufficiently furnished.

AZALEA MOLLIS.—To be sure of having the flowers of these Azaleas in the best condition, it is requisite either to bring them on in moderate heat or allow them to come on more slowly in a greenhouse, for though the plants are quite hardy, the flowers come in before the spring is far enough advanced for them to escape the May frosts that generally occur. The less heat that is used in bringing them into bloom the more long-lasting the flowers are. One of the advantages of growing these Azaleas in quantity where there is a conservatory to keep gay, or where many flowers are wanted for cutting is, that if the plants are properly treated after flowering they will bloom again well the ensuing year. To enable them to do this they must, after flowering, be kept under glass until they have completed their growth and the flower-buds are plump and prominent. After the season's growth has got hardened the plants will do better out of doors.

HEATHS, WINTER FLOWERING VARIETIES.—Most of the free-growing varieties of winter-blooming Heaths that are grown for sale very often fail to grow after they have flowered, by reason of the manurial stimulants usually given during the summer previous. The plants, if not already cut back moderately by removing about one-half the length of growth made by the principal branches last season, should be at once attended to. They ought to be kept a little closer than usual for two or three weeks after, in order to encourage new growth, being careful during the time not to over-water them. As soon as the growth has begun to move freely, the plants will require a shift, as in most cases they will be underpotted. Give pots from one to two sizes larger than they have been in, and use the same kind of soil as advised for the free-growing varieties of the hard-wooded section, that is, peat of medium texture, avoiding that which is too hard, or too soft and spongy. See that the plants are in a right state for water before potting. Use the lath so as to make the new soil as close as that of which the old balls are composed. After potting the best place is a cold pit or frame, which could be kept closer than usual for two or three weeks till the roots have had time to move. During this time use a thin shade when the weather is bright, afterwards give more air, and also water more freely. Plants of this description may be kept under glass until July, after which they will be better out-of-doors. T. B.

Plant labels.—There have been several letters recently in your paper as to efficacious labels for plant borders. I have found the following plan answer well: I take a piece of flat wood, about

2 inches broad and 1 foot or 15 inches long, make one side smooth by scraping it with the edge of a piece of broken glass, paint it with a thin coat of paint, or even whitening, and when dry, write the name on it with the "jet varnish" sold for iron fencing. I generally buy a few penny paint brushes for this purpose, and bring them to a point by dipping them in oil before commencing to use them. I also generally dip the point of the label which goes into the ground into the varnish to a depth of 4 inches or so as a preservative. These labels I have found both durable and legible.—G. F.

FLOWER GARDEN.

FINE-LEAVED PLANTS IN THE FLOWER GARDEN.

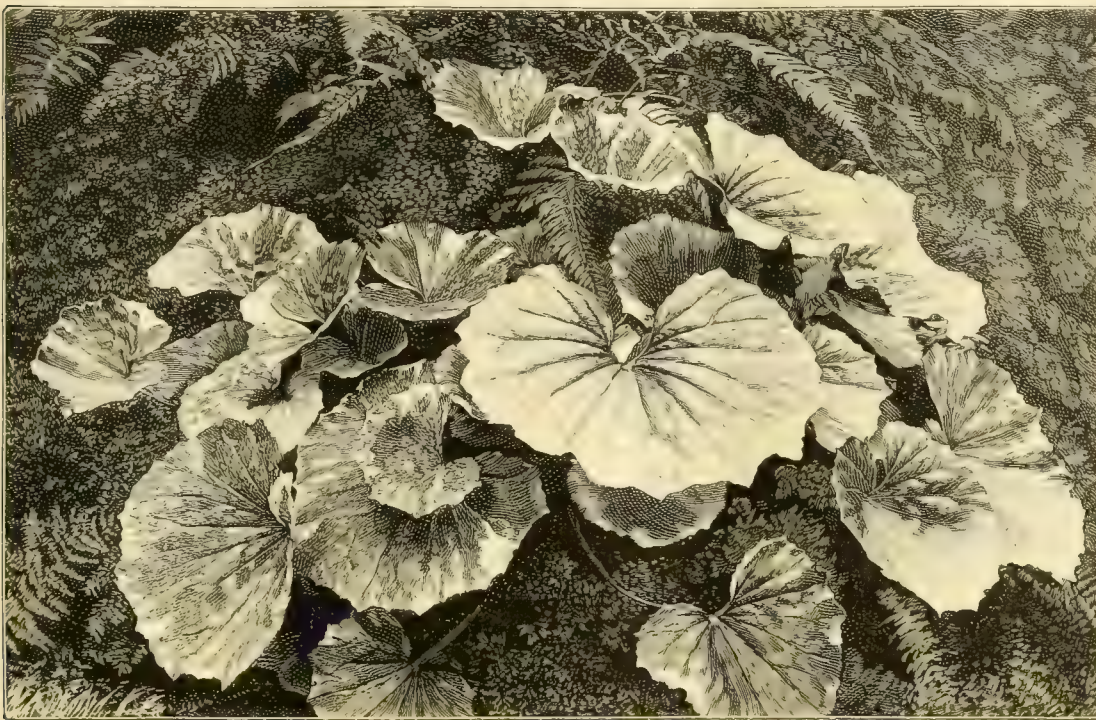
THE use in gardens of plants having large and handsome leaves, noble or graceful port, has taught us the value of grace and verdure amid

passed by anything of like habit we can grow in a hot-house. There are the *Arundo conspicua* and *A. donax*, and fine hardy plants like *Crambe cordifolia*, *Rheum Emodi*, *Ferulas*, and many umbelliferous plants as graceful as some of the tenderest exotics. *Acanthuses*, too, when well grown are very suitable for this purpose. Then we have *Chamaerops Fortunei* that has preserved its health and greenness in sheltered positions, where its leaves could not be torn to shreds by storms, through all our recent hard winters. A handsome, useful, and hardy plant, too, is the one we here illustrate—the variegated form of the Coltsfoot (*Tussilago farfara variegata*). It may be used with good effect in shady positions where other plants will not thrive. It does well as an edging to a clump of Ferns (which should be abundantly used in all gardens), or as a groundwork to other plants with graceful foliage. Care must be taken to keep it within bounds, as it increases like a Nettle or Couch Grass by

plants that can stand out in the summer without the least injury, and which may be transferred to the conservatory in autumn, there to produce as fine an effect all through the cold months as they do in the flower-garden in summer, are the best. But of far greater importance are the hardy plants, for however few can indulge in the luxury of tender plants, or however few the spots in which they can be put out in safety, many may enjoy those that are hardy, and that, too, with far less trouble than is required for tender ones. Y.

YELLOW-FLOWERED BEDDING PLANTS.

OF late years in some places *Calceolarias* have proved so unreliable that they have gone out of favour. Here and there is a garden where they still do well, and if an inquiry is made as to the treatment they receive, we find the cuttings have been planted thinly in cold frames in loamy soil, and beyond giving water when dry, very little pains have been taken with them. A neighbour who has healthy beds of *Calceolarias* every year dibbles his cuttings thinly into the border on the west side of a wall, and shelters in cold weather with an old canvas blind. The plants, which are set out in the first week in May, get well established before the hot weather sets in. Cool treatment in winter, early planting, and change of soil annually offer the best, if not the only chance of obtaining healthy plants that will be effective all through the season. In porous soils I have found a good layer of rotten manure buried in the beds about 8 inches or 9 inches deep very useful in keeping the plants in vigorous health. A mulch also is beneficial, with an occasional soaking of water in hot dry weather. Perhaps the best variety is *Yellow Gem*; it has a little more of the *rugosa* blood in it than is possessed by the once popular variety *aurea floribunda*. The late-flowering variety *amplexicaulis* is more robust in habit and less liable to canker at the base than the other bedding sorts, but it is not quite so hardy, and if wintered in a cold frame it must be rooted rather early and protected with double mats in frosty weather. Yellow flowers, being very conspicuous, should not be used so largely as the various shades of red. And both of these should be



Fine specimen of variegated Coltsfoot (*Tussilago farfara variegata*) in the gardens at Dogmersfield.

masses of low and unrelieved flowers, and has reminded us how far we have, in many cases, diverged from Nature's ways of displaying the beauty of vegetation, our love for rude colour having led us to ignore the exquisite and inexhaustible way in which plants are naturally arranged. We may have in our gardens—and without making wildernesses of them either—all the shade, the relief, the grace, and the beauty of Nature. To carry it out in private gardens an expense would be necessary which is, in nearly all cases, quite impossible. We can, however, introduce into our gardens most of its better features. We can vary their contents and render them more interesting by its aid. A better effect than any yet generally seen in an English garden may be made by using only hardy plants. There is the Pampas Grass, which, when well grown, is unsurpassed by anything that requires protection. There are the *Yuccas*, handsome and thoroughly hardy, and which, if planted well, are not sur-

growing underground. By a selection from the vast number of hardy plants now in the country, and by associating with them, where convenient, glass-house plants that may be placed out for the summer, we may have as much variety and beauty of form in the flower garden or pleasure ground as can be desired. Among the tenderer plants we must choose such as will make a healthy growth in sheltered places in the warmer parts of England and Ireland. In all parts the kinds with permanent foliage, such as the New England Flax and the hardier *Dracaenas*, will be found as effective as around London and Paris, and to such the northern gardener should turn his attention as much as possible. Even if it were possible to cultivate the softer-growing kinds, like the *Ferdinandas*, *Solanums*, *Wigandias*, &c., to the same perfection in all parts as in the south of England, it would by no means be everywhere desirable, as these kinds are not capable of being used indoors in winter. The many fine evergreen

well balanced when planting a geometrical design, and be toned down with neutral tints of flowers and foliage. The failure of the *Calceolaria* has not been an unmixed evil, as it has led to the employment of other tints of yellow and orange which, I think, are more effective. There is a dwarf yellow *Antirrhinum* which makes a very effective bed, and if the seeds are regularly picked off, a succession of flowers will be obtained all through the season. The stock has to be rooted from cuttings, but they can be kept through the winter in a cold frame. *Gazania splendens* comes in useful for a change, but its flowers only open freely in the sunshine. *Harrison's Musk* in a cool spot, well cared for, does well. Yellow *Violas* or *Pansies* in good soil, well manured, make a bright and pretty bed, and the old *Viola lutea grandiflora* in a broad band round a contrasting colour is nice for variety. I have had the yellow *Calliopsis Drummondii* in good condition when pinched early in the season to make the plants bushy, the shoots being pegged down close to the ground till the soil is all covered. I have found *Tagetes signata pumila* and *Tagetes patula* *parviflora* (the latter is a

dwarf yellow form of the French Marigold) useful for a change, but the growth should be pinched well back at first, or some of the plants will become straggling and destroy the uniformity of the bed. But perhaps the most telling bed I have seen was a mass of yellow Carnations planted somewhat thickly and the flowers neatly supported with small sticks not too conspicuously placed. When well done, there is a richness of tone and tint about a good mass of yellow Carnations that is difficult to find in any other class of plants. E. H.

Tulips.—Tulips formed a leading feature in a collection of spring-flowering bulbous plants staged by Messrs. Barr and Son, King Street, Covent Garden, at the recent spring show of the Royal Botanic Society. Scarcely before were seen such immense blooms of Keizer Kroon; they were like huge goblets, stout, and finely coloured. Among the white varieties was one named David Teniers, very large and bold, pure white, and having a distinct yellow base. Le Laitiere, also white, was in much the same way, but smaller. Adeline is of a rich peony-rose, a bold and striking flower, with a yellow base. Blanche Hâtive is worthy of notice as a double white variety. One of the handsomest and quite a peer among Tulips is De Keyser, rich crimson, with a rich bright clear golden base; very fine indeed. Dussart is in the same way, but deeper in colour, a shaded crimson, but very fine and striking also. There were several others, among them some of the well-known early single and double varieties, but those named above were decidedly the best. It would be interesting to know where Keizer Kroon was grown to such a large size. If in Messrs. Barr and Son's new nursery grounds at Surbiton, then they have a soil well adapted for the culture of this class of bulbs.—R. D.

Yellow Polyanthuses.—I observed that Miss Jekyll had sent some bunches of her Munstead strain of Polyanthus to the Daffodil conference at Chiswick. The flowers were large, one orange-hued form being admirable. The weak points of this lady's strain seem to me to be found in somewhat loose habit in the trusses of flowers and heavy buff centre. Now having hundreds of yellows of diverse shades to select from, I strive to save seed from those plants which carry erect, dense heads of bloom, because they show with such telling effect at remote distances. If seed were of no consequence and the plants lifted when in bloom and blocked into masses according to shade, the effect would be striking; whites, though so pure and good, do not show remotely by any means so effectively as do yellows. Starting with the pale creamy shade, it is possible to make up several diverse yellow hues, the deep yellow or orange being the most effective. Clumps of the duplex or Hose-in-hose section make most show because of the body of flower, but all these have not the stout erect stems seen in the single-flowered forms. For distant effect also hues which would in single plants be termed washy are better than are dark reds, crimsons, or purples; a buff or pink shows up very well. The deep colours are best when closely looked upon and there is ample sunlight. The value of the gold, yellow, and white forms are specially seen under dull skies, which too freely prevail in the spring. Even now when writing on April 17 the sky is overcast with dense cloud and mist, but whilst the dark hues reflect nothing, the yellows dotted here and there in all directions stand out in the gloom like stars of gold, some of the clumps of bloom being 12 inches across. Truly we have no hardy spring flower which can equal the Polyanthus in the production of ground effects when the plants are strong and full of bloom.—A. D.

A Primrose garden.—Spring gardening, by introducing a number of novel forms into use, has done some service, but of late years the various improved Primroses have superseded some of the spring gardeners' favourites. It is now, however, quite possible to make a garden gay with Primulas only, or with Anemones only, or Campanulas only, or Irises, or Daffodils, so numerous are the varieties

now in cultivation. But for the general use of a suburban forecourt, or for the quiet little nook in a larger place, what can be nicer than a good show of Primroses and Polyanthuses. There are many of these quite strong enough to thrive near London, the common Primrose heading the list. Then coloured Primroses. Then a race of light Oxlip-coloured Polyanthuses, now in great beauty, some white, some yellow, some orange, not to speak of the fine old crimson Polyanthus and the gold netted sorts so much admired. And now there is a charming violet-coloured Polyanthus with a circular flower and very small eye. Also amongst the double Primroses there is a very fine white semi-double which seems to have quite a London constitution. Thus we have a number of telling colours, not to speak of Cowslip and Auricula. Alpine Auriculas are capital town flowers; they only want to be let alone a bit and they do famously. But the London summer is the bane of Primroses. This is how I would proceed. First, plant out in October, as soon as ever the beds can be cleared, in the same solid clump of roots, just as they are lifted from the reserve beds. This condition is important, for no herbaceous plant is able to stand winter so well if it is disturbed in the autumn. Now leave them to make their show all through March and April following. Then have a reserve ground nicely dug and shady; shady it must be, or they die. About May 1, or before, take them up, divide them moderately, and cut away the frequent underground stems, leaving one or two rings of roots only. Plant in rows, cut off remaining bloom and spikes, unless you have a fancy for a bit of seed. Water well, and all the summer if the weather gets dry give water. Also mulch them, and when the time comes round again you can have fine roots ready, even within two or three miles of Temple Bar.—A.

OLD DOUBLE WALLFLOWERS.

I USE this term to distinguish some favourites in cottage gardens from the German types that we treat as biennials, and which lack the perennial shrubby character of the old types. If we look into plant lists we find in some of them the old double crimson and old double yellow. But I have seen two or three varieties of the double crimson, but one that, no doubt generally referred to as the double crimson, is of a maroon-crimson shade with full compact flowers borne on good spikes, and which if left alone will grow into a large size, quite like a shrub, and last for years. This has a counterpart, except in point of colour, in the old double yellow. I have two or three plants of this in my garden that produce fine spikes of fully double flowers of a deep golden yellow colour. What is met with sometimes under the name of the double brown is paler in colour and larger in the flowers, but of this type I have met with two or three varieties, but none of them so good as the old double crimson. I have already stated there are two or three varieties of the yellow. One is of a much more compact growth than the old double yellow, the flowers paler in colour, larger, and looser in shape. I have found this in Hertfordshire gardens, and in one of these I once saw a large bed of it blooming up to midsummer, spikes from side shoots having succeeded those from central ones.

A few weeks ago Messrs. Paul and Son, of Cheshunt, exhibited a plant of the late Rev. Harpur Crewe's double Wallflower. This was obtained some ten or twelve years ago, but I forget from what cross; the foliage is smaller than in the ordinary double Wallflowers, and the flowers in which yellow predominates are small also, and produced on rather long spikes. It is more of a botanical curiosity than a decorative plant, but it is yet an interesting one. I have a plant of it in the open border that is blooming freely, but I confess it looks quite poor by the side of the fine old yellows.

Plants of the double German Wallflower yield seeds, and can be propagated in this way, but the fine old double varieties can be propagated only by means of cuttings. These are best formed of the growths put forth from the old wood, and if put into pots of gritty soil and placed under a hand-glass

or in a mild hotbed, they soon sent out roots. In potting off the young rooted plants, a little old mortar rubbish should be added to the soil.

R. D.

HARDY FLOWERS IN A SURREY GARDEN.

THERE are several beautiful gardens in Surrey, but few in which the lover of hardy flowers will find more to interest him than in the gardens of Mr. G. F. Wilson at Weybridge and Wisley. The mention of such names recalls the many handsome Lilies that have there found a good home, and which from their present vigorous health promise a great show of flowers in the autumn. At Weybridge in Mr. Wilson's cottage garden, a quiet and quaint old-fashioned place, but beautiful in its wildness, several fine hardy plants have run into large masses. A break of yellow Alyssum clustering round the foot of a Pine was essentially happy and the contrast of chocolate bark and yellow bloom exceedingly fine, while the large white wood Lily (*Trillium grandiflorum*) thrives in a shady position, where hard by is a thicket of *Diplopappus chrysophyllus*, *Spiraea Thunbergi*, laden with its small white flowers, and *Pernettyas*, which have been planted amongst a mass of roots in the poorest soil. Tree stumps are an evil on the rockery, but at Weybridge they make a charming situation for such things as *Pernettyas*, which thrive with great vigour, the bushes being laden with the bright and attractive berries. Such old favourites as the Foam Flower, which makes a cloud of white as soft and fleecy as foam, thrive on a hillock of poor soil in which few things, unless of the hardihood and vigour of this plant, would survive. Mr. Wilson has a few cool houses, in one of which is flowering the lilac-coloured *Lilium Thomsonianum*, and in another the fine old Cloth of Gold Rose and a variety named *Isabella Gray*, which was raised in 1854 by Andrew Gray from the old Cloth of Gold; also flowering was the rich crimson-coloured *Pinguicula caudata*, illustrated by a coloured plate in *THE GARDEN*, August 22, 1881. This Butterwort is one of the handsomest of the genus, and requires only an unheated house—in truth, it will almost live out of doors. Its occurrence in warm structures shows that its hardiness is not known generally. At Heatherbank Mr. Wilson has freely planted his favourite flower—the Lily, and the health of the rising stems shows how well the likes and dislikes of a flower that many fail in cultivating are understood. Near his house at Weybridge are *Rhododendrons*, and in the front of these, Lilies were planted to make a show of flower in autumn and to receive shelter from the shrubs. It was found, however, that each year the Lilies dwindled away until they promised to disappear altogether. The soil was too poor for any growth, but as Lilies were wanted in these sheltered spots the plan was hit upon of growing them in tubs sunk into the ground. This has proved a success, the Lilies gradually recovering, and promising this autumn to make as fine a display of flowers as those in the garden at Wisley.

Mr. Wilson's chief interest is centred on the Wisley garden, which is some distance from Heatherbank. Here one finds a lot of hardy things, and at the entrance a fine hedge of *Rosa rugosa*, now bursting into fresh leafage of the richest green and making a substantial fence of strong spiny stems, the plants giving delight as much from their glossy leaves as from their large sweetly-scented flowers. This Rose varies much from seed, and plants are easily raised in this way. Near by is a pond fringed with the Japanese Irises,

which in their full growth and bloom must make a rich picture of flower beauty. It is interesting to notice that the plants do just as well in the water as when their roots are merely allowed to revel in the moisture that soaks about them. The usual advice is not to plant them in the water; but the tufts at Wisley, which have remained in the pond all the winter, are as vigorous and healthy as those on the bank. On a raised bank, in the fullest sun, are plants of the Garland Flower (*Daphne Cneorum*), blue winter Windflower (*Anemone blanda*), and the Prophet Flower (*Arnebia echioides*) fully exposed to every ray of sunlight, and revelling in the stiff loamy soil. There are also here several fine plants of the blue Poppy (*Meconopsis Wallichii*), which in the shade—and it loves shade and moisture—spreads out into a large mass; *M. nepalensis* is also grown, both doing well, and when in robust health there are few finer plants either in flower or leafage. Sown over a hot bank is the rich crimson-flowered *Papaver umbrosum*, which a few days' strong sunshine will bring into full bloom. There is no finer Poppy in its way than this showy variety.

One of the prettiest gems is *Primula glabra*, a minute and miffy thing, but interesting when it does well. It seeds itself freely at Wisley, the little plantation of it being well shaded, moist, and protected from cold winds. Under different conditions, viz., in the full sun, was *Tulipa linifolia*, a bright and handsome flower of the richest scarlet, with a black centre, the leaves narrow and crimped. It is a striking flower, especially when seen in the full sun. One of the finest hardy flowers at Wisley is the *Gentianella* (*Gentiana acaulis*), which makes a spreading carpet of growth, now spangled with its flowers of the deepest blue. This does well in the fullest sun, unlike *Ourisia coccinea*, which wants shade and moisture, but given these thrives splendidly.

An experiment is made here with the Himalayan *Rhododendrons* by planting them amongst the hardy varieties, and it appears, from the vigorous health of *R. Falconeri*, that the experiment will be, in some measure, successful. Very pretty, nestling close to the ground and full of fruit, is a large break of the Partridge Berry (*Gaultheria procumbens*), and as graceful as a Grass is *Uvularia grandifolia*, the large-flowered Bellwort, now beautified with its beautiful clear yellow drooping flowers. *Primula japonica* is freely planted; and this is a Primrose all should have who want a bold handsome flower in full beauty in the month of May. It varies much in the colouring of its flowers, from rich crimson to the purest white, and a lovely thing is the white *P. japonica alba*. It should be planted in large clumps on the rockery, and in a little shade and moisture. When grown in pots half its fine character of flower and leafage is lost. On a sunny border, *Iris tiugitana*, which is the subject of a separate note, is bursting into bloom, while on sloping ground and sheltered from strong winds, *Narcissus tridymus*, *rupicola*, and the several Hoop-petticoat Daffodils are just past their best, after having given a brave mass of shades of yellow colour.

Primroses, Polyanthes, and Auriculas are the flowers that now make the greatest show at Wisley, and in few gardens is there a finer selection than here. The work of raising seedling Primroses by Mr. Wilson has wrought good results in the acquirement of such pretty kinds as Oakwood Blue, which represents also a new departure. We have not yet obtained a true blue Primrose, but the violet-purple coloured flower of the Oakwood Blue, enriched by a

small yellow eye, is in itself large, bold, and well shaped, as free as the common wilding of the woods, and very bright clustering against cool grey stones. The collection of these flowers is of great interest. There is scarcely a bad variety amongst them, and many have the same fine flower as Oakwood Blue, although of another colour. Such a variety is Red Gauntlet, of which the flower is reddish purple, intensified by a crimson central line and an eye of yellow. Then we have Herman Wilson, which displays in its flowers two brilliant shades of carmine, producing a satiny lustre very bright in the full sunlight.

In a small piece of ground, merely planted to show what a large number of things can be grown in limited space, there are, besides the many single Primroses, the double kinds, including the old double purple and the old double crimson, of which a coloured plate was given in THE GARDEN, Oct. 20, 1888. This is the finest of double Primroses and very scarce, though we now occasionally see a tuft of it in good gardens. An interesting account of it is also given with the illustration referred to. Very beautiful on a bank was the double sulphur, its large, pale-coloured flowers amidst the Grass making a far prettier picture than those planted formally in the garden.

The Polyanthes comprise a rare selection of fine colours—deep yellow, rich orange, and intermediate shades, which make telling masses when not indiscriminately mixed together. There are few finer things for the border than the large-flowered Polyanthes, which are strikingly handsome when in large bold clumps, the flowers also being useful when cut for the house. The rich yellow and orange shades and the white flowers are the finest things for the border, and at Wisley we have their rich beauty in its fulness. Quite as fine and interesting are the Auriculas of the best alpine varieties, all raised from seed and of the loveliest colours. In a good selection of seedlings there is a fine range of shades, from the deepest purple to the brightest carmine, shading to deeper colour, and rich yellow in the centre. One variety was of this combination, and as bright a flower as we have seen at any exhibition. There are happily no green-edged, white-edged, nor milky white fancy varieties in this pleasant garden of hardy flowers; these can be left to the florist who can appreciate the sharp delineations of colour, as did Glenn of old, who ordered that everything should be as round as a cartwheel. The alpine and self Auriculas have the deepest self colours, as varied as they are rich, and besides these a fragrance as sweet as that of the Cowslip. Nothing is more refreshing than to open a frameful of Auriculas and sniff the delicious odour. The plants are easily raised from seed, and the best should be marked to grow on, discarding those of washy tints.

Besides the hardy Primroses and other flowers there are large groups of Lilies of all kinds, planted each by itself in one distinct mass, the glory of which will be revealed in the autumn. *L. giganteum*, planted in shade and shelter, has noble foliage of glossy green. In the shade by a little brook are immense clumps of Christmas Roses, and although hardy flowers are pre-eminent, trees in full bloom of the Weeping and Waterer's Cherry, the bright carmine *Pyrus Malus floribunda*, relieved by the purple-coloured foliage of *Prunus pissardi*, and a wavy mass of *Cytisus præcox* crowning a rising knoll show that there is appreciation for all good things that beautify the garden. Here also thrive the various Sun Roses and a variety

of other plants too numerous to describe in a brief space.

Primula intermedia. On p. 407 "K." asks what is *P. intermedia*. "*Intermedia*" being, like "*hybrida*," a relative term, ought to be eliminated from all botanical works as a specific name. The oldest *P. intermedia* I can find is *Bot. Mag.*, tab. 1219 (A.D. 1809). There it is given by Sims to what seems to be one of the inferior forms of *P. nivalis* (Pallas), because it "appears to be intermediate between *P. farinosa* and *P. nivalis*." Then we have the *P. intermedia* figured in Trattinick's "*Archives*," published in 1814. This is the plant referred to as described by Portenschlag, and thought to be intermediate between *P. Clusiana* and *P. minima*. Twenty years ago *P. intermedia* used to be sold in nurseries between *P. cortusoides* and *P. cortusoides amoena*. Now the name is more commonly applied to a very good alpine Primrose, described in catalogues as between *P. ciliata* and *P. Auricula*; but I will not venture an opinion as to its affinities. The name seems to be convenient whenever the catalogue compiler is hard up, and may have been frequently adopted.—C. WOLLEY DOD, *Edge Hall, Malpas*.

Anemone apennina.—I may state that I grow *Anemone apennina* both in the open ground and in pots; in the latter because I have a cold house which I like to make look as gay as possible in early spring, and for this purpose I employ Crocuses, early Narcissi, Hepaticas, blue and yellow Anemones, Saxifraga ligulata, and other things that scarcely anyone else would perhaps trouble to cultivate in pots, unless he was placed as I am here. I have neither Mr. Douglas's resources nor opportunities, but I try to do the best I can. I report *Anemone apennina* annually, giving it a rich and rather stiff loamy compost, and I cannot possibly complain of the freedom of its bloom. The finest patch of it I ever saw was when Mr. J. S. Bridgett occupied Ealing Park. It had been planted in an open space in the shrubbery, and there it had naturalised itself and covered a large space of ground, and having the sun falling upon it in the morning and the shade of trees in the after part of the day, it bloomed with remarkable freedom and very finely. It does superbly in a good yellow loam, but should have some amount of shade to preserve the colour of its blossoms, as they burn under the rays of the sun and soon become disfigured.—R. D.

White Primroses.—I gather from the observations made by "A. H." with respect to white Primroses, that they are to him somewhat novelties. They are far from being such wonders here, where I have grown them for many years, and find they come very true from seed. The white varieties of any good garden strain are much finer and far more showy than are the very best ever produced naturally by the wild Primrose. Plants a foot across and literally one mass of white flowers of good form and substance are far from being scarce here in the proper season. Primroses are now over for the year, as their chief blooming time is during March and April. The pretty mauve Primrose referred to as being plentiful at Betteshanger is doubtless the variety known as *lilacina*, which used to be, and probably still is, grown so largely at Castle Ashby. It is a wonderfully free and charming variety, doing well in cool districts. "A. H." is correct in referring to the Primrose as so very hardy. Winters do not kill it, but dry heat in summer does. Where employed to fill beds in the spring which are to be filled later with tender plants, it is well to have so good a stock of the hardy Primroses, that those employed in one spring may be left in the ground to which they are removed after blooming for some eighteen months. It is too much to expect that the plants will endure transplanting twice in the year except in highly favoured localities. If seedling plants give a mixture of colours, I am not sure, from a bedding point of view, that is any great harm, for mixed beds are very beautiful, and if it be desired to group the plants into colours later it is only needful to mark the colours of each

with small labels, and they can when lifted be grouped as desired, and so replanted into their summer quarters.—A. D.

NOTES ON HARDY PLANTS.

Cypripedium spectabile.—Mr. Jenkins has told us clearly and well how to treat this beautiful plant (p. 366)—the position, how to prepare the ground, and how to supply it with water, and all hung on the peg of what, to him, seems to be an omission on my part in not giving full planting particulars. Few of us have streams of water running through our gardens, and others will not care to take in hand the culture of a flower if it is needful to make such elaborate preparations for it. I am not saying that this plant is not worthy of the care. I say it is not essential. The needful conditions are simply side shade from mid-day sunshine, vegetable soil or half-decayed peat or leaves, and plenty of moisture. These are not very difficult; the one difficult condition is getting the moisture. I get it simply by diverting the surface water that runs down an inclined walk, and when there is dry weather water is given, but not often, as a patch thus provided for gets so thoroughly soaked in wet weather, and the loose, half-decayed stuff on the top renders evaporation so slow, that the use of the water-pot is reduced to a minimum. I never observed new whitish roots on either newly-imported clumps, or those lifted from my own stock, at any part of the rhizome other than close to the leading parts or new growths, and I should be surprised if I did. I mention this because, besides other reasons, it would, to my mind, play an important part as regards the cultural treatment. I have seen the zigzag rhizomes nearly a foot long, but the roots have been dead or dying, and certainly all old, excepting near the points of growth, and yet the rhizome may be found to be perfectly sound from end to end. Because of this soundness, I considered it advisable to say it should not be cut away; and though Mr. Whall (p. 353) says that it may be cut away, what he incidentally mentions afterwards about getting the old pieces to break again and make plants, only, in my view, confirms the theory that, left on the plant, the back sound portions add to its sustenance and vigour. Anyhow, I have gone on these lines in the cultivation of this plant, with the exception of trimming off the "wig" of old roots, during the past twelve years, and though my place is naturally sunny and dry, I get this Lady's-slipper to grow quite freely.

Geranium pratense plenum.—Beautiful as the wild meadow Crane's-bill is, there can be no doubt about the double-flowered variety being an effective and useful border subject. In well-grown plants the double purple flowers (each about as large as a shilling and half globular) are borne in hundreds, and a succession is kept up for weeks, the plant yielding bloom in lieu of the large seeds in the case of the type. It does well enough in half shady places, but in every way it is more satisfactory when placed in good soil and exposure. I do not think this useful plant is much grown. Surely, against this, at least, the prejudice about double flowers should be so far put aside as to give it a trial. Give it two years to get strong, then form your own opinion of it.

Erythronium giganteum.—Big flowers of a delicate colour, borne on rather long and slender scapes, are hardly the things to expose to the open-air weather of March and April, no matter how hardy they may be otherwise. Under this category comes the large Dog's-tooth Violet. One rarely sees it in its best form out of doors, but in a cold frame kept well aired it is beautiful. Who could expect sulphur-coloured flowers 2½ inches across to remain presentable, even if not broken before they opened, more than one day? and the recurved forms—two or three on one slender stem—are all the more dragged by the wind owing to their shape. The flowers last a very long time under cool glass cover, so that it seems more profitable as well as essential to accommodate this hardy flower in the way indicated. After flowering, the plants had better be plunged in the open to ripen their tubers.

Tulipa sylvestris.—What a charming thing this is when it takes to its own wild ways of spreading and increasing itself in natural groups by means of its underground stolons. The stout flowers are rich yellow with red touches about the edges of the divisions. A Tulip gay enough for anyone, but when responsive to sunshine, the large cups assume the star form and exhale their spicy fragrance, one forgets entirely its gaudy companions, and places it at the head of its genus for its many charms, and especially the one of sweet smell, belonging perhaps to no other. For four years I have grown a large form from the south of Europe. Sometimes, I may say often, there are two flowers on a stem or scape. It does equally well in the open garden, but, to my fancy, what it gains in size compared with the type is more than counterbalanced by the long stems and somewhat ungainly habit.

Anemone sylvestris.—There are many complaints that this dies out, and where it does not die, that it is a shy bloomer. It wants two things; first, a rich, but heavy soil, and next, management by way of trimming away the profusion of offsets every year. Besides, though slugs, as a rule, do not seem to care for Anemones, they are very partial to this one. Most frequently the plant is seen in the form of a broad piece of weak radical herbage without the least sign of a flower-stem. It would appear that the lighter and richer soil of a garden encourages this free rooting at the cost of blossom.—Anyhow the results will be quite changed, and there will be abundance of flowers if the old crowns are trimmed round with the spade and all offsets removed every spring to the reserve quarters. Wood ashes in the dry and white state will settle the slugs. J. WOOD.

Woodville, Kirkstall.

SHORT NOTES.—FLOWER.

A bed of Tulipa retroflexa in the Royal Gardens, Kew, is one of the prettiest features out of doors. The flowers are gracefully poised on slender stems and of the clearest gold-yellow colour. It makes a charming bed.

Lilium Thomsonianum.—This shy-blooming bulb was in full flower recently in Mr. G. F. Wilson's cottage garden at Wisley. The plant makes a crowd of bulbs, but, unfortunately, seldom flowers. It requires a cool house.

The Prophet Flower (*Arnebia echioides*) does well at Wisley, where it is planted in the full sun and on a raised bank. Plants when full of the yellow flowers, marked with the characteristic spots, are very showy and beautiful.

Commelina coelestis.—What distance apart should seedlings be planted out to flower this year? They have already been pricked out 1½ inches in boxes, and are growing vigorously in a greenhouse. What treatment do they require? Are they worth blooming under glass?—H. T. S.

Tulip W. E. Gladstone.—We send you here-with a bloom of a very fine new single Tulip called W. E. Gladstone. It grows about the same height as the Pottebakkers. You will note the remarkably rich colouring and the size of the flowers. It is a very good flower.—BARR & SON.

* * A large flower of rich colour.—ED.

Erigeron chrysopsidis.—This is another addition to the list of interesting American plants which are continually coming into Mr. Thompson's hands and being tested as to their real value. This species is interesting mainly because its flowers are of a colour that is scarce in this rather extensive genus. It has a dwarf spreading, but tufted habit of growth, the leaves being linear and densely covered with thick woolly hairs, thus rendering the whole plant of a soft grey colour. Each shoot bears a single and rather large flower, the ray florets, which are about fifty in number, being of a rich yellow hue. Mr. Thompson says it is a native of Oregon, where it grows upon mountain sides and stony hills. It would, therefore, be most at home upon the rockery.—H.

Collinsia verna.—This is one of the prettiest of spring annuals, but rarely met with in gardens. It is now flowering finely with Mr. Thompson, this being attributable to the fact that by trying it in various ways, and by a close observation of the results, he has found that it can only be had in perfection from au-

tumn sown seed, which must have been saved from plants that have flowered in the spring of the same year. It is a native of Kentucky, and the only species found on this side of the Rocky Mountains; whereas the other species from California succeed if sown at any time. Individually the blossoms very much resemble those of a Lobelia, and in colour the lower petals are of a delicate shade of pale blue, the upper ones being white. A mass is pretty only upon close inspection, as from a distance it appears of a dull grey colour.—A. H.

Double Anemones from selected seed.—Mr. Myles, the persevering gardener at Appley Towers, Ryde, will soon become as famous for seedling Anemones as already he is with his three promising new Grapes. Some beautiful flowers now before me, red and white and perfectly double, measure quite 4 inches across, and although cut from the plants a week ago are still quite fresh and improving. Mr. Myles saves his own seeds from the best single or semi-double flowers every year, sows as soon as ripe, and in this way secures most gorgeous beds from which he cuts enormous quantities of blooms from the end of December until the beginning of May. The climate of the Isle of Wight, of course, is favourable to the fullest development of these Pasque Flowers, and that without the slightest protection, as one may readily suppose when I state that Dracenas, the Embotrium, Sikkim Rhododendrons, the Desfontainea, Lapagerias, and a whole wealth of plants usually met with in mainland conservatories not only winter, but flower profusely in the open garden facing the sea. Gardeners less favourably situated cannot expect to gather Anemones anything like so early, correctly speaking, so late as the end of December, but with a little care and protection from rough weather they may be turned to profitable account, especially when, like the Gladiolus, the flowers keep on opening and perfecting themselves in vases of water placed in temperate rooms. Mr. Myles is a great hybridist, and has made his mark as a raiser of some very good Orchids, also of three true hybrid Grapes especially adapted for bottling or winter use, and which will be generally grown in preference to some others hitherto considered indispensable where high class fruit of the preceding year must shake hands with the new.—W. C.

GARDEN FLORA.

PLATE 752.*

ROSE EMILIE DUPUY.

This noble Rose is a valuable addition to that increasing and beautiful class of strong "climbing" Teas. It is little known, and I do not find the name in any English Rose catalogue. I can speak in great praise of Emilie Dupuy, and the publication of the plate will suffice to ensure this Rose the recognition it deserves. It is of vigorous habit, and is well adapted for walls or fences. The foliage is abundant, large, of a glossy green colour, and an admirable set off to the large, handsome, finely formed flowers and very bold buds. The colour, as will be seen in the characteristic drawing, embraces the prevailing shades of yellow and buff, like others of the Dijon race. The form and substance of the flower are striking, as the buds, which are themselves very large and full, open gradually into a massive bloom, in which the outer petals form themselves into a kind of saucer, like the guard petals of a Hollyhock, and the centre of the flower is filled up with a clustering mass of petals, and very beau-

* Drawn for THE GARDEN by H. G. Moon at Grave-tye Manor, Sussex, Sept. 19, 1889. Lithographed and printed by Guillaume Severins.



ROSE "EMILIE DUPUY"

tiful. Added to these good qualities is that of a delightful scent; in fact, in Emilie Dupuy we find all that goes to constitute a good Rose, and it should be largely grown. It was raised by Levet in 1870. The flowers represented were from a plant on a south wall in a rather heavy soil in Sussex, but not in a sheltered place, and not in any way protected during several severe winters. There need thus be no doubt of its hardiness and vigour in large areas in England.

A. H.

ROSE GARDEN.

BANKSIAN ROSES.

ALTHOUGH a decade has passed since the introduction of these charming Roses, comparatively few growers give them the attention they deserve. They are worthy of a place in every garden where a suitable position can be found for them; but how many establishments can boast of a single specimen? In northern or cold districts none of the Banksian Roses thrive satisfactorily in the open air unless it is in a sheltered position and against a south wall. In such cases as these, therefore, it is best to give them a place under glass. The back wall of a greenhouse is a capital position for them, and so is the roof or rafters of a conservatory. I know of a large structure that is made very attractive at this time of the year by a fine plant of the yellow variety. It is growing on the roof and rarely fails to produce an abundance of bright golden flowers, useful for cutting and decoration. It has been planted upwards of twenty years, and blooms as freely now as it did ten years ago. In southern and warm districts, however, the Banksian Roses should be planted outdoors, for there they are undoubtedly seen to the best advantage. I know of few climbers that produce such a pretty sight as these delightful Roses during the month of May and in early June. Near Winchester, in Hampshire, I have often seen a cottage that has its front wall literally laden with clusters of the yellow kind at this time of the year. The tree, which has been in its present position for more than thirty years, has been carefully attended to, never disappointing its owner by not producing a moderate amount of bloom even in the worst seasons. Last year, when I saw it about the middle of May, it presented a most charming appearance, being one mass of yellow. This variety appears to be rather harder than the white-flowered kind and more free-blooming. Both, however, are good and deserving of greater attention than has hitherto been paid them. There are several varieties of the type. One named *Fortunei* produces flowers similar to those of the old yellow, but larger in size, while the same may be said of *alba grandiflora* in regard to white varieties. *Jaune Serin* and *Jaune Vif* are also useful varieties with yellow flowers, and so is *odoratissima*, which produces clusters of fragrant white blooms.

As regards the culture of Banksian Roses, that is comparatively simple. As has been said, they require a warm south wall, and should, moreover, be planted in a kindly soil. That of a light loamy or sandy nature is most suitable for them; indeed, to plant in other than this is courting failure. If possible, a bricked-in border should be given them, especially where the soil has a tendency to be wet, and this must be well drained by placing a layer of broken bricks in the bottom. I have established plants by placing them in a tub well drained and sunk into the ground, filling it as full as was necessary with a prepared compost of turfy loam and decayed manure. This involves a little more than ordinary trouble, but it pays. When planted in greenhouse borders, of course, less care need be taken, especially when the roots will be confined to a certain space. But whether indoors or out, it cannot be too strongly impressed upon readers that to obtain the best results, planting must of neces-

sity be performed in a judicious and workmanlike manner.

The pruning of Banksian Roses is somewhat imperfectly understood. They require to be pruned on a totally different system to the ordinary kinds, and unless this be done, success in blooming is not likely to follow. They should be pruned immediately after flowering. Thin out the long shoots, laying in sufficient to cover the space only, and these at a good distance apart so that they may become thoroughly ripened. Those that are laid in should be shortened, say to about one-third their length in most cases, just removing the tips in others. From the points of these new growths will be formed during the summer, and in early spring cut them back to within 2 inches or 3 inches of their base, leaving say three good eyes. From these a bountiful supply of flowers will be produced. A mulching of decayed manure placed around the stems and over the roots will help to conserve the moisture during summer and assist the tree wonderfully, while in winter it may be necessary to neatly twist a few hay or straw bands around the stem if the weather is at all severe.

C. L.

SHORT NOTES.—ROSES.

Rose Mme. Willermoz.—This is very beautiful just now in the temperate house at Kew, where a plant of it has encircled one of the iron supports. The flowers hang gracefully down and are almost white, but with a light pinky shade. It is a capital climbing variety.

Unhealthy Marechal Niel Roses.—I have two plants of this, one on each end of an unheated vinery. There are a few buds on each, but the trees look very sickly, and the young leaves made this year are falling off. What will be the best treatment after the buds have opened?—T. R. L.

Rose "Rose of May."—Can anyone learned in old Roses tell me the correct name of the Rose mentioned by Mary Howitt in her autobiography as the "Rose of May"? She describes it as single, with a cinnamon-like perfume, flowering at the end of May, and called by country people the "Whitsun Rose."—M. P. FORSTER, *Lesbury, Northumberland.*

Rose Cloth of Gold.—This is now very seldom met with. When calling at Cricket St. Thomas, Chard, in March I was delighted to see a fine plant growing in the Camellia house. It is planted at the back of the house and trained up to the glass and over the roof. The stem is as thick as a man's wrist, and the plant is still in vigorous health. At the time of my visit it was covered with bloom and buds. It covers a large space on the roof.—J. C., *Forde Abbey.*

Rose Wm. Allen Richardson.—Having grown and propagated the above Rose for some years, my experience of it has been that of both "E." and "T." Sometimes it will grow like a weed, at others it will not grow at all. I have received several plants from nurseries, but only one of them has done very well. This is now a fine plant 13 feet high and 18 feet across, and for the last three or four summers it has made a grand show. I should advise anyone having plants that are not doing well to put in some cuttings in the autumn, when they will strike freely and soon make nice plants. It is a splendid Rose and worth a lot of trouble.—M. E.

The colours of flowers.—The following communication was made by Mr. Smee to a recent meeting of the scientific committee of the Royal Horticultural Society: "Some years ago, when experimenting with flowers and plants in a weak solution of silicate of soda, I noticed that the plants and flowers were affected by the solution according to their colour. The colours disappear in the following order: Blue, lilac, red, and brown, whilst yellow was the most persistent. Greens behaved according as blue or yellow predominated in its composition. The question has occurred to me whether the white varieties of flowers are not formed among plants in a similar order. We have an example in the blanching of the old flowers of *Franciscea*. Then again in the poor varieties of *Vanda cœrulea*, the petals are almost white with very pale blue veining. In *Cattleya* the colour of the petals and lip disappear, leaving the yellow throat and the

pale pink tint (which so often spoils a white *Cattleya* from a florist's point of view), as the remains of the red tint in the mauve colour. Therefore, as yellow is so persistent, we cannot expect a *C. citrina* to appear amongst our white varieties. The white *O. crispum* is due to the disappearance of the brown blotches, leaving only the yellow markings on the column; and in the case of the yellow triumphans, which is a poor form of the ordinary type, the brown blotches are either absent or are in process of disappearance. The only pure white forms of Orchids are *C. cristata alba* and *Dendrobium Kingianum album*, var. *Heathii*."

KITCHEN GARDEN.

INDIAN OR SWEET CORN.

REPEATED attempts have been made to create a liking in this country for what in America is a most popular green vegetable, but as far as my experience goes there are no signs whatever of its becoming at all popular with us. The time may not, however, be far distant when it will be more generally grown and used, this revolution in our taste being brought about by the influx of American visitors, who not only are constantly reaching our shores, but who, I am glad to note, in several cases have come to stay. That Sweet Corn will never be largely used when green Peas are plentiful is very certain, but after a hot dry summer especially there are few of these to be had, and it is then when the American substitute ought to be tried. If I am rightly informed, our nearest neighbours, the French, have acquired a taste for Sweet Corn, and it is noteworthy that the Paris firm of Messrs. Vilmoren were the only exhibitors of samples at the Chiswick Vegetable Conference last autumn.

Indian Corn or Maize largely imported into this country in a ripe state, and found serviceable in various ways, will grow strongly and produce freely, but its great height is objectionable, and seeing that seed of superior forms can be procured from the leading English seedsmen, those who may wish to try the experiment ought to procure and sow some of these. The varieties shown by Messrs. Vilmoren, and which presumably are the best for cultivation in France, were Extra Early Sweet, Eight-rowed Sweet, and Evergreen Sweet. In America the forms preferred are, The Cory, a dwarf, quick-maturing variety, and which is recommended for the earliest crops; Amber Cream, second early, extra tall growing, and which produces extra large ears; Potter's Excelsior, medium early, ears with twelve rows of grains, tender, juicy, and sweet; Crosby's Early Twelve-rowed, somewhat tall-growing, very productive, and superior in point of quality, and Stowell's Evergreen, a vigorous grower, and the favourite for late planting. In one of the leading seed catalogues issued in this country the compilers recommend Adams' Early, Crosby's Early Sugar, Early Dwarf Sugar, Early Minnesota, Extra Early Tom Thumb, Moore's Early Concord, and Triumphant Sweet as being the earliest and best varieties. Another equally well-known firm are of opinion that the Extra Early Yellow Six-weeks or Quarantain and the White Pyrenean are the two best for growing in private gardens, neither of these exceeding a height of 3 feet. The Japanese striped, or *Zea japonica* of many catalogues, in addition to being very ornamental, also produces ears of corn freely, but the quality in this case is considered slightly inferior. Altogether it will be seen there is no lack of varieties to select from, and a trial of a few or many of them should prove interesting.

No vegetable can be more easily grown than

Sweet Corn, its only drawback being the amount of room that must be given up to it. As before hinted, it will never replace Peas, but there is no reason why in many instances one row less of these might be sown, the space thus saved being ample for a row of Corn. A fairly rich and deep root run and sunny open position also best suit the Sweet Corn, the rows being disposed 3 feet or more apart according to the known habit of the variety to be grown. A drill 4 inches deep should be drawn and the seed sown thinly, a plant every 18 inches being sufficient, blanks being made good by transplanting the requisite number when the thinning out is completed. In America, where the crops mature much more quickly than they are ever likely to do with us, it is necessary to make several sowings in order to keep up a good succession till severe frosts are experienced. The plants are also left more thickly in the rows, this favouring the production of a quick, though somewhat light crop. In this country, if the seed is sown not later than the middle of May, there is every likelihood of the plants producing ears fit for use during the latter part of August, September and October, or when Peas are getting scarce. Probably the extra early varieties could be had fit for use much earlier than the time I have given, and this would inevitably happen if the plants were raised under glass now and put out in the open not later than the first week in June, a good succession being obtained by sowing in the open as well. Plants do not transplant well out of boxes or pans, the least check being given by raising the requisite number singly in 3-inch or slightly smaller pots. Placed in gentle heat they germinate in a few days, and the plants ought to be hardened off and planted out before they become badly root-bound.

From first to last Indian Corn is of a more ornamental character than the generality of vegetables, and is admirably adapted for planting either singly or in groups of three in wide borders or partially furnished shrubberies, where it will produce ears, or "cobs," as they are also termed, quite as freely as in any other sunny position. In some instances it may be necessary to support tall plants with stakes, but, as a rule, if they are well moulded up as they advance in growth this will steady them sufficiently. Our plants invariably continue to grow or remain in a healthy green state till severe frosts intervene, but in hotter positions and where the soil is shallow and of a drier nature it may be necessary to mulch heavily and water freely during dry seasons. Where given good room and liberal treatment the plants form several strong growths at their base, and these ought to be removed early. Each plant will in good time be surmounted by a branching elegant spike of male bloom, but the ears of Corn are produced from the axils of the leaves, being neatly enclosed in sheaths. When fully grown and while yet comparatively soft these ears are fit for use, and should be boiled whole in water, to which has been added a little salt, for about twenty minutes, or till tender, and then drained and served on toast accompanied by melted butter. W. I.

Tomatoes.—"I have found Prelude sets ten flowers to one on Perfection under early forcing," said a market grower the other day. That is at once high praise for the grower, and corroboration of the experience at Chiswick of these two varieties. Prelude, although a robust grower, sets all its blooms, producing clusters in exceeding abundance. Were the fruits of fair average size, we should have, so far as cropping, colour of fruit, and form were concerned, all that could be desired in Prelude as a Tomato. But the fruits are small; therefore, it is

worth asking whether anyone has tried thinning the clusters with a view to ascertaining whether the fruits are larger in consequence. To very many growers for early work it is evident that inducing plants to set freely is a matter of the first importance, and a variety which naturally sets its blooms so freely as Prelude does, is a great gain. But still the fruits when set are small, and not up to the requirements of the market. If thinning will not remedy this defect, Prelude must be abandoned for the cross product from it in Conference, the Chiswick raised variety, which seems to combine in a marked degree the free setting prolific properties of Prelude, with the increased size of fruit found in Perfection. Even with this new variety the fruits may not be so large as some would desire, especially those who grow for exhibition, but for all ordinary purposes of consumption the fruits are large enough, and, indeed, to those who retail in small quantities most useful, because large fruits may not be divided, and smaller fruits are essential to furnish the desired weight. Still, it is very possible that being so free a setter, the fruits of Conference under high cultivation may be largely increased in size. So great is the competition in Tomato production now, that those who have the freest bearing varieties only can hope to succeed, and no one can afford to ignore the qualities of any form which is well reported on.—A. D.

CULTURE OF BEETROOT.

To obtain shapely Beetroot of the best quality, the seed should be sown in a light, deep, fairly rich soil, free from traces of strong manure and away from the shade of trees. An open piece of ground which had been liberally manured previously for Peas, Celery, Cabbage, or Cauliflowers will suit the requirements of the crop admirably. This should be deeply dug without the addition of further manurial dressings, except a dusting of soot over the surface before drawing the drills, which should be about 2 inches deep and from 12 inches to 15 inches apart. The thinning of the young plants should be done when they are about 2 inches high, leaving them at from 6 inches to 9 inches from one another in the rows, and the crop may be extended if necessary by transplanting the thinnings in ground prepared in the manner indicated, and at the same distance between and in the rows as advised for the sown crop, choosing a showery day for the work, care being taken not to bend the roots in dibbling them in. In the absence of rain, the transplanted seedlings should have water given at the roots late in the afternoon every other day until they have taken to the soil. After which, in common with the other portion of the crop, the only after attention necessary until the time of taking up the roots arrives is to keep them free from weeds by hand-weeding and stirring the soil between the rows occasionally during the summer months. This latter operation, in addition to destroying seedling weeds, will accelerate the growth of the plants.

TAKING UP AND STORING THE ROOTS. Take advantage of a fine day towards the end of October when the plants and ground are dry to take up the roots. In order to preserve their freshness, the roots should be packed in damp material which will not be likely to absorb the moisture from them. The most natural, simple, and efficient way to store Beetroot is to bury the roots in their entirety perpendicularly in rows, the crowns being about 1 inch under the surface of the soil in a dry situation, that is, where water is not at any time likely to settle, such as a border under a south or west wall or fence, or underneath large trees, for the want of a better place, will do very well. An opening from 12 inches to 15 inches wide and about the same depth should be taken out at the end of the border or plot of ground, and the digging of the ground be proceeded with in the usual way. When the trench has been filled and the ground levelled, the soil should be cut straight down the full width of ground, and two or three rows of Beetroot placed, as already stated, perpendicularly in the opening thus formed, and the digging be again proceeded

with until the roots are all covered, continuing the operation as described until the roots are all safely stored. The leaves, which should not be removed from the crowns, will afford ample protection to the roots from several degrees of frost, but should a spell of severe weather set in it will be necessary to cover them with dry Fern or litter. This, however, should be removed and replaced according to circumstances. In the spring before the roots indicate signs of growth they should be taken up, the leaves with a portion of the crown should be cut clean away, and the roots laid in again. So treated, they will keep fresh and of good colour until young Beetroot is fit to draw.

TO SAVE SEED.—In taking up the crop in the autumn, select the desired number of the best shaped roots and lay them in by themselves for seed. These should be taken up and planted at the foot of a south wall or fence early in April without being trimmed in any way, and be watered to settle the soil, the flower-stems being secured to the wall in due time. When the seed is ripe the stalks should be cut off and suspended in a dry shed for nine or ten weeks, when advantage may be taken of inclement weather to rub out and clean it, putting it in the seed cupboard for future use. Seed of only one sort should be saved at one time, otherwise the variety cannot be kept true.—H. W. WARD, Longford Castle, Salisbury.

—The first week in May is early enough in most places to sow the main crop of Beet for winter and spring supply. If sown earlier the roots are too large and coarse, and the colour is often indifferent. The best early Beet is the Egyptian Turnip-rooted form, or a good selection from it. The Turnip-rooted kinds bulb quickly, and for this reason are valuable for the early crop, but then only enough should be grown to last till the long-rooted kinds are ready. The land for Beet should not be freshly manured. The main crop may follow late Celery, but the manure left in the trenches should be well blended with the soil during the digging and subsequent cultivating operations. A dressing of soot and salt may be given with advantage should the land require more support, but only a light dressing of salt should be given; half a pound to the square yard must not be exceeded. I have found this quantity of salt very effective for other crops besides Beet on porous land. If the soil is dry, tread the seeds in by walking along the drills before the final levelling (which is best done with the back of the rake) is given. Thin out the young plants when the best can be distinguished to 9 inches apart. The thinnings may be transplanted elsewhere, and very handsome medium-sized roots are obtained by transplanting if the work is carefully done. Plant with a dibber, making the holes deep enough for the roots to go in quite straight. I always pinch off the small end of the long root when transplanting Beet. The plants soon get over the check of transplanting. One soaking of water to settle the soil round the plants helps to establish them quickly, and unless the weather should be hot and dry, it is not often necessary to repeat it if the hoe is used to keep the surface loose. In hoeing crops of Beet some care is necessary, as the skin is tender. A careless use of the hoe after the roots have attained some size may do much injury. There is no better way of keeping Beetroot than pitting the roots in narrow ridges, protecting them well with straw and sufficient soil to keep out frost. It is important that the crop be lifted before the severe autumn frosts set in. Select a fine day for lifting the crop, so that the roots may be well dried before storing, and do not place much covering on at first, or fermentation may set in, and the flavour be injured and the keeping properties of the roots damaged. As regards varieties, there are plenty of good kinds in cultivation. Most of the large seed houses have a selection of their own which they recommend. The Pine-apple is an old variety, and if obtained true, the quality of the roots, which are of medium size, is excellent.—E. H.

Birds and Peas.—At this time of year many owners of gardens are perplexed as to how best to preserve the tops of the young Peas, for just as they push through the soil they are attacked by sparrows that

pick the tops of the shoots off and greatly arrest the growth. Now there are many devices more or less effectual, such as covering with wire Pea-guards, placing threads just over the lines, with or without feathers, &c., that do very well on a small scale, but are quite impracticable where there are large breadths to be protected. When looking over a market garden the other day the owner told me that he always makes it a rule directly he sees Peas breaking through the soil to draw a good ridge of soil right over them, as he finds that by the time they push through the second time they have acquired so much additional strength that the birds cannot injure or check them.—J. G. H.

TOMATO CULTIVATION IN SUSSEX.

THE county of Sussex, or at least that portion of it situated between Brighton on the east and the village of Goring on the west, with Worthing as its head centre, and forming that flat stretch of rich alluvial land from the base of the Southdown Hills to the sea, may be termed the land of English Tomatoes. The outdoor cultivation of the plant, which in years gone by was attended with so much success, is now almost a thing of the past, owing chiefly to the inroads of various diseases. Tomatoes are still grown, it is true, and if the season should prove a particularly dry one good crops are obtained, but the fruits are invariably gathered in a green state and placed under glass to ripen, thereby losing much of their nutritious and valuable properties. Should the season prove wet and comparatively unsuccess, disease is almost certain to gain the mastery, to the utter destruction of the cultivator's hopes. For even should the fruit attain full size and be plucked in a green state without any apparent trace of disease, this is almost sure to develop itself during the process of ripening, rendering it frequently necessary to consign the entire crop to the rubbish heap. This state of things has, of course, made cultivators chary about planting outdoor Tomatoes to the extent they formerly did; consequently this form of industry in Sussex has of late years been considerably curtailed and greater attention given to the erection of span-roofed houses for the cultivation of this esculent. Glasshouses, mostly of the span-roofed style, are suddenly and continually springing up in Sussex more or less all over the county, but having for their centres Worthing, Sompotting, and Lancing. Most of these houses are for the ostensible purpose of growing Tomatoes, but the ultimate object is the cultivation of the Vine. The reason for this is, I think, not far to seek. In the first place, on the fact being discovered that this part of the county of Sussex was singularly favourable to the growth and maturation of the Tomato, its cultivation was at once undertaken on an extensive scale, and, singularly enough, for the most part by those who had had no training in horticulture at all. It can hardly be wondered at therefore if a crude system of cultivation was in numerous instances adopted, with the usual attendant results—disappointment and failure. The appearance of disease in various forms augmented the difficulty, as little or no attempt was made in any direction whatever to counteract its ravages. Then it was thought that Vines would pay better than Tomatoes, and now the Tomato, although still produced in large quantities in Sussex, is yet in far too numerous instances only looked upon as a catch crop until the Vine comes into bearing.

I do not condemn the system of growing the two plants together in the same house up to a certain point if this be done judiciously, and without incurring the risk of the one permanently injuring the other. But I cannot help thinking that growers are making a great mistake in thus neglecting the cultivation of the Tomato, or at least cultivating in a half-hearted, speculative way a plant that would amply and generously repay the best attention that could be given to it. Nor do I think that growers are right in making the Grape Vine their sheet-anchor. With the yearly expansion of Vine culture the price of Grapes has steadily fallen, until there is apparently great danger that it will ere long touch a point at which the cultivation of the Vine in England will cease to be remunerative. On the other hand, the taste, and therefore demand, for

Tomatoes are unquestionably on the increase, and prices are not likely to fall so low as to render their production in England unprofitable for many years to come. Be this as it may, the fact cannot be denied that the Grape Vine can be cultivated over the length and breadth of Great Britain under glass with something approaching a uniformity of success; while the same cannot be claimed for the Tomato. It has been proved that the part of Sussex indicated at the beginning of this paper is peculiarly suited to the growth of this plant—perhaps from some peculiarity of soil or climate, or both—and I venture to say that the cultivation of the fruit, if not actually at the present moment on the decrease, will in time become paralysed, and perhaps virtually die out, for the sake of the Grape Vine.

Doubtless, disease in its numerous and destructive forms has been the greatest factor in bringing about the present state of Tomato cultivation in Sussex. Men got alarmed, and rather than attempt, even by the most simple methods, to combat the enemy, saw nothing but ruin before them if they attempted to continue the cultivation. The Tomato plant is subject to various and very hurtful diseases, I am ready to admit, but I fail to see good grounds for the abandonment of the industry on that account. Take, for instance, the black spot on the leaf, or mildew, as it is popularly termed among the growers of Sussex. If this disease is not checked in its incipient stage it will very soon spread, weakening the functions of the plants, cramping the development of the fruit, which can only be at best small and ill flavoured. There is a simple remedy which I have employed successfully for years. When the plants reach a height of from 2 feet to 3 feet I am ever on the watch for the enemy, and the moment I see it I appoint a man to go round each house every morning and remove every infected leaf he can find. These leaves are at once burned.

The first attack is generally the worst, and it takes some little time to remove all the tainted leaves perhaps for the first few weeks, but after that the disease is virtually conquered, and the work of searching becomes less and less till the end of the season. My plants show no appreciable signs of diminution of foliage at any time. To those who are sceptical on this matter I would say try it, and I am sure success will crown their efforts. I would emphasise the necessity of beginning the picking process the moment the first speck of disease is discernible. If allowed to spread to any great extent, I consider the case all but hopeless.

A good deal might be said with reference to the raising of new and more or less disease-proof varieties. If growers would only devote more of their time and attention to this instead of aiming at becoming rich by leaps and bounds, it might be better for all concerned. If cultivators, instead of giving up to despair when they come face to face with the Tomato disease, imitate the men who have so richly deserved the gratitude of their countrymen in keeping and securing to us the Potato, as it is seen to-day in all its splendid varieties, they would not only benefit themselves, but humanity at large.

For some time I have grown a variety, which I got originally from a friend under the name of "Plum." It is, I fancy, Hick's Criterion, but I am not quite sure. However, it has many good qualities. It throws out a fine large truss of blossom, which hardly ever fails to set to the very point. The fruits are solid and of good colour, and always realise as good a price in the market as any other, and frequently 1d. per lb. more. I have grown it for some years, and it has been only on rare occasions that I have ever seen any disease on it whatever. It is by far the most disease-resisting variety I have ever grown. I have been engaged in making experiments with it in regard to crossing, the results of which I shall ascertain during the ensuing season.

In conclusion, after some study of the subject, I think I can see in the cultivation of Tomatoes in Sussex an industry which might become a very

important and permanent one under careful and judicious management, and one capable of large and profitable development. J. L.

STOVE AND GREENHOUSE.

CLERODENDRONS.

THESE are amongst the showiest of all stove flowering plants, being easy of cultivation, and blooming most profusely in nearly every instance. They may be fairly divided into two distinct sections, the shrubby and the climbing species, both being alike valuable. In some respects the shrubby kinds are the most useful, for whilst in flower during the summer months they may be used with safety for conservatory decoration if due regard is paid to their requirements. The chief point to observe is not to expose them to sharp currents of air, and the house should not have much air left on at night, especially near to where these plants are arranged. The shrubby species look best when standing by themselves, so that their noble foliage and finely developed panicles of flowers can be seen to the best advantage. When used in the cooler temperature of the general run of conservatories more care is requisite as to the watering, rather less being given, and that as much as possible early in the day; the water should not be cold, i.e., such as is generally used for greenhouse plants, but should if possible be taken from the stove tank. This might be thought a little needless trouble, but to succeed well, a little extra pains ought never to be considered in that light. Daily inspection in every case is necessary to remove any fallen flowers, as these if allowed to remain will cause the fresher ones also to decay. If perchance any are allowed to remain upon the foliage, that too will soon become spotted, and when once the leaves begin to damp off from this cause it is a difficult matter to stop it. This advice as to daily picking applies in all cases, whether in the stove or conservatory, for in the former instance not much fire-heat is maintained whilst most of the Clerodendrons are in flower, often not in a sufficient quantity to dispel the superabundant moisture precipitated upon the foliage and flowers in the night when the temperature falls to the dew point. The climbing ones are valuable for the roof of the stove house, in which manner they are seen at their best without taking up any extra amount of room. If more climbing plants were employed to trail upon wires near the glass, we should have but little use for artificial shading, whether in the form of blinds or in a permanent fashion during the summer months by disfiguring the roofs with some kind of wash to answer the purpose. Clerodendrons are convenient plants for keeping through the winter months, taking up but little room, hardly more than that occupied by the pots themselves. The danger, however, is that when they have ceased to be profitable as flowering plants they are frequently overlooked and possibly for a while left in a cooler house than is safe for their well-being. This is a fertile source of failure, and even total loss in many instances. The temperature in which they are kept while at rest should not average less than 55° and never fall below 50° at any time. In this respect the Clerodendrons will not bear overlooking with impunity, for injury is often the result even before one is aware of it.

PRUNING.

When they go out of flower a moderate pruning is advisable to lessen the room they would otherwise occupy, and also to guard against exhaustion to the roots when the plants are receiv-

ng less water. Pruning proper should be done just before the plants are started into fresh growth in the spring; this in the case of the shrubby kinds may be advantageously done in a similar way as the close spur-pruning of Vines. The climbing sorts may be left longer when extension is necessary, but all weakly wood should be removed. After the pruning the fresh potting will soon follow. This in the case of the shrubby ones should be done in a rather severe manner; for instance, if a plant has been flowering in a pot 12 inches in diameter, it may be reduced, so as to be fresh started into growth in one of at least 8 inches. Two fresh shifts are thus allowed for before the plant again occupies the same sized pot as it flowered in previously, and probably if it bids fair to make a good specimen it will take another shift still. A little bottom-heat is beneficial for the first few weeks after the first potting until growth has fairly recommenced. If one or two shoots show a disposition to gain strength at the expense of the rest, they should be stopped at once; this will encourage the others, and later on two or three and even four pinchings may be necessary to retard the flowering season to suit each case. In this way I have had plants with twelve or fourteen fine heads of flowers on each. When so treated six or seven weeks should be allowed from the last pinching until the opening of the first flowers when grown in an ordinary stove temperature. In repotting the climbing varieties so much reduction of the ball of roots is not safe; only as much should be removed in the case of healthy plants as will permit of a good amount of fresh soil being added when the plant is again put into the same sized pot, or one of larger dimensions if it is a young specimen. No pinching of the shoots should be permitted, for nearly every one will show for flower after a short growth has been made, except in the case of *Clerodendron splendens*, which flowers after having made a longer growth. In the case of the kind just named, any extra strong shoot might be stopped early in the season, but not more than once. All of the *Clerodendrons* will take weak liquid manure with safety as well as benefit when they have well filled their pots with roots. Water should always be supplied in a liberal manner when they are in active growth, never allowing them to suffer in this respect. Insects cannot be said to cause much trouble in their culture; the mealy bug and brown scale are the most troublesome. Sponging and hand-picking are the best remedial measures unless the case be a bad one, and then a well proven insecticide should be employed and applied either with a sponge or a camel's-hair brush. The best safeguard, however, is a good cleansing when at rest, and non-contact afterwards with infected plants. A fungoid growth of blackish appearance will at times infest the undersides of the leaves of the shrubby varieties; when this is noticed a slight dusting with sulphur is the best remedy.

PROPAGATION.

This is best effected by cuttings taken off when of fair length after young growth has commenced, or in the case of *C. fallax* by means of seeds, which are often produced freely, and which may be sown as soon as ripe. Cuttings of this variety, if struck early in the season, make capital little flowering plants the same summer, and of dwarf habit. The soil best suited to their culture is good mellow loam, to which may be added either one-third of well-decomposed leaf-soil or good peat, either of which assists fresh root-action; a free amount of sand is needful to keep the soil in a good state. Potting should be done in a moderately

firm manner, and without a stick if the plants are not of extra size.

There are not many varieties under general cultivation. The best proven kinds are *C. fallax*, which is, without doubt, the most useful of the shrubby varieties, keeping up a succession of flowers for many weeks, unless affected with fogs in any particular locality; then the flowers and buds will drop. This kind is best suited for removing to the conservatory when in flower of any. *C. Kämpferi* is a noble-growing species, with large terminal spikes of flowers, making a fine show when in its beauty, which is generally early in the summer; a later crop from laterals may be obtained if the plant is extra strong. *C. Balfourii*, an improved form of *C. Thomsoniæ*, is grown more perhaps than any other climbing variety. Its flowers, produced most profusely, contrast well with the pure white calyces. This kind, if rested after the first flowering, will produce a second crop later in the season. *C. splendens* is a fine old variety, with darker-coloured flowers than the last named, with an absence of white in the calyx of each flower, and is a fine kind for August and September flowering, lasting in good condition a long time. *C. fragrans* fl.-pl. is a sweetly-scented variety, with white flowers, slightly suffused with pink when fully expanded. It is of dwarf growth and compact habit, and preferable to the type. For cutting, flowers of the *Clerodendrons* are not to be recommended; they drop so soon, and are consequently somewhat disappointing. I have, however, used the flowers of *C. fallax* with good effect in dinner-table decorations just for one night only.

J. H.

Asparagus retrofractus arboreus.—This *Asparagus*, which is now being distributed by M. Lemoine, of Nancy, is very ornamental, and as far as I know quite distinct from any species of *Asparagus* in cultivation. It is of a more woody texture than the now generally grown *A. plumosus* and *A. tenuissimus*, though it bears a certain amount of resemblance to them. The stems are very hard and light in colour, while a distinct character is imparted to it by the arrangement of the leaves, which are collected in dense tufts, especially at the tips of the branches and minor branchlets. These leaves are thread-like, from $1\frac{1}{2}$ inches to 2 inches long, and of a bright green colour. The hard woody character of this *Asparagus* suggests that it is not likely to be propagated from cuttings with the same readiness as *A. plumosus* and *A. tenuissimus*, so that in all probability it will never become a popular market plant.—H. P.

Caladiums at Forest Hill.—For some time past Messrs. J. Laing and Sons have made a speciality of *Caladiums*, and this season there is again an excellent show of the finest varieties with leaves not only remarkable for breadth, but also for subtle and distinct colouring. One of the finest is *L'Automne*, which has a leaf quite 18 inches across, and over 2 feet long, the colour very pale green blotched with silvery white. *Souvenir de Mme. Bernard* is quite distinct. This is rich crimson, the broad margin of the handsome leaf shading off to a profound green. *Bosphore* is almost self green with deep crimson midribs; and in *Comtesse de Condeixa* the leaf is almost a self pink or rose, a charming shade of colour. We have silvery white foliage with pale green midribs in *Gabriel Lemoine*, the leaf measuring quite 18 inches across and 2 feet in length. Very bright is *J. H. Laing*, and also showy is *Ludemannianum*, which has a rich self green leaf blotched with silvery white, the midribs deep crimson. Baron James de Rothschild is creamy grey with broad rose midribs, and *Charlemagne* almost a self rose. One specimen of *Triomphe de l'Exposition* was about 4 feet through, a mass of fine crimson-coloured foliage in which the edge is rich green. There are, of course, many other varieties,

but to give a list is monotonous when there is such a range of distinct and beautiful kinds, admirable studies in leaf colouring from the palest to the deepest hues. As a plant for the stove or the exhibition we have nothing to surpass the noble character of the *Caladium*, and we have seldom seen a finer houseful of the various varieties than at Forest Hill.

Rhododendron Falconeri.—As mentioned in THE GARDEN, April 26 (p. 384), this is a very striking *Rhododendron* even when out of flower, as the foliage is handsome; but no mention is there made of the velvety downy character of the young leaves, which are very attractive directly after expansion, while in a short time the undersides of the leaves become clothed with a profusion of ferrugineous tomentum. While seedlings vary somewhat in their blossoms, there is also a certain amount of difference in the profusion and tint of this tomentum, some having it in greater abundance and more richly coloured than others. It is altogether a noble *Rhododendron*, and one that requires a large structure, such as the temperate house at Kew, for its full development, and it is only when large that it can be induced to flower. Three *Rhododendrons* handsome and distinct in foliage are *R. Falconeri*, *R. Nuttalli*, and *R. argenteum*.—T.

The Lyre Flower (*Dielytra spectabilis*) for forcing.—This useful plant is grand for cool house decoration, and should be more largely grown for this purpose. It is very accommodating and can be wintered in any structure after the roots have been potted up in the autumn. The roots may be got up and placed in a cool pit some time before they are wanted for use, but the potting up at the commencement of the winter is the best plan. The *Dielytra* should never be forced hard, as much of its beauty is thereby lost; therefore for early bloom in the year it is not so good, but when used for this purpose later it is very beautiful. It does best brought on in a temperature of 50° to 55°. A nicely flowered plant in a vase is very pretty in the house when given a light and cool place, no mossing being required, its ample foliage covering the pot when a good plant is used. We grow a great many plants, and they are of great service for the cool conservatory. They require a light cool place to keep them good and plenty of moisture at the roots. The *Lyre Flower* is readily increased by dividing the roots or crowns, and after the plants have done blooming they may be planted out on an open border in a rich compost, and kept frequently supplied with liquid manure through the summer months. The plants should be given a year's rest after planting out. The plants can also be purchased yearly for forcing at a cheap rate.—G. WYTHES, *Syon House*.

TREES AND SHRUBS.

THE GOLDEN CHINESE ARBOR-VITÆ.

(*BIOTA ELEGANTISSIMA*.)

THE good old *Thuja orientalis* is well known to planters, especially those of the early school who were in harness before the country became flooded with the rich stores from Japan, including the *Retinosporas*, which have branched off into endless garden varieties. By the rising generation with an untold wealth of form and colour within their reach it may not be considered worth notice, but who amongst old and young has not become enthusiastic over its offspring, *Biota orientalis elegantissima*. In shape it resembles the normal form, but is more compact, plants from cuttings keeping pretty well to single stems closely furnished with numerous almost rigid branchlets, whilst the foliage is of a rich golden colour, which it retains throughout the summer. Add to these qualities its extreme hardiness, its lovely shades under sun and cloud, as may be seen in the annexed engraving, and without indulging in any great stretch of imagination, the question may be asked, how did planters and gardeners get on

without it? They had Mr. Waterer's *Biota o. aurea* it is true, also, superb as a dense globose golden shrub, but the two are so distinct in their habit, that the garden must indeed be small if room cannot be found for a number of each of these auriferous rivals. This variety originated in the nursery of Messrs. Rollisson, of Tooting, and requiring but little room is admirably adapted for planting as a single lawn specimen in small gardens, for forming telling groups in the pinetum, for planting in the centres of beds in the flower garden, and for giving grace and life in geometrical arrangements. It strikes freely from cuttings put into sandy loam and kept close under bell-glasses

believed to be a distinct species, of which a short notice was published at p. 369 of the current volume of *THE GARDEN*. Some others, principally of Continental origin, may be met with in replete nurseries. Two of them, *Biota o. argentea* and *B. o. aurea variegata*, have a portion of their branchlets and foliage marked, the first with silver the second with gold, which gives them a mangy appearance, and being inconstant they generally revert to the plain green colour when thoroughly established and growing freely. This reversion is by no means uncommon, as we find *Thujopsis dolabrata variegata*, the variegated *Wellingtonia*, the Irish Yew, *Taxus baccata*, *fastigiata*, *argentea*, some

colour from that of any of the other Brooms, the rich bright red of the two centre petals contrasting strikingly with the golden yellow of the rest of the flowers. Encouraged by Mr. Gumbleton's note, I obtained a plant, and I must say that my expectations were more than realised. It is undoubtedly but a variety of the common Broom, and in order to perpetuate its distinctive characteristics, in all probability it must be propagated by cuttings or grafting, as even should seed be produced, the chances are that the majority of seedlings would revert to the original type, as may be seen in the case of the pretty sulphur-coloured Broom (*præcox*), which when raised from seed generally produces more plants with white blossoms than with sulphur-tinted ones.—H. P.

SEEDLING DEODARS.

No better advice could be given than that in *THE GARDEN*, April 26 (p. 386), to plant seedling Deodars in preference to those raised from grafts or cuttings, and the article might have been also applied to coniferous plants in general, as seedlings undoubtedly yield better results than the others, though, of course, they cannot be relied on to perpetuate any particular variety, for which purpose cuttings or grafts must be resorted to. The objection to these last two modes of propagation is not so great among the smaller Coniferae, such as *Thujas*, *Biotas*, *Cupressus*, *Retinosporas*, and *Junipers*, as it is among the *Firs* (*Spruce* and *Silver*) as well as the true *Pines*. In the case of the *Pines* the side branches are often taken for propagating, and there is then usually a great difficulty in inducing them to form a leader upon which the symmetrical character of the specimen entirely depends. The smaller forms of Coniferae, on the other hand, being naturally of a more bushy habit do not produce so prominent a leader, and therefore whatever mode of propagation is resorted to matters but little, though even then, as a rule, seedlings grow faster than the others. In the case of these larger Coniferae, where a plant formed of a side branch persistently refuses to produce a leader much can sometimes be done by cutting off the upper portion of the plant, when the new shoot, which will after a time be pushed out, will sometimes take the lead, and after that grow away as straight as a seedling. Among the smaller Coniferae it is both curious and interesting to observe the great difference that exists between the various genera, species, or even varieties of one species in the freedom or otherwise with which they can be propagated by means of cuttings. A good illustration of the difference existing among varieties of one species is to be found in the case of *Lawson's Cypress* (*Cupressus Lawsoniana*), of which the loose, open growing varieties, such as *intertexta*, *filifera*, and *gracilis*, do not strike root so readily as the more compact forms. The most satisfactory of all to root is the upright-growing *erecta viridis*, while the very dwarf varieties remain a much longer time before they strike. Of the different forms of the Chinese *Arbor-vitæ* there are three golden kinds, the easiest of which to root is *elegantissima*, after that comes the common golden *Arbor-vitæ* (*aurea*), while by far the most difficult of the three is *sempraurescens*. The curious *Biota pendula* is another that does not strike very readily. The American forms of *Arbor-vitæ* (*Thuja*) differ from the Chinese (*Biota*) in the members being more easily struck from cuttings, while the *Junipers* vary as much in their propagation as in their geographical distribution. In most members of this latter genus there are two totally distinct types of foliage on the one plant, the juvenile shoots being clothed for the most part with long needle-shaped leaves, standing out at some distance from the branchlets, while the more mature shoots are furnished with small scale-like leaves closely adpressed to the stem. Where these two forms exist on the same plant, it will be found that cuttings of the shoots clothed only with juvenile foliage form roots much more readily than those in which the mature leaves are developed. One of the very best illustrations of this is to be



Biota orientalis elegantissima in the garden at Castlewellan.

when fairly ripe, but not too hard, in the month of August, and it grows well in any good garden soil which does not become hot and dry in summer. Several varieties are now plentiful, and all are worth planting in the smallest selections, but those which I prefer are the subject of this notice, Waterer's *Biota o. aurea*, *B. o. falcata*, a very compact form, introduced by Mr. J. G. Veitch from Yokohama, in Japan, and quite hardy; *Biota japonica compacta*, a variety of very distinct habit, which makes a superb single specimen on the lawn and does well in near proximity to water; and *Biota o. pendula*, the remarkable variety at one time

of the *Lawson Cypresses*, and the variegated *Retinosporas* following suit when established in good soil; hence their unpopularity amongst British planters.

W. COLEMAN.

Cytisus scoparius Andreanus.—The note regarding this Broom in *THE GARDEN*, April 26 (p. 386), is opportune, for whether included under the generic head of *Cytisus* or *Genista*, it is a most valuable acquisition to our flowering shrubs. I am sure that all lovers of this class of plants will thank Mr. Gumbleton for being one of the first to direct attention to its merits, for it is destined to become a general favourite, as the flower is so different in

found among the Retinosporas, such kinds as squarrosa, ericoides, and dubia being three of the easiest of Conifers to strike, while next to them come the forms of *R. pisifera* and *plumosa*, the most difficult being *R. obtusa* and its varieties.

T.

THE COMMON LAUREL.

IN THE GARDEN (p. 370) J. C. Tallack does well to call attention to the Laurel, as of all shrubs it is the most overdone and misused in private gardens. In the first place, it makes the garden look very formal and heavy-looking, and too often occupies positions that ought to be devoted to other good trees and shrubs, more especially flowering kinds, that possess real value.

It is wonderful what a lack of flowering trees and shrubs there is in many of our large private gardens. This should not be, and it is to be regretted, seeing how many really beautiful flowering trees and shrubs can now be obtained at a cheap rate. What can be more beautiful when in bloom than many of the double and single Thorns, or more highly ornamental in autumn, when the leaves are putting on their autumn dress, than the Cockspur Thorn? What beauty is there, I would ask, in clipped Laurels, which at their best are unnatural and formal? This is the more to be regretted, seeing that these and all clipped trees or shrubs are the most expensive in the garden, when the large amount of labour entailed in their keeping is taken into consideration. This latter point seems to be lost sight of by many in these days.

In a large garden I often visit there is an immense quantity of these cut-in common Laurels, the cutting of which occupies several men for a long time every spring. This garden would not suffer were these grubbed up and the space planted with material that required nothing of the kind. Having myself the management of a garden where there is a quantity of these cut-in Laurels, I can speak as to the amount of labour yearly required in their keep. I am pleased, however, to say that the tide has turned, and we are gradually destroying them and filling their places with other more beautiful and useful subjects. I do not wish to say that the common Laurel has no beauty. When the situation is well chosen and it is allowed to grow in a natural way, the large, coarse, over-grown branches being occasionally thinned, it is useful. The large-leaved kinds when thus treated are ornamental.

WEST DORSET.

Pinus macrocarpa.—In small gardens, or wherever space is limited, this Pine must never be planted, as its large, wide-spreading branches require a considerable amount of room for their full development. It is also somewhat fastidious as to soil and situation, but when doing well it is quite distinct and a very ornamental species, though in this latter respect I am aware that opinions vary considerably. The branches are wide apart, spreading, and but sparingly furnished with branchlets. The extremities are all ascending, and a very singular appearance is presented by the tufts of long leaves which hang in dense clusters from the tips of the branchlets. These leaves are quite 9 inches or even more in length and of a greyish glaucous green colour, while the cones are larger than those of any other Pine. *P. macrocarpa*, as a rule, succeeds best in a fairly sheltered position, as the long branches with their clusters of foliage seldom resist strong winds with impunity, while on light gravelly soils it can in no way be depended upon. It is usually seen at its best in a good, deep, yet open loam. Where these conditions are to be met with this Pine is of quick growth, and a good specimen of it forms a very imposing feature in park scenery. The large-fruited Pine was introduced by David Douglas in 1832, and while there are a few specimens that must have been planted soon after that time, it is, generally speaking, an uncommon species in this country, no doubt to a great extent owing to the fact that in many situations it will not thrive. Although this Pine was introduced by Douglas it is said to have been previously discovered by Dr. Coulter, and named in honour of that gentleman

by Professor Don. It is a native of the mountainous regions of Santa Lucia, in California, where it grows at an elevation of 3000 feet to 4000 feet.—T.

RARE CONIFERS FOR SMALL GARDENS.

THE bad taste often displayed in the selection of Conifers for the furnishing of villa gardens, it may be by the owner, but more frequently by the contractor, leads one to regret that suitable materials are neglected and good trees in their way are made to look ridiculous by being planted in unsuitable positions. Some years ago I drove a celebrated introducer of Conifers over to see a city gentleman who had purchased the lease of a beautiful place of some 10 acres, previously well planted with trees and shrubs, but not crowded to an extent which precluded the introduction of more. Anxious to have a *Wellingtonia*, a plant which must have cost two or three guineas had been planted immediately opposite and within 10 yards of the front door. A conversation profitable to the city man ensued, for later on I called and found the tree had been removed to suitable quarters, where at the present time it is a fine specimen of twenty-five years' growth. This planting fast-growing trees in unsuitable places is as common now as it was in those days, and these mistakes will be repeated so long as owners entrust the work to small contractors and accept the trees and shrubs they happen to have in stock. There is no royal road to learning, it is true, but there are books upon all subjects, such, for instance, as Veitch's "Manual of the Coniferae," most reliable and exhaustive, which all planters of these charming trees should read before they turn a sod.

Assuming, then, that a merchant has built a villa, and feels disposed to devote an acre of lawn to a choice selection of compact, but slow growing trees, fairly representative, but requiring very little room. The *Wellingtonia*, the Cedars, *Abies Douglasi*, and the giant Pines are out of the question, but taken at random he may select

ABIES ENGELMANNI GLAUCA.—One of the most beautiful American Spruces from the Rocky Mountains, where it is found growing at an elevation of 10,000 feet. The normal form attains a height of 60 feet, but the glaucous and most beautiful variety being a slow and close grower, may safely be planted in the smallest collections. Like all the Spruces, it does best in a sound, deep, moist loam, provided it is quite free from stagnant water.

ABIES PATTONIANA is one of those gems which once seen cannot be forgotten. It is described by Dr. Engelmann as a tall tree, attaining more than 100 feet in height, but this surely must be a mistake, as our trees make very slow growth indeed, a quality which fits them for planting where there is barely room for a Golden Holly. The bark is reddish grey, and the tiny leaves, reminding one of those of *Abies canadensis*, are a light greyish green densely set on short slender branchlets. Coming from the Sierra Nevada at 8000 feet to 10,000 feet altitude, it is perfectly hardy.

ABIES TSUGA, a Japanese Conifer, is equally beautiful, and, to the general observer, somewhat like the preceding. It is not, however, quite so pyramidal in its growth, but assumes more the habit of the Canadian species, with foliage of a brighter and more cheerful colour; whilst its slow and diminutive growth fits it for the smallest of lawns or for planting near water.

PINUS PARVIFLORA is a very slow-growing tree of the *Cembra* class, but light grey on the upper sides and quite silvery on the lower sides of the leaves; consequently it is one of the brightest and best miniature Pines I have seen for very small lawns. It was sent home by Mr. J. G. Veitch, who found it largely cultivated by gardeners in the

northern parts of Japan, where it is an especial favourite, not only for the lawn, but for dwarfing into the smallest possible dimensions and into all kinds of fantastic shapes.

PINUS CEMBRA (the Swiss Stone Pine) must not be omitted, its close, compact habit, slow growth, and deep green foliage giving it a distinct character when planted singly, in groups, or most useful in a continuous line for shutting out the view from adjoining gardens. There is also a pigmy variety, which grows from 2 feet to 4 feet high, and being so thoroughly hardy, it is admirably adapted for rock-work.

PINUS KORAIENSIS, introduced by Mr. J. G. Veitch from Japan, is a small slow-growing tree, very distinct in character, and rarely exceeding 20 feet in height, as the stems branch off into round heads somewhat in the way of the Italian Vine, to which it is a worthy companion. The habit is compact, the foliage elegant, and I believe it is perfectly hardy, but would advise shelter from north and east winds in a sunny situation. The cones, quite cylindrical, are very handsome, especially when the scales begin to open.

CRYPTOMERIA ELEGANS.—A most beautiful tree with straight stem, densely clothed with horizontal branches and pendent branchlets of a bright green colour when in growth, but changing to a rich plum or bronzy crimson in the autumn. It grows freely upon almost any good moist soil free from stagnant water, and forms an irregular column some 20 feet to 25 feet in height, its supposed limit in Japan, where Mr. J. G. Veitch found it under garden culture in the neighbourhood of Yokohama. As a companion and contrast to the preceding and the Golden Conifers this hardy tree is most valuable.

THUJOPSIS DOLOBRATA.—Although this remarkably handsome tree has been known to Europeans more than one hundred years and Mr. Thomas Lobb sent home a plant which did not live, it was not until Mr. Veitch arrived in Japan that we obtained a stock of this fine Conifer. It is perfectly hardy and grows in any good soil, but that which suits it best is a deep, heavy and moist loam, whilst shelter from wind and slight shade at midday are decided advantages. When growing freely it makes many side leaders, which should be pinched in the case of single specimens, otherwise the tree becomes broad and irregular. It is a splendid subject for forming choice evergreen hedges. There are one or two dwarf varieties as handsome as any *Lycopod*, and admirably adapted for cool rockwork in moist situations.

JUNIPERUS CHINENSIS MAS is one of the best hardy columnar Conifers in cultivation. It takes up very little room and when covered with its rich golden inflorescence in the spring no words can depict its beauty. *J. hibernica*, *J. suecica*, *J. rigida*, *J. drupacea*, *J. thurifera*, and *J. chinensis aurea* are suitable for small gardens.

CUPRESSUS LAWSONIANA ARGENTEA, *C. L. erecta viridis*, and *C. sempervirens* must not be omitted, and of Retinosporas the best are *R. filicoides*, *R. obtusa*, *R. o. aurea*, *R. o. gracilis aurea*, *R. pisifera*, *R. plumosa* and *R. p. aurea*.

PRUMNOPITYS ELEGANS, the Plum-fruited Yew, *Thuja filipendula*, *Sciadopitys verticillata*, *Biota orientalis aurea*, *B. o. elegantissima*, *Thuja Vervaeana*, and *Widdringtonia cupressoides* make up a selection which may be equalled, but certainly not beaten. W. C.

SHORT NOTES.—TREES AND SHRUBS.

Euonymus Silver Queen.—This variegated *Euonymus* is a form of the pretty little *E. radicans*, and differs from it in the leaves being larger, while the variegation is of a purer white. A single feature of the variegated *E. radicans* is, that when treated as a wall shrub, it will occasionally, when it has mounted up a good height, produce thicker stems, which in their turn are clothed with much larger leaves than those on the lower part of the plant. If these extra strong shoots are taken off and struck, many of them will maintain their distinctive character.—T.

Rhododendron La Belle.—This *Rhododen-*

dron is a cross between *R. ciliatum* and *R. Forsterianum*, this last being also of hybrid origin. It was obtained by Mr. Otto Forster, after whom it was named, by crossing the Moulmein *R. Veitchianum* and the Himalayan *R. Edgeworthii*. *R. Forsterianum* produces perhaps the largest blossoms of any of this section, and it is a magnificent Rhododendron. The flowers are pure white, except a yellowish stain in the centre, which seems, if possible, to intensify the purity of the rest of the flower. Unless freely stopped when young, it is of somewhat rambling growth during its earlier stages, but this is less pronounced as the plant develops. By intercrossing this with the little Himalayan *R. ciliatum*, much of the free-branching character of the last-mentioned is to be found in the progeny, which is in all respects a very desirable Rhododendron for flowering in the greenhouse, as little bushes full of blossom can be obtained in pots 6 inches in diameter. The foliage is very neat, yet ample, the leaves being about a couple of inches in length and of a deep green hue. The flowers, which are in form about midway between those of *R. Forsterianum* and of the bell-shaped *R. ciliatum*, are produced in large compact trusses. Their colour is white, with the exception of a yellowish stain at the base of the upper segment, and they are deliciously scented.—H. P.

BOOKS.

INJURIOUS INSECTS AND FUNGI.*

THE Board of Agriculture have just published the third annual report of their agricultural adviser, Mr. Charles Whitehead, on the injurious insects which had been brought to his notice during last year by various persons in different parts of this country. This report is somewhat larger than that of last year, and contains remarks on a larger number of insects. This Mr. Whitehead attributes to the greater interest which is now taken in these matters, and "was not due to the excessive prevalence of the disorders of crops as speaking generally, and it may be said that they were less numerous and destructive than usual on account of the favourable weather of most of the periods of the year in which crops are particularly affected by climatic conditions. These propitious influences caused germination, vegetation, and the successive functions of plant life to proceed, normally and healthily enabling the crops to resist and to grow away from various enemies." One exception to this rule was the injury to fruit trees by the caterpillars of the winter moth and its allies. In this respect the report and that by Miss Ormerod quite agree. As regards these caterpillars, the damage they did in some places was enormous. "In a large district in Kent the devastation was complete; leaves, blossoms, and fruitlets were all devoured upon the Apple, Plum, and Damson trees, and where there were Filbert or Cob nuts, and Black Currant and Gooseberry trees these were all stripped of foliage and fruit by the caterpillars of the winter moth." One grower in Kent estimated the damage to his crop at £640. In Herefordshire and Worcestershire matters were no better. Where the application of bands of some sticky substance was properly carried out, that is, begun early in October and renewed from time to time when required, the trees hardly suffered at all. Various recipes for washing the trees are given. The Mangold Wurtzel fly (*Anthonymia betæ*), which Mr. Whitehead has not reported on before, was rather prevalent last year in places early in the season, but the plants growing rapidly were not much injured. The figures of the male and female flies are too small to be of any use in distinguishing this fly from any other of the same size. The same may be said of those of the Hessian fly. In speaking of this insect the author says: "The seasons of weather unfavourable to the development

of this insect have occurred, but no precautions must be neglected, no vigilance should be relaxed. Two or three hot seasons might produce alarming swarms of the destroyers. It is not likely that in this country of changeable climate the Hessian fly will be as great a scourge as it has been in the United States and in Southern Russia; still it may do a great deal of injury, as it did in 1877. Therefore it is important to keep its history permanently before agriculturists, and to recapitulate shortly the measures to be applied against it." The flour moth (*Ephestia Kuhnella*) is a comparatively new pest in this country. It was first noticed in 1887, and Miss Ormerod mentioned it in her report the following year. Where it was introduced from seems uncertain. It was noticed for the first time in Canada last year, and apparently was introduced from Mediterranean ports. We probably obtained it from the same source. The damage caused by the caterpillars of this insect in flour mills is very great; besides the meal and flour which they eat, they spoil large quantities by spinning their webs among it, and even get into the spouts and other parts of the machinery, choking them up. Thoroughly cleansing the entire mill, fumigating with sulphur, and driving steam through the machinery seems the only way of getting rid of this insect when it once gets a footing. The Onion fly was the cause of much damage to the Onion crop in many places. One means of preventing the flies from laying their eggs on the bulbs is to earth the latter up, syringing the plants with 5 lbs. or 6 lbs. of soft soap, and 2 quarts of carbolic acid or paraffin mixed in 100 gallons of water is recommended after the plants are attacked. Plants badly infested should be removed, taking care to remove all the grubs with them. The injuries to Carrots and Parsnips by the grubs of the Carrot fly (*Psila rosæ*) were very serious in many districts. The Carrots appear to be most liable to attack immediately after they have been thinned, as the ground is then loosened round them, and the flies are able with greater ease to obtain access to the softer parts of the roots. After the thinning process the ground round the roots should be pressed firm and watered with 3 quarts of paraffin oil and six pounds of soft soap mixed in 100 gallons of water. A very fine rose should be used for watering. Fine mould mixed with paraffin oil or carbolic acid strewn over the beds would also be useful in keeping the flies off. The Currant scale (*Pulvinaria ribesiae*), a new pest, belongs to that most destructive family of scale insects, or Coccidæ, of which there are now many species already doing much damage to various plants in this country. At present it has only attacked Currants and the Ribes, or Flowering Currant; but Mr. Whitehead says it is more than probable that it would attack Apple, Plum, and other fruit trees. This insect is likely to spread, as it may so easily be carried when quite young, or in the egg state, in the cottony down amongst which the eggs are laid, from one bush or tree to another. The Mustard beetle (*Phædon betulæ*) is again reported to have done much harm to the Mustard plants grown for seed, and has even been found attacking Water Cress plants, "clearing off the plants in a disastrously wholesale manner." Dressings of lime, soot, or guano, or paraffin and soft soap, applied with a Strawsonizer, are recommended. The grubs of a small weevil, the Plum borer (*Rynchites cupreus*) are suspected of injuring the Plum and Damson crop by attacking the fruit when quite young. They bore into the fruit which drop prematurely; the grubs then leave the fruit and become chrysalides in the soil. In reporting on the eelworm (*Tylenchus devastatrix*) which attacks Clover, some interesting experiments made by Mr. Willis, of Harpenden, are quoted, showing the effect of sulphate of iron, sulphate of potash, sulphate of ammonia, in different combinations and proportions, when used as manure on an infested crop of Clover. The Plum aphid (*Aphis pruni*) was very abundant last year. Mr. Whitehead very properly draws attention to the difference between this and the Hop aphid (*Phorodon Humuli*), which many persons confound together. The Plum aphid does not migrate to other plants; the Hop aphid in the

autumn migrates from the Hop to the Plum; there lays its eggs, but does not feed on the Plum. The eggs are hatched much earlier than those of the Plum aphid. The young Hop aphides as soon as they become winged fly off to the Hop plants. The best remedy for the Plum aphid appears to be washing the trees after the fruit has set with a mixture composed of 9 lbs. of soft soap, the extract of 7 lbs. of Quassia. This should be thoroughly well applied, and renewed if necessary. One fungus is reported on, the Onion blight (*Peronospora Schleideniana*), which in many places caused serious losses to market gardeners. "It seems," says Mr. Whitehead, "that the young Onions were infested by the fungus soon after they began to form bulbs, while the pipes from the sets put in for seed in February showed signs of infection just as the seed heads began to show; the greyish mycelial threads of the fungus spread rapidly upon the pipes and budding seed-heads and stayed their development and growth. The whole plant soon became brown from the decay set up by the action of the fungus, the pipes could be easily pulled away from the bulbs, which were soon in a complete state of putrefaction." The complex life-history of this fungus is then detailed. A solution of sulphate of copper (bluestone) and lime is recommended for washing the plants with, and particulars are given as to how it is to be prepared. The Potato scab is commented on; its cause and the best means for preventing it seem to be uncertain. The report closes with figures and descriptions of "machines and apparatus for applying insecticides and fungicides." Two Hop washing machines, the Strawsonizer, a garden engine, a French portable machine, and bellows used in vineyards are reported on. The Strawsonizer acts most admirably in distributing liquids and powders over low-growing plants, and Mr. Whitehead says, "There is a machine upon this principle which can be worked by hand for washing or syringing fruit trees, Hop plants and other high plants, but it was not perfected in time for a thorough trial in the last season. It is hoped that it may be ready for next season's campaign. Such a machine would be a great boon in most gardens if it were portable and not too expensive." I can strongly recommend all agriculturists and gardeners to procure this report; it is like its predecessors, a model of clearness, conciseness, and cheapness, and the very few pence spent in obtaining it will be well expended.

G. S. S.

WEEDS AS NUISANCES.

WHEN recently a case decided in one of our law courts declared that allowing Thistles to grow and seed freely on land was productive of considerable harm and damage to neighbouring land, and moderate pecuniary damages were assessed accordingly, it was too readily thought that the law had set its foot down upon gross neglect in cultivation to the injury of others. The case seems to have been before one of the higher courts on appeal recently, and the wise decision of the county court judge reversed. Thus, according to the opinions of such eminent lawyers as Lords Coleridge and Esher, an owner of land may allow his soil to become of the foulest; to be a perfect nursery of the most troublesome and harmful of weeds; to be permitted to spread the seeds of these weeds all over the district, and inflict incalculable mischief upon his neighbours. That is such an intolerable wrong, that the judgment cannot be too soon reversed. Practically, the judgment puts a premium upon gross cultural neglect. It may be a question of law, but obviously it is much more one for experts to decide, as the evil resulting is so evident. I was here during last summer the victim of a less harmful, but still preventable act of neglect. An open iron fence separates a large piece of well-kept and cultivated land from a Grass field. The present tenant last year refrained from mowing the Grass as usual and whilst feeding it practically left it to seed. Being on the west side of our ground, and without any close fence between, the Grass seeds were carried in quantity by the wind over the clean

* The Third Annual Report on Insects and Fungi Injurious to the Crops of the Farm, Orchard, and the Garden. By Charles Whitehead, F.L.S. Eyre and Spottiswoode, East Harding Street, London.

ground, so that in the autumn the soil became green as a lawn, and everything near had to be lifted and transplanted, so that the soil could be dug and the Grass buried. That was perhaps a minor case; the one originally referred to was far worse. Here the owner broke up wood or forest land and Thistles came up densely. These he seems to have left to grow and flower, and the downy seeds were carried in myriads over the adjoining cultivated land. It is all very well to plead that the springing up of the Thistles was an "act of God," and therefore not punishable, but allowing them to grow and seed was an act of gross neglect and easily preventable. There is no reason whatever why, when an owner of land newly broken or otherwise sees Thistles or other dangerous weeds springing up which may prove to be a source of serious harm to his neighbours, that he should fold his arms and declare that their growth is an act over which he has no control. Man's capacities to cultivate the soil, to cleanse it, and to control its production forbids the assumption of such doctrine absolutely, and it is monstrous that such wanton neglect should find sanction in one of the highest law courts of the kingdom. There can be no doubt but that landowners, farmers, gardeners, or even local highway authorities, who negligently permit coarse and spreading weeds to grow to the detriment of the land they are on, are permitting a grave evil to the land. That evil is, of course, greatly intensified when the weeds equally harm surrounding land. A weed-growing, slovenly cultivator harms not only himself, but the land in his occupation and those who shall succeed him. If pecuniary compensation is granted for cultural improvements, as the law now awards, surely some compensation should be paid in a reverse direction for injuries inflicted on land, its owners and neighbours by wilful and grave neglect in cultivation. The grower of weeds in the rural districts should be held as creating nuisances, as does the promoter of immorality or of evil smells in towns. The recent decision is to be deplored, because it sanctions gross cultural neglect, whilst it leaves the high-class, cleanly cultivator literally at the mercy of the neighbour who prefers to go to the dogs by foul weed-production. A. D.

ORCHIDS.

LÆLIA PURPURATA.

This plant I have been asked some questions about, and as it is now flowering, it is, perhaps, the best time to answer them. Indeed, I have seen plants in full beauty for a month past. This is very early for this species, as it usually flowers towards the end of the present month and through the months of June and July, the mild winter evidently having something to do with this, and also *Cattleya Mendeli*, which is also flowering a month earlier than usual. It is without doubt one of the most gorgeous and showy plants ever imported from Brazil, although some of the garden hybrids are equal to it, if not superior. Amongst these may be noted *L. Amesiana*, *L. callistoglossa*, *L. Domini-ana*, *L. exoniensis*, and *L. Veitchiana*, all raised by the firm of Messrs. Veitch & Sons, of Chelsea. Some doubts appear to exist as to the original discoverer and introducer of *L. purpurata*. It is said by some to have been first introduced by a M. Brys, of Antwerp, where it obtained the name of *L. Brysiana*, and I think M. Linden gives this origin to the plant in his "*Pescatorea*," published many years ago, and I know that forty years ago we used to have the name in our collections, the form known as *Brysiana* being distinguished by its deep rose-coloured sepals and petals and dark purple lip. M. Ambrose Verschaffelt, of Ghent, however, before his death claimed to have discovered and first introduced it. The form he distributed had white sepals and petals, so that both may be correct, inasmuch as the forms are very

different. The old name of *Brysiana* has, however, apparently become obsolete, and one now finds the latter form frequently in gardens under the erroneous name of *L. purpurata*. The well-known firm in the north, Messrs. Backhouse, of York, claim the credit of having first bloomed it in this country. The firm of Messrs. Low & Co., of Clapton, however, were the first to supply this plant in quantity, as they imported it in vast numbers through their collector, Blunt. I have never, however, been able to ascertain the exact locality in Brazil where this plant is found, but I believe it to come from the province of Santa Catherina, in South Brazil, but as this province comprises nearly 29,000 square miles, this does not give one much idea of its habitat. Warner, in his "*Select Orchidaceous Plants*," gives the island of St. Catherine as its habitat, but I am inclined to accept this statement with the proverbial grain of salt, but even then this island is included in the province of Santa Catherina. Mr. Blunt, I believe, is now living in Rio Janeiro, and he could clear this question up. This is all I can furnish inquirers with as to its introduction and native country, and now a word to those asking for treatment.

Newly imported plants I would advise to be started in small pots or baskets, using nothing but broken crocks for drainage material. The plants, after all injured parts have been removed, should be firmly fixed in an erect position, so that they do not shake about when moved, be kept in a shady, moist place, and frequently, but lightly syringed. The temperature should not fall lower than 60°. Thus treated the plants will soon begin to root and grow, and as this is seen to be the case, more water must be given, and as the season advances and the roots and shoots increase in size, a little fibrous peat and Sphagnum Moss should be placed round and about them. As the soil is added less moisture at the roots must be given, otherwise the material will become sour. Those having the plant now flowering will find that it will start into growth when the blooms begin to wane; therefore the plants should have been shifted or top-dressed before that time, and the plant may be treated as above recommended. In the case of those established I do not recommend syringing, as the young growths are enveloped in large sheaths, and these hold water, which becomes cold and injures the growths by lying in them and becoming stagnant. This arises from the insufficiency of air to dry the plants in our Orchid houses, for under cultivation this cannot be admitted in sufficient volume without causing other serious injuries to the plants. I like dewing with the syringe between the pots and about the lower parts of the stems. This keeps a genial atmosphere in the house, which everyone should strive to maintain, and which may be done without having the floors and paths swamped and deluged with water.

During the early part of winter many of the plants have yet to finish up their growths, and when this is seen they should be encouraged to do so by being kept carefully supplied with moisture, and at no season should the plants be exposed to a lower temperature than 58° or 60°. When growing in the summer season they should be well exposed to sun and light, shading only in the middle of the day when the sun is strongest, and when the plants might be injured through defects in the glass. Upon no account must the shading be allowed to be down when the sun is not shining. Treated in this manner "*Jura*" need not despair of having strong growths and an abundance of flowers next sea-

son, if plants strong enough to bloom are started with, whilst "*Querist*" may have some of the first growths from the imported plants produce flower-sheaths. In choosing imported plants do not select plants which have started into growth and rotted off on the journey home, because these not only are not likely to produce flowers the first season, but they may be years before they are strong enough to make flowering shoots. The ordinary forms of this species are now very cheap; it is only exceptionally fine varieties which bring a long price. Among these may be named—

L. PURPURATA SCHRÖDERI, which has flowers 7 inches across, the sepals and petals pure white, the lip also is pure white in front, the throat being deep yellow, with radiating lines of deep purple, and flushed with purplish mauve; it is an exquisite form and very rare. Many examples of this species are now to be found in Mr. Sander's collection at St. Albans. Another superb form is

L. PURPURATA WILLIAMSII, a strong, robust growing variety, producing large and broad-petalled flowers, each measuring 8 inches and upwards across. The sepals and petals are of a delicate rose, the sepals having longitudinal streaks of rosy purple, the petals being marked with forked lines of a deeper hue, lip very dark crimson-magenta tipped with rosy purple, the throat clear yellow, veined with deep crimson-magenta.

L. PURPURATA RUSSELLIANA is another superb variety which I recently saw flowering in Sir Trevor Lawrence's collection at Burford Lodge. The finest specimens which I have ever seen of this variety exist in Mr. De B. Crawshaw's garden at Sevenoaks, where they are grown exceedingly well; the sepals and petals are white, suffused with lilac; the lip is also lilac of a deeper hue, becoming slightly paler towards the edges, veined with rosy-purple, and the throat yellow. These and a few other varieties are very valuable, but splendid varieties can be obtained now in flower for as many shillings as they used to cost in guineas.

L. purpurata yet remains one of the most gorgeous and showy Orchids that has ever been brought from South America. The flowers continue for some weeks in perfection.

W. H. GOWER.

Dendrobium Seidelianum.—This is the plant known for many years in gardens as *D. pulchellum*, and figured in the *Botanical Magazine* under this name with a doubt as to its identity. Of late years it has become scarce, although some fifteen years ago I used to have large baskets full of it in the Messrs. Rollisson's establishment at Tooting. The flowers are rich purple and purplish-lilac; the lip is fringed round the edge, and bears in the centre a large spot of deep orange colour. I have seen this species recently in various collections, and hope it will again be frequently seen flowering. The plant is said to be shy-blooming, but I think this may be attributed to its being rested too warm. It likes cool treatment and drought during the winter, and I used to be very successful in flowering it by keeping it in the same house in company with winter-flowering Pelargoniums. I do not advocate growing Orchids and Pelargoniums together, but I have frequently rested Dendrobiums in the winter flowering house with success. The plant has also obtained the name of *D. Loddigesii* in English gardens.—W. H. G.

Epidendrum bicornutum.—This is perhaps the most beautiful of the Orchids to be found in the island of Trinidad, to which, with the exception of a limited area in Demerara, this species appears to be confined. Unfortunately, it has to be included amongst the most difficult of all the subjects with which the Orchid grower has to deal. It is doubtful whether it has ever been flowered for more than five years after importation even by those who have been most successful with it. If such should be the case, a description of the conditions under which it is grown would be most acceptable. As a rule, it gives a very perceptible in-

dication of its decline after having flowered once. Hitherto I have had the best success by growing it during summer over a tank of heated water in a house devoted chiefly to Phalenopsids and other heat and moisture-loving plants. This Epidendrum, however, should have much more light than Phalenopsids will tolerate, its requirements in this respect coming nearer those of Dendrobiums. I usually fix the imported plants in well-drained baskets of as small a size as is convenient, using a compost of peat fibre and Sphagnum, with which are mixed pieces of soft broken brick, but in such a position as that described above this appears to be of secondary importance, as the finest specimen I ever had was grown with nothing more than a little Sphagnum fastened near the base of the pseudo-bulbs, the greater portion of the roots being free and descending to within a few inches of the water. This plant produced spikes of over twenty flowers, a number, I believe, that has not been exceeded in this country. The species is one of considerable interest as well as beauty. The pseudo-bulbs are cylindrical, 8 inches to 10 inches high, and hollow, the older ones having a small aperture near the base. They are said to be frequently tenanted by the native ants, and considerable care is necessary when collecting them. The flowers rise from the apex of the pseudo-bulb on a slender, erect spike. Each flower is over 2 inches in diameter and pure white, excepting a few purplish crimson spots on the distinctly three-lobed lip.—W. B.

Paphinia grandis.—A magnificent flower of this fine plant comes to me from "H. T." It is certainly the finest of this family, and it well deserves its name. In habit of growth it is stronger and more robust than the better-known *P. cristata*. The flowers when expanded each measure from 6 inches to 7 inches across, but naturally they only partially expand. The sepals and petals are dark reddish-purple, self-coloured in the upper half, the lower half being transversely barred with creamy yellow lines, and a narrow marginal border of the same colour all round; lip shorter than sepals and petals, beautifully fringed in front, side lobes chocolate-brown. This plant requires strong heat, a great deal of moisture in the atmosphere, and thrives best in small hanging baskets. It is said to come from Brazil.—W. H. G.

SHORT NOTES.—ORCHIDS.

Dendrobium nobile.—"M. C. S." sends a spray of four flowers of this Orchid. It represents an excellent variety as regards form and colour.

Cymbidium Lowi.—There are several large plants of this in collections. A specimen in the nursery of Messrs. B. S. Williams and Son, Upper Holloway, is carrying seven spikes, bearing in all 176 flowers, that represent a good variety.

Celogyne Dayana.—The true *C. Dayana* is now flowering in Mr. Tautz's collection at Shepherd's Bush, one spike bearing twenty-six flowers; these are somewhat smaller and less beautiful than those of *C. Massangeana*.

Dendrobium primulinum (*J. C., Bristol*).—The flowers sent for this species appear to be more like those of *D. cretaceum*; they were, however, much shrivelled. At any rate they are not those of *D. primulinum*. We advise you to grow the plant well and see what it turns out another season.

Epidendrum alatum.—The flowers received from Mr. Moss, of Winters Hill, are those of one of the forms of this species, the flowers having very little but their fragrance to recommend them. This is frequently imported for another and much superior plant, but one that does not grow so freely.

Epidendrum evectum.—This is one of the tall, leafy-stemmed species, which is nearly always in flower. It produces a large and many-flowered raceme of a deep, rich purplish-magenta colour, all the lobes of the lip being deeply toothed. The plant has been for a long time very beautiful in Sir Trevor Lawrence's collection.

Cattleyas at Upper Holloway.—Several interesting Cattleyas are in flower now in Messrs. B. S. Williams and Son's nursery at Upper Holloway, *C. Lawrenceana* among the number. The flowers of this comparatively recent introduction, found by Mr.

Thurn on Mount Roraima, in British Guiana, appear after those of *C. Trianae*. *C. citrina* was blooming freely, also *C. Skinneri* and *C. lobata*. *C. lobata* has deep rose-coloured flowers, and was introduced from Brazil in 1847. It resembles *C. crispata* in growth, and is rarely seen for the reason that it blooms sparingly. *C. intermedia* and *C. Mendeli* were also in full beauty.

Aspasia lunata.—The finest variety I have seen of this Orchid was recently in the Burford Lodge collection, the flowers measuring nearly 4 inches across. The sepals and petals are spreading, the ground colour white or creamy-white, profusely spotted and blotched with bright chocolate, the tips being quite clear. The large lip is white in front and rich, deep violet at the base.—W. H. G.

Dendrobium scabrilingue (*F. B.*).—This is the name of your flower; it belongs to the nigro-hirsute section, but is by no means difficult to grow. The flowers are emerald-green on first opening, but change with age to pure white, the lip being yellow, streaked with orange and purple, and yielding the agreeable perfume of Wallflowers. It is perhaps better known by the name of *D. hedyosmum*.—W. G.

Dendrobium capillipes.—This rare Burmese species I lately saw in bloom in Mr. Sander's collection. It is of dwarf growth, and produces freely its spikes of rich golden yellow flowers, which remind one at a little distance of those of *D. Jenkinsi*. Like it, *D. capillipes* should be grown upon a block of wood or in a shallow basket, and care should be taken, if in the latter, that the roots are not overburdened with soil.—W. H. G.

Phalenopsis Imperati.—This, one of the brush-lipped section of the genus, has a branched spike, and the flowers appear to be of a bright rosy purple, without the transverse streaks of white which are conspicuous in *P. speciosa*; indeed it may be called a self-coloured form of that species. The flowers are fragrant. I believe it comes from the Andaman Islands, and therefore a very warm and moist atmosphere is essential to its well-being.—W. H. G.

Phalenopsis Sanderiana.—A very good variety of this lovely species is now flowering profusely in Mr. Jacomb's collection at Cheam Park. Mr. May tells me that his plants appear as if they would flower themselves to death, and this they may do. Mr. Searing used to cut his spikes for indoor decoration, and I have no doubt but it added materially to the strength of the plants. I would advise anyone having *Phalenopsis* flowers not to allow them to weaken the plant, but to cut the spike.—W. H. G.

Cattleya Schroederi.—Amongst a collection of flowers which I have received from Mr. F. Wheatley, of Ringmore, Teignmouth, are good forms of *C. Mendeli*—sent for *C. Trianae*, and *C. Lawrenceana*. There is also an excellent form of *C. Schroederi*, the delightful Jasmine-like fragrance of which must recommend it to everyone. The flower is large, having very broad petals which are toothed and fringed at the edge, wholly of a delicate shade of lavender; lip beautifully frilled, bi-lobed, and of the same hue, stained in the throat with orange.—W.

Dendrobium citrosum roseum.—A superb variety bearing three very long and branched spikes of bloom was recently in full beauty in Mr. Jacomb's collection at Cheam Park. Mr. May, the Orchid grower, said that the plant had not been dried sufficiently to become shrivelled, and although we do not like this shrivelling system, it does appear to be almost necessary to this plant to induce it to flower. The shrivelling system, however, must not last for any length of time, and the bulbs soon plump up when a little moisture is given.

Dendrobium Brymerianum.—This wonderful and beautiful plant is a native of Burmah, from whence it was introduced some fifteen or sixteen years ago by the Messrs. Low, of Clapton. Although so long introduced, I cannot say I have yet seen a fine specimen. The present time appears to be its usual time of flowering. I recently noted a very fine variety in Mr. Dorman's collection at Sydenham; the peculiar long papillose fringe to its lip is very peculiar. It is named in compliment to Mr. W. E. Brymer, of Dorchester, where it first flowered.—W. H. G.

Cymbidium Lowianum.—Many fine specimens of this plant are now appearing in the country, but, as a rule, they are not flowering so freely this season. A plant, however, in Mr. Sander's nursery at St. Albans was very fine a few days ago. It was, I believe, shown in Berlin. It has 300 flowers on its spikes—truly a noble plant, well suited to represent English Orchid-growing to our neighbours. We can

grow plants, but none of our societies offer inducements enough to bring them out at home.—W. H. G.

Calanthes at Upper Holloway.—These were very beautiful a few days ago in the nursery of Messrs. B. S. Williams and Son, Upper Holloway. *C. veratrifolia*, pure white; *C. Sanderiana*, one of the latest of all; *C. Williamsi*, *C. masuca*, and *C. Stevensi*, rich pink in the throat of the flower, were all in bloom.

Oncidium amplitum majus.—I am very glad to see this fine species again coming to the front. Recently in Mr. Sander's nursery at St. Albans there was a specimen bearing upwards of 5000 flowers and buds. The beautiful clear yellow of the lip with its china-white back is very telling, and this set-off with its bright green foliage forms a delightful contrast.—W. H. G.

NOTES OF THE WEEK.

Primula rosea splendens.—This comes from Newry. It is the brightest variety of the Himalayan Primrose we have seen; the flowers quite a brilliant carmine, and unusually large.

Cytisus ratisbonensis.—This, from Mr. Smith, of Newry, is very beautiful. The shoots of it are crowded with large golden yellow flowers, very striking amongst the tender green leaves.

Iris cristata makes a charming clump in Mr. Wilson's Wisley garden, where it spreads freely in a sunny place and light soil. This is a very pretty dwarf flag for growing in a mass, its pale blue flowers appearing freely in the early days of May.

Dwarf Irises.—Several kinds of dwarf Iris, comprising chiefly varieties of *I. pumila* and *I. biflora*, are in flower in the Chiswick Gardens of the Royal Horticultural Society, where there is also an excellent collection of the German and allied kinds.

Cinerarias at Duneevan, Weybridge, are worth a note for the purity and brilliancy of the blue shades of colour. There are several plants full of bloom and showing a rich variety of blue colours, some pale, others as deep and intense as in the Gentian itself.

Two fine Fuchsias seldom seen now are the bright scarlet *F. corymbiflora* and *F. Dominiana*, which is striking for the richness of its chocolate leafage and brilliant crimson tubular flowers. There is a handsome specimen of each kind on an indoor wall at Denbies, Dorking.

Magnolia fuscata.—This is not a showy plant, but its small purplish-coloured flowers will scent a large house with their fragrance. Two blooms will fill a room with odour. A specimen in a large conservatory the other day scented the whole structure. It is valuable for this reason.

The crimson-leaved Japanese Maple makes a striking effect in the gardens of Denbies, Dorking. There are two beds filled with it, and the colour of the leafage is intensely rich. Here, at an altitude of 610 feet and in full exposure, this plant does well. We have never seen the leaves of such a glowing crimson.

Primula cortusoides and the variety *amœna* or *Sieboldi* everyone admires, and both of them prove amenable to culture on the rockery, forming at this season the most interesting and lovely groups that can well be imagined. I do not admire the so-called *fimbriata* forms. Improve the variety *amœna* in colour as much as possible, but I think the old form of the flower is by far the finest.—K.

Primula rotundifolia, a pretty Himalayan species, is flowering in a cool house with Mr. Thompson, of Ipswich. The leaves, as the name implies, are round and their under surface is covered with a silvery or whitish meal. In size and shape the flowers resemble those of *Primula rosea*, but in colour they are of quite a distinct shade of magenta-red.—A. H.

Tellima parviflora.—*Tellima grandiflora* has hitherto been the only species cultivated in gardens, but under the above name, Mr. Thompson, of Ipswich, has a pretty kind hailing from Montana. Though not a showy plant, it is very interesting. It has a dwarf habit of growth and bears well above its leaves a branched spike of small, but pure white flowers, which much resemble those of *Silene alpestris*. It is nearly allied to the Saxifrages.—A. H.

Berberis Darwini is one of the finest shrubs in the garden, and in the garden of Mr. McIntosh, Duneevan, Weybridge, it thrives with the greatest vigour, spreading out into a large bush now covered with the bright yellow flowers. There is one bush especially

beautiful, as the flowers have a more reddish tinge than those of the common kind, and when expanding this is more pronounced than when they are fully open. This colour gives warmth and beauty, and makes a brilliant contrast to the wealth of the best kinds of Rhododendrons which are the glory of Duneevan.

Masses of hardy flowers are wanted in gardens, not mere bits, and the value of growing large tufts is seen by a short border of white, blue, and pink Squills in the Deepdene gardens at Dorking. In the Wisley garden of Mr. G. F. Wilson there are also masses of these beautiful hardy flowers.

The Lyre Flower (*Dielytra spectabilis*) makes a noble border plant, especially at The Denbies, Dorking, where the flowers are richer in colour and the growth stronger than usually seen. Some of the clumps of it are over 2 feet in height, and one mass of gracefully arching richly coloured spikes of flowers. Under such conditions we obtain the full beauty of this *Dielytra*.

Iris iberica.—This bloomed with me yesterday (May 4). It is a most extraordinary and interesting flower, and well worth the little trouble to ensure success. This consists in planting the rhizome in nearly pure sand and sheltering with a hand-light or sheets of glass, keeping it almost perfectly dry through the winter months. I grow it on a south border. There is another bloom to open yet. The bloom is immense. The light grey upper petals are beautifully pencilled with dark purple, and the falls veined with dark purple, and an intense black blotch in the centre. *Iris susiana* will flower here in a few days. —LOXWOOD, *Stasson*.

Medinilla magnifica.—One of the finest specimens of this plant is in the Victoria regia house at Kew, but it is uncommon in private gardens. We were pleased to see a flowering plant of it at Denbies, Dorking, where it makes a brave show with its large terminal panicles of rosy pink flowers. The leaves are ovate, broad, of the richest green colour, and conspicuously nerved. This plant well merits the name of *magnifica*, and was found in Manilla by Mr. Thomas Lobb when collecting for Messrs. J. Veitch and Sons. It was exhibited by this firm under the name of *M. bracteata*, and at the time created a great interest amongst plant growers.

Primroses and Polyanthus lose much in beauty and effectiveness by being planted in mixture in beds and not in distinct blocks of one colour. The mixed beds are weak as a rule, as we have decided colours sometimes of the richest and most lustrous tint side by side with poor washy flowers not worth the ground they occupy. We have been in several good gardens recently in which the mixed style is adopted with the result of an unsatisfactory effect. In a Dorking garden the other day the Primroses and Polyanthus, principally of Waterer's fine selection, were in the fullest beauty, and planted liberally in beds at the side of borders, and in any odd spot where blocks of colour were desired. Some of the clumps of Polyanthus were as much as 2 feet through, and gave not only a fine effect, but supplied endless flowers for cutting, a purpose for which they are much used.

Begonia semperflorens.—I forward some flowers from a seedling *B. semperflorens* and which seem to be considerably larger than usual. The plant also branches very freely and flowers on every branch. The seed was sown last autumn and the seedlings grown on through the winter, so that I hope it may turn out a useful winter-flowering sort. The *Begonia semperflorens* I have hitherto seen has always had much smaller flowers on shorter stalks, hardly so large, indeed, as the female flowers on the spike now sent. I believe the plant to have something of the vigour of the tuberous section, as I have been trying to effect a cross for the last three years, using *B. semperflorens* as the female parent. It may, however, only be a natural development, and not superior to others elsewhere. On this point I should be glad to have your opinion. The Blandfordias I inquired about in the autumn are flowering; I had probably overpotted them. One small plant in a 5-inch pot is throwing up three spikes of flower. I suppose the enclosed flower, from a seedling I purchased two

years ago, is much the colour of that of *B. Cunninghamii*. Is *Blandfordia princeps* deciduous? I paid 15s. for one, which hardly seems to me like a *Blandfordia* at all. It died down in the winter and grew again in March, and is a different looking thing altogether. *Lilium Thompsonianum* is nicely in flower out of doors. It had the protection of a handlight. The best spike has twenty-four flowers on it. I find the best way to grow herbaceous *Calceolarias*, here at all events, is in a cold frame until coming into flower. They are cleaner, healthier, and much less trouble in every way.—W. SHIRLEY, *Southwick Parsonage, Fareham*.

* * The flowers of the *Begonia* are no larger than usually seen. The flower of the *Blandfordia* is the same as that of *B. Cunninghamii*.—ED.

Calypso borealis.—This curious little hardy Orchid is now in flower in the alpine house at Kew. It is a native of the cold regions of North America, and although perfectly hardy it requires care. It seems strange that Orchid growers do not give a small corner to the many curious and handsome terrestrial Orchids from that region. The present plant, more curious than beautiful, is like a small *Cypripedium* without the slipper, which is here represented by a small lip, white, blotched with cinnamon-brown; sepals and petals dull rosy-purple, and not very large. We have never yet heard of it being established in this country, although many importations have been received at various times.

The Tangiers Iris (*I. tingitana*) was flowering a few days ago in the full sun in the garden of Mr. G. F. Wilson at Wisley, and the plant had remained out all the winter. Although the advice is often given to give protection with a cold frame, much depends upon the condition of soil and situation. *I. tingitana* is one of the most beautiful of the bulbous section, and is still rare in gardens. It was discovered years ago by Schousboe and Salzmann in the neighbourhood of Tangiers, and for its introduction we have to thank Mr. Maw, of Kenley. At a glance one can see the similarity of the flowers to those of the Spanish and English Irises, but it is quite distinct. The falls have each a brilliant yellow signal, and the standards and styles are pale lavender. It is very handsome when it does well, the plant making a rich growth in the light soil and brilliant sun.

The Cherries are beautiful now in the garden, and trees of the varieties *Cerasus pendula* and *C. Watereri* were smothered in bloom a few days ago in Mr. G. F. Wilson's Wisley garden. The weeping variety of *C. Mahaleb* is one of the most graceful of all deciduous trees; the slender branches, bending elegantly to the ground, are studded with a multitude of pinkish flowers, very pretty in contrast with the tender green of the new leafage. Waterer's double-flowered Cherry is very lovely when one mass of bloom. It is very similar to the Chinese *C. serrulata*, which is of rigid growth and smothered in the month of May with double rosette-like flowers, delicate pink in colour. There are other Cherries, but these are two that should be in every good garden, though seldom seen by reason of a desire to plant miffy Conifers and common shrubs.

A garden of Rhododendrons may be seen at The Deepdene, Dorking, the residence of Lord Hope. Of all Surrey gardens this is one of the finest for its Rhododendrons, which thrive here with remarkable vigour, and cover many acres with rich luxuriant growth. The garden is charmingly diversified and undulating, walks winding here and there and at each turn bringing suddenly into view a mass of Rhododendrons or hardy Azaleas, both of which are planted with an eye to colour effect. In front of the house is a sloping terrace of Rhododendrons, which sweep the ground, and in the early days of June make a glorious show of flowers; in truth, the whole garden is a garden of blossom at that season. There are now several of the early varieties in bloom, and one of the finest pictures we have seen is made up of three or four immense specimens of crimson varieties, now covered with bloom, intensified by the background of trees bursting into tender leafage. This happy

piece of planting, approached by a winding walk, at a sudden bend comes unexpectedly into view. One of these specimens is 20 feet, and another quite 15 feet in height; they seem taller by reason of their situation on rising ground and standing some distance above the walk. There are varieties of all shades of colour, one of the softest and most pleasing being of a light mauve-lavender, another almost white, and several of various shades of carmine. As May gives way to June the list is lengthened, and then we have the full richness of this garden of Rhododendrons.

A useful white Primrose.—In the note by "A. H." (p. 405) about Primroses at Betteshanger, he speaks of the want of a good white single Primrose suitable for massing. Such a form occurred here some years ago among some seedlings, and proved so early, free, and long-enduring, that I took pains to increase it, and now have good breadths of a plant that has every merit for spring gardening. I should be happy to send a plant or two by post to a limited number of amateurs (say thirty earliest applicants) who would send me an addressed label to tie on.—MISS JEKYLL, *Munstead, Godalming*.

The Japanese Aceranthus diphyllus, now included with the *Epimediums* from which it differs so little, is a very graceful and charming plant for the rockery. Most of the *Epimediums*, although pretty and extremely useful, have a raggedness about them, when the flowers make their first appearance, difficult to overcome by many cultivators, and they are consequently discarded instead of being planted in less exposed situations. *Aceranthus diphyllus* has none of the faults indicated, and may be used with perfect confidence as a rock plant even on exposed positions. The leaves and flowers appear together, the young bronzy leaves and the pure white peculiarly shaped blossoms being very beautiful.

Port Stanley Oxalis (*Oxalis enneaphylla*).—This is a hardy perennial, but being scarce, Mr. Thompson, of Ipswich, has it in a pot in which it is now flowering. It is a beautiful species, distinct alike in foliage and flower. From nine to twelve or more leaflets are borne in a little cluster upon the leaf-stalk. They are of a glaucous green colour, and pretty in themselves. Above them, borne singly and terminating the stalk, are the flowers, which are large, sweetly scented, and pure white in colour. At the time of the *Challenger* expedition the captain of that vessel reports that the banks and slopes of the cliffs at the Falkland Islands were literally sheeted over with beautiful flowers, which proved to be those of this *Oxalis*. Such a pretty and desirable species is worthy of better and more extensive cultivation.

Narcissus Bernardi.—In the note on this variety of Daffodil (p. 405) it is suggested that perhaps those at Kew will become earlier in their flowering as time goes on. They were collected for Mr. Osborne above the Hospice at Luchon in 1885, and cultivated by him for several years in his garden at Biarritz. In June, 1886, I visited the collecting ground, where they were then flowering abundantly, and made a careful selection of the best varieties. As may be seen at Kew, they represent in shape and colour nearly all the forms of the incomparable class of hybrids, but are smaller in size and later in flowering. The reasons for both are obvious. They are the result of a cross between a small form of *N. muticus*, which grows abundantly near them, and a small and late flowering *N. poeticus*, which is also mixed with them. This variety of *N. poeticus* which I have in my garden seldom flowered before the middle of May, being the latest of its kind. *N. muticus*, too, is the latest of the trumpet Daffodils. It is not surprising therefore that the offspring of these two species should be both late and small. I do not know who has said that *N. Bernardi* cannot be cultivated for any length of time, but this may be taken as certain. If it is planted and left to itself, as Daffodils formerly were, it will die out in time, as all but the very strongest do; but if it is frequently divided and transplanted it will live as well as the other similar hybrids of our gardens.

N. Bernardi from other parts of the Pyrenees is of larger size, and from the Maritime Alps earlier to flower.—C. WOLLEY DOD, *Edge Hall*.

Royal National Tulip Society.—A meeting of growers and exhibitors of the Tulip took place at Manchester on the 3rd inst., when it was resolved that the annual exhibition should take place at the Botanic Gardens, Manchester, on Wednesday, May 28, the last day of the great Whitsun show. The prospects of a fine display are undoubtedly good, but much will depend upon the character of the weather during the next fortnight. The Turner Memorial Trustees offer prizes for twelve distinct named Tulips, six rectified and six breeders, and for six distinct Tulips, three rectified and three breeders.

The Pearl Bush (*Exochorda grandiflora*) is one of the most beautiful of deciduous shrubs, and finely in bloom now in the garden of Mr. G. F. Wilson at Wisley. It is smothered at this season with large white flowers, and when standing by itself, as at Wisley, its graceful contour, dense growth, and spreading habit are at once apparent. When fully grown it should measure about 10 feet high and as much in width, requiring slight shelter and if possible a rich loamy soil. We frequently find the Pearl Bush nailed against a wall, and a very pretty feature it makes when in full bloom, but thus trained we lose its characteristic elegance and freedom, its great charm when so placed as to be free from neighbouring shrubs.

Trillium grandiflorum is very beautiful at the High Beech Nurseries of Messrs. Paul and Son, Broxbourne. It has always been recommended to grow this gem in a damp shady spot, really in a bog with an almost north exposure. At High Beech, however, where the soil is a light sandy loam, *Trillium grandiflorum* in an exposed southern position is growing more luxuriantly, flowering more freely, and bearing larger individual blooms than I have ever before seen. One cannot help thinking of the long established treatment recommended for this plant, viz., shade, damp, and peaty soil. How few would ever think of going directly in the face of Nature as it were, and very likely in some cases if they did so they would fail, but here is a case of a plant luxuriating in a condition quite opposed to that in which it is found wild.—K.

Two beautiful climbers for a conservatory are *Lonicera sempervirens* and *Habrothamnus Newelli*, both of which cover a wire arch in the conservatory at Gunnersbury House, Acton. The Honeysuckle makes a charming climber for a cold house, covering trellis or pillar with a pretty and abundant glaucous-coloured growth, brightened now with a mass of scarlet flowers. It continues in bloom many weeks. Quite different, but just as beautiful and more showy, is the *Habrothamnus*, of which a coloured plate was given in THE GARDEN for August 4, 1888. It is not so common as *H. elegans*, but even more desirable, as the flowers are rich crimson, produced quite as freely, and the growth is also as vigorous. This must be grown indoors, but the Honeysuckle will live in the open air if against a warm and sheltered wall. At Kew it is given a wall, and never fails to flower.

Hardy flowers from Newry.—Herewith a few Newry flowers for your inspection. *Aquilegia viridiflora* has a quiet beauty of its own, and is seen to much better advantage cut and placed in a crystal glass than on the plant. *A. oxypetala* is distinct and pretty; it only grows about 6 inches high, and the association of buff-yellow and purple is very pleasing. *Allium triquetrum* is a very pretty free-flowering species, and will grow very well in thin grassy places; the slugs, however, when inclined to vary their diet sometimes make a meal of it. *Iris cristata* is quite a weed here, growing most luxuriantly, so strong that, as you will see, many of the spathes are two-flowered. *Phlox canadensis* stands quite alone in this group, from a colour point of view—a distinct and unusual slaty blue. It grows and flowers freely when the slugs will let it alone; they are, however, very fond of it. *Primula rosea splendens* is much the brightest I have seen; it was raised from *P. r. grandiflora*,

but leaves that variety far in the rear, so far as colour goes. *Menziesia empetrifolia* should be much oftener met with than it is, as after *Erica carnea* it is the first of the Heathworts to flower; the habit is neat and it is very free blooming. *Cytisus ratisbonensis* is a very good early flowering shrub, forming a neat bush 3 feet or so high, now densely laden with pale yellow flowers. *Prunus utahensis* reminds one strongly of the Sloe, but the habit is quite different, being erect and slender branched; it flowers, as you will see, in the most profuse manner right away to the topmost bud.—T. SMITH.

*** An interesting gathering of hardy flowers.—ED.

Heuchera sanguinea, undoubtedly one of, if not the most useful introduction of recent years, is now blooming on sheltered spots on the rockery, and most welcome it is, even with the bright array of Tulips and Anemones. Its graceful habit, numerous intense crimson flowers, and easy culture mark it as a plant for the million. Anyone can manage *H. sanguinea* with a yard of garden, the only stipulation being that the old plants should be lifted annually, broken up into small pieces and replanted. We have a batch of seedlings now coming into flower from seed saved last year, and a more wretched lot of plants we have never seen. None of the seedlings have the intense colour of the type, all being of a pale washy pink. One only has larger flowers; they are nearly as large again, and the pale almost obsolete inner segments are largely developed, but do not improve the appearance of the new flower. Increase by division, and leave seed alone in the case of *H. sanguinea*.

OBITUARY.

Mr. James Flood.—A wide circle of friends will hear with sincere regret of the death of Mr. James Flood, and a familiar face will be missed at the London exhibitions and meetings. Few men were better known in the trade, and his connection with the advertising department of THE GARDEN, extending over many years, brought him into contact with a large number of horticulturists, whom his kindness of heart and good nature made in many cases firm friends. Mr. James Flood was born in 1837 in the Royal Botanic Gardens, in the formation of which Mr. Robert Marnock was assisted by his father. Through his connection with the Royal Botanic Society he was appointed one of the North Australian Boundary Expedition, which set out from Liverpool in the year 1855. He returned from Australia to assist Mr. Marnock in the management of the exhibitions at Regent's Park, which he left in 1872 to join THE GARDEN, with which he has been associated ever since. His death, although somewhat sudden, was not entirely unexpected. Those who were intimately acquainted with him knew that for at least the past two years his health had been indifferent. On Friday afternoon, the 2nd inst., he was, in the office of THE GARDEN, seized with a stroke of paralysis, and never spoke afterwards. He remained unconscious from then until the following Sunday morning, when his death occurred. The funeral took place on Wednesday last at the Marylebone Cemetery, Finchley.

Mr. Joseph Robinson.—Recently there died at Slough this well-known florist, formerly of Pimlico. Between 1840 and 1858 he was a most successful cultivator of Fuchsias, Chrysanthemums, Pelargoniums, Verbenas, &c., and took many first prizes and medals at the great horticultural exhibitions held in London. It was while gardener to Mr. James Simpson, Thames Bank, Pimlico, that he made a foremost name for himself among contemporary florists. He will be remembered by many as the raiser of Robinson's Defiance Verbena, a scarlet-flowered variety of vigorous growth, that was grown for many years for bedding. The stock was purchased by the late Mr. Charles Turner, of Slough, and distributed by him. Joseph Robinson was one of the founders of the National Floricultural Society in 1851, and remained a member of the committee and one of its censors until its

dissolution in 1858. His services were much in request as a judge at flower shows. Leaving Pimlico about 1858, he went to reside at Slough, where he died at the age of seventy-eight years.

Mr. James Cheetham.—Quite recently there died at Rochdale this old florist of many years standing, a cultivator of Auriculas and Tulips, among other subjects, to the last. James Cheetham distributed that fine grey edged Auricula Lancashire Hero, but he was not the raiser of it. That honour belongs to Robin Lancashire. It was first shown by the raiser in 1846 at Rochdale, where it was placed second to a much inferior variety, Grimes' Privateer. The Rev. F. D. Horner has put the incident on record in the following words: "Lancashire then had eight or ten plants of this seedling, and hastily sold all for a trifling amount. He offered a great deal more to get them back, but could not have them. From the first purchaser the variety passed to James Cheetham, by whom it was eventually sent out. But it is truly Lancashire's Hero, and no name but that of Robin Lancashire should be associated with this flower. It is the noblest type of the Auricula, and at its best there is no grey better."

Alderman Daniel Woolley.—On Saturday, May 3, there died at Stockport this well-known Tulip grower and exhibitor. He was in business as a druggist and seedsman, and his favourite flower was the Tulip, of which he was generally a successful exhibitor at the Royal National Tulip Society's meetings. It is very singular that he should have died on the very day of the meeting of the Tulip growers at Manchester to settle the date and arrangements of their next show at Manchester.

RAINFALL DURING 1889.

Month.	Total depth.	Greatest fall in 24 hours.	Number of days on which '01 or more fell.	
	Inches.	Depth.	Date.	
January ...	'64	'20	12	10
February ...	1'22	'30	6	15
March... ..	1'05	'45	7	10
April	1'94	'32	24	18
May	3'80	'78	11	16
June	1'92	'72	9	5
July	2'51	'80	12	14
August	2'77	'64	11	18
September...	2'79	1'05	24	12
October ...	4'03	'61	22	23
November ...	1'55	'42	3	9
December ...	1'28	'33	21	11
	25'50			161

—P. G., *Bury St. Edmunds*.

Fagus antarctica.—Can anyone either tell me where to procure a specimen of this rare shrubby tree, or give me one himself? Something equally rare can be given in exchange.—A. D. WEBSTER.

Achlys triphylla.—Will you kindly tell me to what family this plant belongs, also colour and kind of flower. It grows near Victoria, in Vancouver Island, and probably in many other places. The leaf is sweet-scented when dry.—B. C., *Leightonstone*.

E. M. E.—Potato Magnum Bonum.

Names of plants.—T. May.—The *Narcissus* is one of the *Tazetta* varieties, probably *Bazelman major*, and the other plant, *Polemonium coeruleum*, the common Jacob's Ladder.—R. Toad.—Utterly impossible to name. Specimens shrivelled up. Kindly send again.—H.—*Epidendrum cochleatum* var.—J. F.—1, *Orchis Morio* var.; 2, *Alkana orientalis*; 3, *Cymbidium albaecæform*.—A. Dimmick.—*Sedum acre* (?), send leaf.—*Cotyledon*.—*Saxifraga Huetti*.—W. J. M.—*Odontoglossum crispum*; Ferns next week.—Mrs. Mansel.—*Staphylea colchica*.—George Wallon.—*Cologyne ocellata*.—Jas. Corbett.—Next week.—W. Connelly.—1, *Armeria cæspitosa*; 2, *Centaurea montana* var.; 3, *Dielytra cucullaria*; 4, *Aubrietia deltoidea*; 5, *Gentiana acaulis*; 6, *Iberis sempervirens*; 7, *Narcissus Tazetta*; 8, not recognised; 9, *Centaurea montana*, white var.—Inquirer.—*Onocidium sphecelatum*.—Mrs. Layard.—*Tulipa florentina*.

WOODS AND FORESTS.

PLANTING WASTE LANDS.

THE advantage of planting waste lands is admitted by all those who have studied the question, so that it may be said to be now ripe for practical application. Many schemes have been suggested as to the best way to go to work, some maintaining that landlords are wanting in enterprise and that Government should take the matter up. From the great reduction in rents for arable land, many landlords who own large tracts of barren ground capable of growing trees are not in a position to lay out money for planting and improving their estates, and there can be no doubt that this is a serious drawback to such undertakings. There is likewise a prejudice against tree-planting from a speculative point of view, on the ground that in many cases the planter probably would receive but a small return for his capital during his lifetime. This, however, depends in a great measure upon the kinds of trees planted, as well as the locality, and the size of the different scantlings of wood in demand in the district. No doubt some species of trees take a period of some sixty or eighty years to mature their timber, but then it should be borne in mind that ours is a mining country, and vast quantities of trees are cut and yield a profitable return by the time they are about twenty or thirty years old, or even less. It has been shown that wood of young growth can be utilised for a great many purposes that were never thought of some years ago, and this ought to be an inducement to plant barren ground, even although it may be unfit for producing heavy timber, seeing that thinnings and small stuff are being looked after and will likely continue to be in demand. The manufacture of paper from young trees that have not formed red heartwood has of late formed one of our most important timber industries, and wood-paper mills are being erected on an extensive scale here and there throughout this country as well as in Ireland. In Ireland the price of labour is cheap, and a whole plantation of considerable extent in the Vale of Avoca was sold at upwards of £5000, and in all probability will be converted into paper pulp on the spot. Wood pulp is being imported to this country from Scandinavia on a large scale. The expediency of planting waste lands from a commercial point of view is therefore becoming urgent, and as there is a wide field open to the energetic and enterprising man of business, no time should be lost in making a commencement. Large tracts of land fit for tree growing can be acquired in Ireland at a very moderate price, and gentlemen of capital who wish to embark in such undertakings should direct their steps to that country. Irish peat bog is eminently suitable for growing trees for paper-making, inasmuch as the wood produced on this class of ground is always whiter in colour and softer in texture than such as is grown upon hard inorganic matter. Should Government not take the matter up, individual enterprise and self interest are sure to make a start.

J. B. WEBSTER.

Timber of the Locust Tree (*Robinia pseud-acacia*).—This for certain uses in shipbuilding is said to have no equal. Where strength and durability are required, its value is acknowledged. Fence posts made of it have been known to be in the ground for sixty years and to remain perfectly sound.

The Birch.—The variegation of the stem of the Birch, consisting of patches of brown and white, intermixed with long strips of a silvery lustre, the deep brown of its spray, combined with

a lightness and elegance of form and graceful foliage, eminently fit it for the lawn and the park. In old age its bark becomes rough and furrowed, and generally uniform in colour throughout.

GROUPING TREES IN PARKS.

IT is one thing to plant, and almost anyone may in some way accomplish the task; but it is another thing to plant effectively, for it needs a true artist to do this successfully. A wide range of acquaintance with the aspects, habits, and dimensions of plants, their development of special features, times of flowering, alteration of tint, the positions best suited to bring out their beauties, or to be beautified by them, are all matters of importance, and calculated to tax the skill and tastes of the most experienced and accomplished. Grouping is a department of ornamental planting at once the most effective and the most difficult. There is a wide difference between a group and a clump. The latter is usually a mass of planting, formal and monotonous in aspect; whereas, the former should present an infinite variety of form and outline, all the material of which it is composed retaining a certain amount of individuality, and yet blending in happy and graceful unison, free from trim formality, as also from absurd incongruity; and he who would accomplish the art of thus planting cannot do better than become an earnest student of Nature herself, gleaning his lessons from the sky-line of the mountain, the swells and hollows of the forest, and the meanderings of the watercourse. As a rule, groups should be bold and dense; anything like thinness has a mean and poverty-stricken aspect, which should be carefully avoided. The outlines of groups, both on the ground and against the sky, should be carefully designed; the ground lines should be easy and flowing, free from false curves and anything approaching to rigidity; the sky-line widely diversified, but ever harmonious—here rendered striking by the upshooting of some plant of distinct character, anon merging easily and naturally into lines of smoothness, graceful as those of Nature herself. Thus will be secured those exquisite effects of light and shade so full of charm and beauty to the eye capable of their appreciation. These features are of the greatest importance in the immediate vicinity of water, where shadows and reflections are ever changing and ever new. Again, park and other like groups should always be accompanied by a few irregularly-planted trees, such as thorns, &c., especially at their salient points; this happily removes all stiffness, and gives a natural expression to the whole. The composition of groups should always be ruled by the position they occupy. On the lawn the plants employed should be rich and elegant; in the park, or on the hillside, noble and majestic; near water, partially pendulous; and not only so, but the general aspect of the locality and the style of house should also be taken into account, as certain trees are more in unison with wild, and others with sylvan scenery. It is also usually laid down as a rule that pyramidal forms harmonise best with Grecian, and round-headed forms best with Gothic styles of architecture. This rule, however, must be understood as of general rather than minute application, or a most unnatural and monotonous effect will be the result.

Groups may be composed of one or more species or varieties, and, if carefully executed, with equally good results. As a rule, the plants should differ in size, in order that the outline may be more varied; if the group be of irregular form, the largest plants should be placed in its centre and salient curves, it will thus gain in dignity, and be far more natural and pleasing than if faced by a stiff gradation. Mixed groups should be composed of such trees as harmonise or contrast well with each other. Be it ever remembered there is such a thing as harmonious contrast, and happy is that planter who can produce such effects; he builds for himself a leafy monument that will be admired by succeeding generations.

W.

Trees for smoky localities.—The Plane tree thrives best in towns because it endures the smoke and other injurious substances discharged from

dwelling and factories, and so in the country does the Sycamore appear to thrive better than almost any other tree, unless it be the Spanish Chestnut, the Firs and Pines doing worst. Power in trees to withstand smoke and gases seems to depend entirely upon their vigour of constitution, and in this respect the Sycamore and Chestnut seem to have few equals. In some of the worst localities in the colliery and manufacturing districts both do wonderfully well, showing no ill effects in any way. The Sycamore is the best because it seeds so freely, seedlings coming up everywhere in the neighbourhood of old trees, in some places superseding the Oaks and other species that have succumbed to the climate. The Beech and the Lime also do fairly well.

The Austrian Pine (*Pinus austriaca*), if planted and kept thin, so as to allow its branches to spread, is well adapted for cover in exposed situations, along with the Holly and Elder. Being naturally of a spreading habit and a rapid grower it is well worthy of being more extensively used; but as it is liable to be injured by hares and rabbits, it should be protected for a few years where these animals are numerous. Plants that are intended for planting in old plantations should be of a bushy form, well rooted, and from 2½ feet to 4 feet high. The Austrian Pine is quite hardy, and thrives in a great variety of soils and exposures.

Cattle browsing in plantations.—The advice to admit cattle and sheep to young plantations must be received with caution. Circumstances alter cases, and maybe the ruminants after being permitted to have their will of a plantation might return to their more natural food again; but that horses, bullocks, and sheep do manifest, at times, an uncontrollable desire to devour young trees cannot be denied. It is found necessary on many estates to fence off all young plantations safely, and the cattle keep the trees trimmed well in everywhere within their reach over the fences, no species seeming to come amiss with them.

Barking Oak.—It is well known that Oak timber is less durable when cut while the sap is flowing than when felled in autumn or winter; therefore a great saving and advantage, too, would be ensured if the cutting and removal of Oak timber in copses could be carried on during winter after the underwood is cut, and before the stools begin to make their young growth. Under the present system of stripping bark in May and June, great loss and injury are occasioned annually to underwood stools during the cutting, barking, and peeling of Oak timber while the stools are pushing forth their tender young shoots.

Cherry Plum for hedges.—I have heard that the Cherry Plum makes a hedge in a short space of time, but it is not equal as a fence to Quick, which, if planted close and well kept, is impenetrable. In light soils, Holly succeeds remarkably well, and may be made like a green wall by keeping it clipped at the proper season; and although it takes longer to get up than Quick, it is worth waiting for, as it gives a finish to boundaries unattainable by anything else. Of course, Hollies are more expensive to start with, but then they need not be planted thickly, as plants at 15 inches or so apart soon get together, and the branches interlace in such a way that nothing can get through them. If Hollies are chosen they should not be planted till April, as they are difficult plants to move, and are often lost by transplanting too soon; but if lifted in spring just as the buds are bursting, not one in a hundred will fail.—S.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

RHODODENDRON AUCKLANDI IN THE ISLE OF WIGHT.

THE letter of "W." in your impression of last week should set many thinking about the greatest possible ornament that could be found in a garden. I doubt if anything can equal, and I am sure that nothing can surpass the glory of these Sikkim Rhododendrons when they happen to do well. A visit to the grounds of Sir J. T. D. Llewellyn at Penllergare is an event which cannot be forgotten, and the Rhododendrons either there or at Singleton take one's breath away when they are seen for the first time. R. Falconeri more than 20 feet high and R. Thomsoni nearly as tall, when they are in full bloom, form the choicest of spectacles, and so it is with many others as well. Why, then, must we go to Swansea or Cornwall to see these glorious shrubs in the open ground or be contented with what we can find under glass in the Royal Gardens at Kew? My belief is that "W." has given the answer to this question in the following words: "They are surface-rooting plants, and enjoy an abundance of water all the year round." At all events it is so with regard to many localities, and this gives the key to many a failure where they have been tried in a haphazard way, and then shortly afterwards have disappeared. My reason for saying this is as follows, and I commend it to the attention of those who have beautiful parks they would like to embellish, or wide-spread garden grounds where these Rhododendrons might be altogether at home. Some years ago the late Mr. Mangles was so kind as to give me a very good specimen of Rhododendron Aucklandi. He wanted to see if it would do in the open ground in the Isle of Wight, though he said at the time he had the greatest doubts about its success except under glass, but still he thought it was worth while to try. Sir Wm. Hutt had set us an example, but his prosperity with these Rhododendrons was not very long-lived. In accordance with Mr. Mangles' instructions, I gave Rhododendron Aucklandi what seemed to me the best place in my garden, and for several years it went on well, and was in the month of May quite the cynosure of the neighbourhood, and its large beautiful bells drew admiration from everybody. But after awhile its glory seemed to depart from it; the foliage was browned and very stunted in growth, and there was an appearance of unhappiness about the whole shrub which was not to be mistaken. What was the cause of this dire calamity, and whence could alleviation be found? My gardener and I very sorrowfully put our heads together and ruminated over the matter both by day and by night. The conclusion we came to was this: Rhododendron

Aucklandi had suffered from the rays of the sun, and just because it is a surface-rooter it was in a very bad way. The next thing was to find some sufficient, and, if need be, even drastic remedy for our very depressing trial. Watering would not do; cans of water had been poured over this Rhododendron's head. Mulching was not sufficient; it had already been surrounded with quite a bed of manure; so we hit upon the following expedient, which promises all that we can desire. I moved the Rhododendron to a large concreted bed which had been constructed for Lilies, and we displaced some Lily bulbs and put the shrub in their place, and now all anxiety is over. Nothing could promise better than this splendid object does at the present time. The dried up and unhappy leaves are all falling off, and in their place are innumerable little virid tips and reddish bracts which say, "all is quite well;" buds are swelling rapidly, and a speedy restoration to health and strength seems to me to be assured.

But the conclusion from all this would seem to be the following: A bed which has a concreted bottom is the right place in many localities for these surface-rooting Rhododendrons. I have for long been quite sure of that with regard to many Lilies, and the same thing is applicable to Rhododendrons as well. One can then even grow them in the sun and not be afraid; while the roots are all right and are supplied with an equable moisture the whole year round, no harm need be apprehended. I believe that a bed with a concreted bottom is a sort of specific for the troubles of many Lilies, from the same sort of reason. At any rate, I have nearly thirty clumps of Lilies which are prospering in the bed I allude to, and L. Washingtonianum, L. Browni, L. Hansonii, &c., seem to be perfectly satisfied. In this manner, and in this manner only, so far as I can see, many Lilies, specially L. auratum, can be grown in full sunshine and yet not be dried up in the least, and this beyond all question and doubt is what they require. My border is, owing to the exigencies of a small garden, too much in the shade, but it gives me a glimpse of possibilities of which I should like to avail myself. Indeed, the vision is this—and if space at my command were unlimited, and all considerations of expense gloriously beside the mark, I should set about it at once—I should like to make a border with a concreted bottom in full sun of about a quarter of an acre in extent, and there I can see before my eyes Rhododendron Aucklandi towering up towards the sky, and R. Thomsoni and R. Falconeri following suit, and many others, all vying with each other as to which will do best. In their midst, and dotted about in every available spot, Liliun auratum and its congeners should have what they desire. One could find a shady retreat for L. Washingtonianum behind some tall Rhododendron, and there would be sunny exposures for L. candidum and L. auratum and many others, and I venture to dream that a combination of Rhododendrons and Lilies grown in this way would be a sight to see, and quite worthy of either

Singleton or Penllergare. In other words, so far as the Isle of Wight goes, and I can only speak about that, I am sure that the climate is favourable both to Rhododendrons and Lilies, and the device of a concreted bottom for the bed in which they are placed removes the one danger to which they are liable here more than anything else, viz., that of being burnt up.

As I told you the other day that the Cyrtanthi can be grown here in the open ground, I enclose a blossom, which makes good the assertion.

HENRY EWBANK.

St. John's, Ryde, Isle of Wight.

NOTES FROM NEWRY.

TO THE EDITOR OF THE GARDEN.

SIR,—I send a single flower of *Dodecatheon Lemoinei*, a very distinct and handsome plant; it is said to be a cross between *D. Jeffrayanum* and *D. integrifolium*; the crimson zone between the rose of the upper and the white of the lower parts of the petals is charming; in fact, it requires a good deal of describing. A small truss of a new species of *Dodecatheon* from North America, which comes very near to *D. Jeffrayanum*, only that it is less robust; the flowers are a little more rosy and the anthers are black instead of brown, the flower stems and leaf stalks being green instead of red, as in the case of *D. Jeffrayanum*: it is a distinct and handsome plant. A form of *Azalea Vaseyi* with flowers nearly white, and whose divisions are more rounded than is usual in the type. I see much variety amongst this new hardy species. *Aquilegia formosa* is the earliest to flower of the red-flowered group. It is of erect slender growth, about 2 feet in height; the golden yellow and bright cinnabar coupled with the graceful habit render it a very desirable garden plant. *Corydalis Scouleri* is the most robust member of this family, so far as I am aware. It grows 1½ feet to 2 feet high, has much divided leaves finely cut, and spikes of rosy flowers. This, like most of the *Corydalises*, does not hurry off to rest the moment the flower fades, but goes on growing until the autumn—a soft feathery mass of greenery; a bad traveller. *Iris balcana* is very distinct amongst the dwarf kinds. At first sight it has rather a sombre look, but viewed in different lights it becomes quite charming; at a certain angle a clear blue is seen just underneath the white crest, and if you look at a clump of it with the declining sun behind, it is beautiful. *Phlox setacea* (Newry seedling), out of a batch is the most distinct. The curious rosy-grey seen in a mass is very nice. *Scilla pyramidalis rubra* is good, with spikes as fine as those of many Hyacinths. It will grow anywhere, but is best in deep, rich, moist soil. *Cypripedium pubescens* is sent to show how satisfactory this is planted in the common natural soil of the "bleak north" and in full sunshine. No elaborate mixtures, no drainage, no diverted river, such as was recommended for *C. spectabile* lately, and which succeeds also similarly treated. People who recommend shade for North American plants forget that we, at any rate, have no American sun to warm up the air and ground under the trees, and so must plant in the open if we would have growth finished. *Geum aureum* is a more robust plant than *G. montanum*, and is clearly only a form of it, but a good one. *Cardamine pratensis alba plena*, though not by any means snow-white, is very much whiter than the ordinary double form, and has

denser flower-heads, and it spreads by means of broken leaflets in the same way.

T. SMITH.

ORCHIDS.

SOBRALIA XANTHOLEUCA.

THIS rare and distinct plant, now in full bloom in the garden of Baron Schröder, The Dell, Egham, is conspicuous not only for its rarity, but also for the distinctness and beauty, as well as for the richness of colour of its flowers. The plant in question is between 3 feet and 4 feet in height and well furnished with healthy leaves, which are not marked with thrips, so often prevalent upon *Sobralias* when grown in too great a heat. In my young days *Sobralias* were grown in the warmest position that could be found for them. They are natives of Southern Mexico and Guatemala at some elevation, and a cooler temperature is found to suit them better. The specimen alluded to standing at the cool end of the *Cattleya* house is remarkable for its health and vigour, and is bearing a profusion of its yellow flowers. I am glad to have the opportunity of seeing such a fine example of this lovely species, and I am still more pleased to be able to record the healthy vigour which appears to be spreading through the minds of Orchid growers. At one time, if a plant did not possess a large flower of gorgeous colours, and it did not retain its beauty for a very long time, it was at once condemned. Here, then, is a plant that bears flowers in profusion, large in size and rich in colour, the sepals and petals being light yellow; the large lip deeply frilled, and of a rich deep yellow. The flowers, however, only last a short time, but fresh ones appear within a day or two, and they continue to do so for a very long time. The want of longevity in the flowers caused *Sobralias* to be condemned. Now, however, a better taste prevails, for we see plants that have no rich colouring in their flowers coming well to the front, whilst all Orchid growers are looking after the best kinds of *Sobralias*. This is as it should be, as the lasting properties of a flower do not constitute its beauty. If this were the case, the Rose would stand but a poor chance. *S. macrantha* also I observed blooming profusely in Mr. Raphael's garden at Englefield Green, and also in Mr. Jacob's garden at Cheam Park. We cannot expect a great variety of these plants to come to us from abroad, but I have no doubt there are many new kinds yet to be found. *Sobralias* would now pay very well, I should imagine, as every new kind is eagerly sought for. One kind, *S. Cattleya*, is said to possess a wonderfully large, thick, and fleshy flower, but it has not yet bloomed, as far as I know, in this country. The largest and strongest example of this which I know is in the nursery of Messrs. Seeger and Tropp, of Dulwich, and I am eagerly watching to see it flower. Why does not someone import this plant?

Sobralias are easily grown, and form beautiful ornaments amongst a collection of ornamental plants; whilst when in flower they have two qualities which should commend them to everyone. They are very free-growing terrestrial plants, requiring peat, loam, and leaf-mould. They produce an abundance of large and fleshy roots, and therefore require plenty of pot-room, also copious supplies of water during the summer season. Even in winter they must not by any means be allowed to get dry. It is now found that all the *Sobralias* thrive best under cooler treatment than was

formerly accorded them, the cool end of the *Cattleya* house being just the place for them. *Sobralias* will not stand exposure to the sun in the same manner as *Cattleyas*, the slender reed-like stems becoming dried and casting their leaves. A finer plant, well furnished with leaves, than that of *S. xantholeuca*, grown by Mr. Ballantyne, it would be difficult to find.

W. H. GOWER.

***Cattleya intermedia*.**—This species, although introduced close upon seventy years, still retains its position in our gardens, and it is likely to do so while we have such fine varieties still coming to hand. A number of these flowers recently came from Mr. Moss, of Winters Hill, near Portsmouth, most of the sepals and petals being broad and long, thus forming grand flowers. The lip is distinctly three-lobed, like that of *Lælia elegans*, the side lobes closed over the column, the front lobe being wholly of a rich amethyst-purple. The plant, we believe, first flowered in the Glasgow Botanic Gardens.

***Miltonia (Odontoglossum) vexillaria*.**—A stage 1000 feet in length and about 1 foot in width filled with flowering plants of this species is now to be seen in Mr. Sander's nursery at St. Albans. This is in addition to the numbers that were exhibited in Berlin. There are many forms amongst them, most of them being superior both in size and markings to those first imported. Mr. Sander tells me that these come from quite a different locality to that in which the forms we first became acquainted with were found. The colours are very rich, and the light-flowered forms very large, whilst the plants appear to be wonderfully vigorous and clean.—G.

***Dendrobium Brymerianum*.**—I am informed by Mr. Buchan, of Southampton, that a plant of this species, recently bought for him, has flowered. It is a very bad one, indeed, so bad that he says it not worth the pot it is in. He says that it is a short-bulbed variety. I have seen many of the short-bulbed forms this season bearing excellent flowers; in fact one plant I saw with bulbs about 1 foot high was carrying the finest flowers I have ever seen. It is just fifteen years ago since *D. Brymerianum* was first bloomed by W. E. Brymer, of Ilington House, Dorchester. It is one of the very few Orchids for which I have no love; although I quite admit its singularity. G.

***Odontoglossum polyanthum*.**—This is one of the very finest of the outlying members of this genus. I say an outlying member of the genus, because, although it was discovered by Klaboch some twelve or thirteen years ago, it has been neglected. In some forms the flowers are pale yellow, and in others of a deeper shade blotched with bright brown, and they last in full beauty for a long time. It is now very beautiful in Mr. Raphael's garden at Castle Hill, Englefield Green, and I would strongly urge upon all who grow cool Orchids to add this one to their collection. The plant comes from Ecuador, and thrives under quite cool treatment; in fact it does well with *O. Alexandræ*.—W. H. G.

***Cattleya Lawrenceana concolor*.**—Flowers of this variety were sent a short time back by Mr. Cowley, gardener to Mr. Tautz, and last week it was flowering with Mr. Ballantyne at The Dell. As seen on the plant the flowers are far more handsome and taking than when seen singly. The flower is of good shape, wholly of a pale lavender throughout, saving the throat which is white. This species appears to vary a great deal, but the very finest variation we have seen was the specimen sent from Mr. Cypher from Bath, and noted in THE GARDEN some time ago.

***Sarcocylus Berkeleyi*.**—It is about five or six years since this species was introduced from the Andaman Islands by the gentleman after whom it is named—Mr. Emeric Berkeley. Judging by a plant now flowering at Kew, it is perfectly at home under artificial conditions, for each year it increases in strength as well as in the size of its pendent racemes. The present raceme bears over thirty flowers, each flower measuring 1 inch or so

in depth and somewhat less in width. All the parts, except a rose-coloured patch on the lip, are of a pure glistening white. The lip is of very singular structure; it is somewhat slipper-shaped, but the apex is inflated, and there are two curious outwardly curving wings on the top; it is united to the other portion of the flower by a slender stalk. The plant is dwarf and has two opposite rows of pale green leaves, each about 6 inches long. It bears a considerable resemblance to an *Aerides* both in habit and contour of flower. To the Australian section of *Sarcocylus*, of which *S. Hartmanni* is the best known, the present species has no similarity—to the unbotanical eye at least. Properly it belongs to *Thrixspermum*, but this genus is now incorporated with *Sarcocylus*.

DENDROBIUMS AT BURFORD LODGE.

THERE are many species and varieties of these still in great beauty here. I was particularly pleased to see the beautiful *D. Bensoni* in quantity and blooming most profusely, the flowers being large and of the purest white, set off by the black blotches at the base of the lip. It is one of the best of the section to which it belongs, the flowers being pure milky white, stained with orange-yellow at the base of the lip, on which are two blackish blotches, which, however, vary much in size. It comes from Burmah. There was also a well flowered plant of the exquisite *D. Devonianum candidulum*, the flowers of which are pure white, except the two orange blotches on the lip. It requires to be grown on a block or in a basket. Another plant out of season is *D. Dearei*, which should prove useful for the market; it flowers at almost any season, and if properly kept will remain in full beauty for two months. I have also seen flowers good after being open three months in Mr. Buchan's garden at Southampton, where Mr. Osborne, the then gardener, did not keep it so hot as I see most growers do at the present time. The flowers are of the purest white, having just a tinge of emerald-green on the lip. It would be very useful for market men, because if not wanted one month the flowers might be kept until the next. *D. Jamesianum* was in great beauty, and this, too, should be largely grown, its pure white flowers having a yellow or cinnabar blotch in the throat. This plant requires cool treatment and lasts a considerable time in perfection. *D. Jenkinsi* was in great beauty, as also its near ally, *D. aggregatum*, but the flowers of *Jenkinsi* are usually produced singly, whilst *aggregatum* produces some six or eight, or even a dozen, on a raceme. *D. capillipes* was also in bloom, and this has flowers usually in pairs; the lip is different in shape to that of *aggregatum*, and the growth is quite distinct. *D. Harveyanum* is also another yellow-flowered kind, somewhat resembling *D. Brymerianum*, but the crest of the lip is shorter, and the petals have an additional fringe. One more species which I had not seen before was also blooming here—*D. evolutum*; this is a leafy plant, producing white reflexed sepals and petals and a large three-lobed greenish yellow lip, with revolute edges to the front lobe.

W. H. G.

***Dendrobium MacCarthiae*.**—On account of the difficulty in keeping this species in good condition for any length of time after importation, it has never been common under cultivation, and from what we have heard from residents in Ceylon, it is likely to become still more rare, for it is now, we believe, reduced to a few limited areas in that island. This is a matter for regret, as the plant is undoubtedly one of the most beautiful of all the species of *Dendrobium*, numerous as they are. Several examples may now be seen flowering at Kew. The pseudo-bulbs are very slender, and some of them attain to a length of 3 feet, producing the two or three-flowered racemes at the nodes towards the top. The sepals and petals are very pointed and from 2 inches to 3 inches long; in colour a pretty delicate lilac. The lip is scoop-shaped, the base, along with the lower portion of the sepals, standing out behind the rest of the flower and forming a large conical-pointed spur; the ground

colour is white, but on the front it is beautifully veined with rosy-purple, and behind is a patch of rich glowing purple. The lip measures nearly 3 inches from the apex to the tip of the spur. The flowers, which are little more than half expanded, have a curiously flattened appearance, and invariably face downwards. Altogether this species possesses many characters distinguishing it from all its allies. It should be planted in baskets in a compost of peat-fibre and Sphagnum, and should have a position near the glass in the hottest and most moist house. It requires a longer growing season than most Dendrobies, and should not, as a rule, be rested until mid-winter.—W. B.

Phalænopsis Micholetzi.—The appearance of a new species of this genus is always worthy of remark, showing as it does that we have not yet exhausted the treasures of the Orchid world. The species in question resembles in growth very much the well-known *P. Ludemanniana*. It is one of the brush-lipped section, having the sepals and petals of a tawny orange-yellow, the flower coming nearer to that of *P. tetraspis* than any other which I know. It has been introduced by Mr. Sander from quite a different locality, however, to that species, and bears the name of its discoverer.—W. H. G.

Aerides crassifolium.—This is a superb species from Burmah. It is, however, slow in growth, and this, combined with the fact that it blooms freely and produces large flowers which are of a deep amethyst-purple and deliciously sweet, has caused it to be highly valued. I once saw some grand examples on the Continent which well displayed what a noble species it is, and my only fear is that we will be distanced before long in our collections of East India Orchids. Where are our fine collections of these plants which used to exist? This species, although the plant is small, is now flowering with Mr. Swan at Englefield Green, and I do hope that gardeners in charge of collections will try to induce their employers to buy more of these plants, which were once the pride of gardens.—G.

Cattleya speciosissima.—A wonderfully fine form of this species comes from Mr. Cypher, of Cheltenham, the sepals and petals being deep rosy-purple, and the large lip of a rich amethyst-purple, the centre of the throat streaked with the same colour, the side lobes yellow bordered with white. It is a plant which requires greater heat than *C. Mossii*, as it comes from a lower elevation than that species. It is somewhat shy blooming, especially in gardens where the blinds are kept over the plants in all weathers, but since it has been found that *Cattleyas* enjoy all the sun possible saving the very fiercest through the middle of the day, *C. speciosissima* has been more frequently seen in flower. One of the handsomest forms of this species is that figured in Warner's "Select Orchidaceous Plants" and dedicated to Mr. Dawson, of Meadow Bank, Glasgow, with whom it flowered.

Vanda teres.—Considering the small Rush-like leaves and rather weakly growths of this Burmese species when compared with most others of the genus, it is somewhat surprising that healthy plants even should have vigour enough in them to produce such splendid flowers as they do when under suitable conditions. I have been more impressed with this than ever before during this spring when viewing the wonderfully healthy plants under Mr. Reynolds' charge at Gunnersbury Park. They are now either in bloom or showing for flower a considerable number of spikes, many of which are producing more flowers to the spike than usual, six and seven on each one in some instances. A large quantity of plants, probably seven or eight dozen, are planted out in a pit formerly used for Pines. This mode of culture they seem to enjoy, as they are in rude health, short sturdy leaves and a compact growth being thus obtained. Each season after the flowering they are shortened and replanted, Sphagnum Moss forming the chief component of the rooting medium. Being near the glass, the growth becomes well ripened, which is conducive to a better crop of flowers. It is also doing equally as well, however, at the west end of the

Ixora house, being there grown in pots with the full benefit of the afternoon sun during the growing season. The flowers of this variety appear to me to be of a brighter colour and larger than I was wont to see some years ago. I remember some years ago it used to be occasionally shown by the large exhibitors and growers with a few spikes only of flowers upon large specimens. In my opinion this *Vanda* is well worthy of much more extensive cultivation than it now receives, even if only for yielding cut flowers. *V. Roxburghi* (in its two or three forms) is another fine old species, the flowers of which are quite distinct and striking, if not so showy as those of the aforementioned *V. teres*. When well grown it flowers profusely and lasts a long time in good condition, fresh spikes being often on the point of opening before the first are faded. This variety from Bengal is not now seen so much as formerly. Some years ago I used to grow it for exhibition, and staged the same plant both in June and September without any apparent distress to the plant.—J. H.

SHORT NOTES.—ORCHIDS.

Cattleya citrina.—A spike of two flowers of this Orchid comes to us from Mr. Wythes, Syon House Gardens, Brentford; they are the finest we have seen this season.

Phalænopsis Ludemanniana.—A richly coloured form of this plant is now flowering with Mr. Cypher at Cheltenham. I am very glad to see this plant again in many collections. It used to be prized, and such varieties as the one just noted must perforce arrest the attention of all lovers of rich and rare varieties.—G.

Lælia purpurata in variety comes from Mr. Moss, of Winters Hill. One plant bearing upwards of fifty flowers is a fine variety with pure white sepals and petals. This now-a-days gets the name of *alba*, which it certainly does not either deserve or require. When we get a pure white form of this superb Orchid we shall require a name for it.—W. H. G.

Dendrobium Findleyanum.—A very good form of this species comes to me from Mr. Cypher at Cheltenham, and I also saw a fine plant of it in Mr. Raphael's garden at Englefield Green bearing 170 flowers. When seen in such condition it is superb, and well deserves extended cultivation. Mr. Swan, who has charge of this collection, tells me that he finds no difficulty with the plant, and that it grows very freely.—W.

Oncidium concolor.—This is a remarkable and very beautiful plant. It is of small growth, and no one would imagine it possible for it to produce such a large spike. The flowers are large, rich clear yellow. The blooms last for a long time in full beauty if kept from damp in a low temperature. This plant is also remarkable as being the first Orchid figured by Mr. Williams in the "Orchid Album." Nice examples are now in beauty in Mr. Jacob's collection at Cheam Park.—W. H. G.

Cymbidium Lowianum.—A remarkably handsome and well-grown plant of this species is now in full beauty at Baron Schröder's establishment. The plant, now standing in the cool fernery where it obtains some shade, has been in flower nearly three months, and the flowers appear as fresh and as healthy as ever. It has twenty-nine spikes, each spike averaging thirty flowers, which gives a total of close upon 900 flowers upon the one plant. It is a magnificent specimen.—W. H. G.

Dendrobium amœnum.—Flowers of this gay and very fragrant species come from "J. M." It was first introduced by Mr. Wm. Bull, of Chelsea, and flowered by him about sixteen years ago. The plant is of slender growth, attaining to 2 feet in height, and bearing very freely its clusters of from two to three flowers: sepals and petals pure white, tipped with violet-purple; lip also white, tipped in the same way as the petals, and stained with yellow in the throat.—G.

Dendrobium dixanthum.—This plant, introduced now some twenty-five years ago by the late much respected Mr. Stuart Low, is now flowering in great profusion in Mr. Sander's establishment at St. Albans, the sepals and petals being of one tint of yellow, and the lip of a darker shade. It is a great pity that the plant is quite destitute of leaves at its time of flowering. It is a remarkably free species, and although introduced so long ago it is yet one of the

plants that many Orchid growers have not seen. It comes from Burmah.—W.

NOTES OF THE WEEK.

Gardeners' Orphan Fund.—As will be seen from our advertising columns, the annual fête in aid of this deserving institution will be held in the Flower Market, Covent Garden, on Wednesday, the 21st, from 8 to 12 o'clock. We understand that the Duchess of Bedford and the Baroness Burdett Coutts have signified their intention of being present. The Lily Mavores, accompanied by the Lord Mayor, has consented to open the fête.

National Chrysanthemum Society.—We learn that the Northern Horticultural Society of Tasmania has sent a contribution of £2 2s. to the Centenary Prize Fund, and will be represented at the gathering, in November, by a lady who is coming specially to England, and who has consented to read a paper at the conference on the "Cultivation of the Chrysanthemum in Tasmania."

Rose Emilie Dupuy.—I see in *THE GARDEN*, May 10 (p. 438), "A. H.," speaking of this beautiful Rose, says, "I do not find the name in any English Rose catalogue. It is in George Paul's, of Cheshunt. I purchased a plant from that firm two years ago, and last summer it did splendidly on a south wall with Mme. Berard, Bouquet d'Or, &c. I think it better than either, and that is saying a great deal."—J. MARSH BROUGHAM, *Marholm Leys, Isleworth.*

Flowers from St. Anne's.—We have to thank Lady Ardilaun for many charming things from her garden, which must suit hardy flowers well. There are the beautiful Mourning Iris (*I. susiana*), which we presume is from outdoors; a white Iris like a small *florentina*, Spanish Bluebell, splendidly grown, double Hose-in-hose Primroses, the Cape Poinsettia, white *Pyrus japonica*, superb Tulips of the Italian and larger kinds, and the white wood Lily prettily grown. In the gathering were also included the old Tortoiseshell and Pompadour Primroses.

Disa tripetaloides is an interesting species shown recently by Mr. J. O. Brien, of Harrow-on-Hill, who imported it from between Grahamstown and Port Elizabeth, South Africa. The plant is of tufty growth, and sends out a number of spikes, each about 9 inches in length, and bearing small, but not insignificant flowers, which vary in colour from white to pink, freely spotted. A large mass of it is unusually pretty, and it is only by growing big pieces of it one can obtain its full beauty. A small bit is not sufficiently showy.

Royal Horticultural Society Temple show.—We understand that the schedule for the Temple show on May 28 and 29 will take the form of a twenty-page 8vo pamphlet, comprising: 1, A short history of the society. 2, Programme of the music each day by the band of H.M. Royal Horse Guards (Blues). 3, A list of exhibitors, and of their chief exhibits. We are requested to state that no names, &c., can possibly be inserted in 3, unless they are received by Mr. Barron, R.H.S. Gardens, Chiswick, or at the Society's offices, 117, Victoria Street, on Saturday, May 24, at the latest. 10,000 of these schedules are being printed in expectation of the Prince of Wales opening the show.

Cœlogyne pandurata.—A noble raceme of this singular Orchid has been sent to us by Mr. Driver, The Gardens, Longfords, Minchinhampton. It bears eleven flowers, each about 3 inches across and lively green in the sepals and petals; the lip is of the same colour, overlaid in the inner face of the side lobes with black, the centre of the middle lobe also black, while raised ridges and crest cover the surface. This species was introduced from Borneo in 1853, and when grown well, as at Longfords, it is not only curious, but distinctly beautiful in its green and black colours.

The pleasure grounds at Kew are assuming the richness of their spring dress. Rhododendrons are opening their flowers under the brilliant sun of the past few days, and the collection of Ghent Azaleas will soon make a glow of many colours, the plants having grown into large shapely bushes, smothered in the late days of May and early June with rich and varied coloured flowers. There is a large colony of them on the left hand side of the long vista leading from the Palm house, and when in full flower the effect is delightful with noble Beeches and other

trees as a background. At the back of the Pagoda, and in the grounds of the Queen's cottage are masses of Bluebells, hiding the Grass with their cloud of nodding flowers, a charming break of colour unusual in any public garden. The borders are assuming gay colours, especially the Tulip border near the herbaceous ground, and the rockery hard by contains many choice gems in flower. It is, however, in the out-of-the-way portions at the extreme end of the gardens that many beautiful bits of garden scenery may be found, and these are just the places that few think of frequenting.

Iris cristata.—This I look upon as the most charming and satisfying of all the dwarf kinds. A mass here about 3 yards by 1 yard has been in flower for three weeks, and at one time had nearly a thousand flowers open, at once a vision of delicate loveliness not easily forgotten. The individual blooms last for days longer, I think, than other kinds. I have also a walk 30 yards long edged on both sides with this, only at present thin blue lines, but evidence of what it will be a year hence, when the plants have run about and become matted together, as they quickly do here.—T. S., *Newry*.

Royal Horticultural Society.—With regard to a report which has appeared in a contemporary as to my resignation as secretary of the Royal Horticultural Society, may I ask you to be so kind as to contradict it. The report has, however, somewhat more truth in it than have most reports, for I am very anxious to find someone who will take up the work. The Society may, I think, now be said to have turned the corner, and has, I hope, seen its worst days. I feel, therefore, that I have done my duty by the society, and that I could now hand things over to a successor in a far more satisfactory condition than I found them. A new era, too, is commencing, with the prospect of a new hall, and therefore it seems to me a most fitting time for a new shoulder to be put to the wheel. At the same time, though on many accounts I am very desirous of retiring into private horticultural life, I have not actually resigned, nor shall I do so until a successor is forthcoming, unless more urgent reasons should arise than I am glad to say at present exist.—W. WILKS.

Notes from Almondsbury.—To-night (May 8) the drought seems to have come to an end. We have only registered 6 inches of rain this year. My herbaceous border is rejoicing in the steady rain. We have here about fifty bulbs of *Camassia Leichtlini*—pale yellow, white. How rapidly this increases, and how uncommon it is! Irises are in bloom; *Pæonia lobata* opened its first blossoms three days ago; *Polemonium Richardsoni*, *Dielytra*, *Gentiana acaulis*, *Camassia esculenta* have been blooming freely. Out of fifty *Ornithogalum arabicum* only one promises to bloom. *Tulipa Gesneriana*—fifty bulbs in the centre of a large cross in the churchyard—shows up splendidly. *Ornithogalum thyrsoides* seems to me very beautiful. I saw it in Mr. Ware's nursery, where it struck me that the lovely *Anemone Robinsoniana* was not of nearly so fine a colour as my own, grown on light sandy loam. What lovely contrasts can be obtained just now! Three groups of *Narcissus Bulbocodium*, covered with bloom, are accidentally at the base of a bronze-coloured herbaceous *Pæony*, and a pink, soft red-coloured *Azalea mollis* stands in front of a deep red-coloured Japanese Maple. These are growing well with me in the open. I saw many beautiful things at Kew, and desire to advocate strongly the cultivation of green flowers. Nothing could be more lovely than *Celoglyne pandurata*, a vivid green, striped and veined and blotched with black. I even admire my green yellow *Fritillaries*, and those with black and yellow outside and green inside. What could be more beautiful than the green *Ixia*, or *Ornithogalum nutans*, or the *Brodiaea*—green and red? I dislike green Roses, but I admire the green in *Auriculas*, such as I saw at the Aquarium last week. Is there not a great charm in the old Jack-in-the-Green? Florists might well turn their attention to green flowers. *Rhododendron Nuttalli* is giving me clusters of huge flowers. I have a collection of *Ixias* in pots coming

into bloom, yet *Sparaxis* in the open border, planted on the same day, has beaten the *Ixia*. I picked the first Brier Rose from the open a few days ago, and Teas against the wall of a greenhouse are nearly out. *Abutilon vitifolium album* is crowded with buds. I should be thankful for blooms of a good red *Abutilon* to try to cross with my *vitifolium* in a few weeks. A hardy scarlet would be a great acquisition. Some Moutan *Pæonies* are nearly all out in the open. This garden seems to me very early; a warm soil and shelter from the east are much in its favour.—C. O. MILES.

Canonia capensis.—We have received from Mr. G. Wythes, The Gardens, Syon House, Brentford, flowering shoots of this interesting plant, which blooms there freely in the cold conservatory. It makes a large tree or shrub, growing from 10 feet to 50 feet high, and although introduced early in the present century from the Cape of Good Hope, is rare in gardens. The leaflets are of the deepest green, serrated at the edges, and leathery, and the flowers are produced in axillary spikes. Though usually called white, they are more of a creamy tint. It is a handsome plant in a large structure, making a leafy specimen, and flowering at this season.

A beautiful new Broom is *Cytisus Andreanus*, which is now flowering in several nurseries. A note respecting it appears in THE GARDEN of April 26, 1890, from Mr. Gumbleton, who recommends it to all lovers of hardy ornamental-flowering shrubs. Its full name is *Cytisus scoparia Andreanus*, and we must rank it amongst the finest Brooms of the garden, not only for its distinctness, but also the richness of its charming flowers. The upper half is deep golden yellow, about as large as that of the common Broom, and the lower portion is ruddy red, a striking and unusual combination of two intense colours. The history of this delightful shrub is given in the note referred to. Those who appreciate the graceful beauty of the *Genistas*, of which *præcox*, now in fullest flower in gardens, is a good type, will value this new introduction. It is not often we have a new shrub of the same distinctness as *Cytisus Andreanus*.

Rhododendron Falconeri at Dorking.—The plant here was, I suppose, one of the first lot of seedlings sent out by Messrs. Veitch, somewhere about the years from 1853 to 1856, but I cannot fix the date more accurately. The present height is about 14 feet, and the extreme horizontal reach of its boughs is about 15 feet. But as it stands within a foot or two in front of a wall, which it now overtops by 2 feet or 3 feet, it has no branches at the back. The aspect is somewhere about south-east; the soil is peaty. There are from 100 to 150 trusses of one sort or another, but owing, I suppose, to the very unfavourable character of the winter and early spring, with alternations of warmth and frost, and, above all, of rain, which get into the bud as it begins to open, a very large proportion of buds have rotted away, only leaving two or three flowers to open, which, however, seem all the bigger for the loss of their companions. The chance is that next year the plant will not flower, or not put forth more than one or two trusses.—D. D. HEATH, *Kittlands, Holmwood, Dorking*.

Two uncommon Rhododendrons are *R. Thomsoni* and *R. Blandfordiae*, both in full bloom a few days ago in The Denbies gardens, Dorking. The plants are placed in a group of the ordinary varieties, and are thus protected in some measure from cold winds and early frosts which nip the opening flowers. The specimen of *Thomsoni* is large and one mass of flowers, which are produced in a corymb of from six to eight, individually well-shaped and of the richest self crimson, the deep green ovate leaves forming a rich setting for the heavy clusters of bloom. It is a Sikkim species, growing from 6 feet to 10 feet in height or even more, and was introduced about the year 1851. At just the same altitude—610 feet above the sea—and exposed to wind and frost is *R. Blandfordiae*, which is a remarkably distinct species from the Himalayas, and introduced about the same time as the other. The flowers are not unlike those of a *Blandfordia*, being about 2 inches long,

tube-shaped, and expanding at the mouth, the colour bright red in the tube, but shading to a pale and more orange tint. They are borne several together in a drooping cluster, and on the plant have a bright and unusual beauty, quite distinct in its way. The leaves are rich green, narrow, and each about 3 inches long. Both the species are handsome *Rhododendrons*, and thrive well in the open air, even at a considerable altitude when sheltered by other shrubs. *R. Blandfordiae* will attain a height of about 8 feet under good circumstances.

Saxifraga Camposi, or *Wallacei*, is now largely used as a market plant, and the effect produced by a group of this is wonderful. The plants, well and sturdily grown, are one sheet of bloom. The flowers are of good substance, and last a considerable time after they first open. This *Saxifraga* will be found most useful for corridors, window gardens, and beds, and as it soon makes a good tuft and is easily propagated from cuttings, there will be no difficulty in increasing it. If properly managed, *S. Camposi* will make a splendid subject for the late spring garden, flowering, as it does, so profusely, and forming dense carpets of the most charming light green. The cuttings should be put in about the beginning of August—the open ground will do in a partially shady spot—and by November these will be ready to plant in their blooming quarters. Such a beautiful and easily-grown plant should be in every garden.

LECTURE ON TREES AND SHRUBS.

A PAPER on this subject was read at the recent meeting of the R.H.S. by Mr. W. Goldring, who touched upon the best spring-flowering trees and shrubs for English gardens, and dwelt upon their importance, undeserved neglect, and the little attention that is given to such beautiful things. The crowded shrubberies of common plants were too often seen, not the finest varieties of trees and shrubs to be found in all good nurseries. He urged the growing of the best kinds, instancing amongst other things the Lilacs, of which there were now many finer varieties than the old type; *Mme. Kreuter* is the best purple, and *Marie Legrange* the best white. The double white and red-flowered Horse Chestnuts, *Robinia Decaisneana*, *Magnolias* of the conspicuous race with the little *Halleana*, *Amelanchier canadensis*, the true vulgaris, the Chinese *Pyrus spectabilis*, *P. Malus floribunda*, the Japanese Crab, *Cerasus Sieboldi*, *Waterer's double Cherry*, the weeping variety of the common Mahaleb, the All Saints, and *sempervirens* Cherries, and *Laburnum Watereri*, which has racemes twice as long as those of the common kind, were particularly mentioned amongst the trees. Of shrubs, the *Azaleas*, both Ghent and mollis varieties, *Berberis stenophylla* and *Darwini*, *Cytisus Andreanus*, the Pearl Bush (*Exochorda grandiflora*), *Cydonia japonica* *Moerloosei*, *Pyrus Maulei*, *Ledum latifolium*, *Rubus deliciosus*, *Ribes sanguineum atropurpureum*, the richest coloured variety of the old crimson-flowered Currant, the Japanese Snowball tree (*Viburnum plicatum*), which he placed before the old Guelder Rose, and *Rhododendrons*.

Mr. Nicholson, of Kew, said *Viburnum plicatum* would never take the place of the old Guelder Rose. It gets hurt by frosts, and is not so beautiful as the old favourite.

Sir J. T. D. Llewellyn, Bart., strongly urged the cultivation of *Azaleas* and *Rhododendrons*. People do not know and do not recognise the species which have not been tried in this country. Many of the Himalayan *Rhododendrons* come from a considerable elevation, and are hardy in English gardens. The principal difficulty is one of soil. *R. Thomsoni*, *R. campanulatum* and fourteen or fifteen others might all be tried. He also said that if our nurserymen would turn their attention to intercrossing *Azaleas*, we should have a great future for these plants, and flowers of a finer size, hardness, and sweetness.

Cytisus præcox is very beautiful in the Royal Gardens, Kew, near the Palm house, where there are two large beds. The plants are about three years old, and have been in their present position two seasons. The effect of these two beds of such a graceful and free-flowering shrub as this Broom is delightful.

HYDRANGEA PANICULATA.

THE accompanying engraving is from a photograph by Lady Maxwell of a bed of this fine hardy shrub at Monreith. The bushes have now been in seven or eight years, and, from the first planting, have never failed to give a magnificent display in September and October. The treatment is the same as for self-rooted Roses, viz., cut back and layer in March, at the same time forking in a liberal dressing of farmyard manure. The plants have never received the slightest protection in winter, but unless cut back and manured, they grow to wood and the trusses become smaller and fewer. The blooms are of a rich creamy

the apex several times divided so as to form a dense, heavy tassel, which gives a plant peculiar elegance. *Pteris cretica nobilis*, a distinct Fern with very erect fronds, and *Gymnogramma schizophylla gloriosa*, a lovely form, as graceful and beautiful as any Fern in cultivation, were also worth mention.

FLOWER GARDEN.

SUCCULENTS FOR BEDDING.

THESE, when used exclusively by themselves, constitute most effective groups, both from their (in many cases) singular and massive growth, and by reason of their soft colours. Good effects can be produced in small beds by a judicious selection, but they are seen to better advantage when used collectively in rather large masses. Great variety of colour is obtainable, which ranges from the deep

made in regard to watering with every prospect of a far more satisfactory return. I can recommend all of the following plants for this description of bedding, in addition to the few previously named, viz., *Echeveria glauco-metallica*, a noble growing variety, and one of the best in every respect; *E. glauca* and *E. secunda*, both useful for edgings; *E. farinosa*, quite distinct, its leaves being covered when in good growth with a mealy powder, not easily disturbed, even during heavy rains; this kind requires to be kept rather warmer than others of the same family during the winter for safety; *E. clavifolia* is another distinct variety, with thick, club-like leaves, and it is of fairly dwarf habit; *E. Peacocki* is of compact growth, forming a rosette-like tuft of leaves; *E. agavoides* is well described by its name, and makes a handsome object used singly amongst smaller plants; *Cotyledon pachyphytum*, or as it is perhaps better known, *Pachyphytum*



Hydrangea paniculata. From a photograph by Lady Maxwell in Sir H. Maxwell's garden at Monreith, Wigtonshire, N.B.

white, assuming a rosy hue as they begin to fade; they begin to appear in August, and a constant succession is kept up till the growth is stopped by severe frost. This *Hydrangea* only requires to be better known to become one of the most popular of autumn flowers.

HERBERT MAXWELL.

A few good Ferns.—The Ferns mentioned in this note are remarkably distinct, and a few we picked out for their beauty in the collection at the Forest Hill nursery of Messrs. J. Laing and Sons were *Adiantum Reginae*, a very dense and handsome Fern; *A. Weigandi* and *A. grandiceps* were striking for their distinctness, especially the last mentioned of the three, and of which there was a good plant. It is graceful in habit, each frond being at

green of *Sedum acre* to the beautiful shade of grey in *S. glaucum*, and from the metallic lustre of *Echeveria metallica* to the powdery whiteness of *Cotyledon pulverulentum*, with the variegated forms of *Mesembryanthemum cordifolium* and *Sedum carneum*, both of which are most useful. Last season, amongst a group of other beds, I arranged two with a varied selection, but the succulents were more attractive than either of the rest, although they were each and all quite up to the average. This has induced me this year to prepare for a more extended display with a greater variety of material than before, as any change from the too often seen masses of gay colours and stiff and formal designs, worked out, it is true, in an elaborate manner, is a pleasing relief and contrast. The value of succulent plants for flower-beds and borders is further enhanced when dry and warm spots have to be planted, whilst a great saving is

bracteosum, is a fine plant for the same purpose as the last named. *Kleinia repens* is excellent for forming narrow lines or edges, and when in good condition assumes quite a greyish blue colour. The *Sempervivums* supply us with several useful and in many cases nearly or quite hardy subjects. *S. californicum* is well known; *S. tabulaforme* is quite unlike anything else in habit, but, unfortunately, rather tender. *S. repens*, also rather tender, is a very free growing plant, but apt to get rather straggling if not propagated every autumn as soon as the plants are lifted. *S. arachnoideum* looks best in small clumps or masses. *S. a. Lafferi* is a larger form of the foregoing. *S. tectorum*, the common Houseleek, and *S. montanum*, of very close growth. *Sedum Sieboldi variegatum* is better than the type, and very distinct in habit. *S. acre elegans* and *S. a. aureum* are not always reliable, but disposed to break back to *S. acre*, than which there

is hardly any better kind as a carpeting to other things, as it retains its deep green all through the season. *S. lividum* partakes of a rather bronzy tint of green, and is very compact in habit.

To these may be added those plants of noble growth, the Agaves, of which *A. americana* and its variegated form are both alike good, the latter being no doubt the most striking. The Yuccas, both hardy and greenhouse, should not be overlooked. *Y. recurva* and *Y. aloifolia* variegata are two of the best. I have used in addition to these *Agave filifera* for vases without any injury, and also *Bonapartea stricta* for the same purpose; the latter should be placed well away from the reach of children for fear of the sharply pointed leaves. In the case of all succulents that are safest if kept in pots through the winter, I prefer to plunge them in the beds; thus they can be caught up quickly if needful when frost threatens and the labour of potting is saved when no larger shifts are required with less apprehension of injury to the foliage. In nearly every instance the small growing plants in pots can be stored during the winter in positions where many plants would hardly live or survive the treatment under which they are in many cases grown; shelves, for instance, that are inconvenient for frequent waterings will suit them well.

J. H.

FANCY AURICULAS.

ALTHOUGH what are termed fancy Auriculas may be said to include all sorts of nondescripts, yet I notice that when dealt with by judges as a class in a competition, the selected flowers from the show section invariably take the higher awards. In the National Auricula Society's schedule it is stated in a foot note that doubles and laced flowers may be shown under the designation of fancies. If such is the case it seems odd that the awards should invariably be in favour of selections from the show strain. It would seem that after all fancies have certain points which find favour with judges, and it would be interesting to learn what are held to be the essential points of a show fancy Auricula. If it be assured that only flowers from the show section have a chance of winning in the fancy class, would it not be well to establish a class for alpine or other fancies also, as in that way doubles and many odd, but still interesting and pleasing flowers would have their chance of winning in competitions. Still some clear definition of what a fancy Auricula is should be published, and if the points desirable in both shows and alpins could be given, so much the better. I object to the pretty laced class being shown or grouped with fancies, especially that they have already been admitted into the show alpine class. Only the other day at the Royal Aquarium one of the best plants in Mr. Henwood's first prize six alpins was a good laced variety, showing that the status of the laced section so far is recognised; therefore they cannot be both show alpins and fancies. I would greatly prefer to see a class specially constituted for laced Auriculas, as so far little or no encouragement has been given to this pretty and very hardy section of Auriculas. Whilst very hardy and robust they are very free bloomers, perhaps too much so in one respect, that they usually produce large and, of course, crowded trusses of flowers. Still that defect can be remedied by timely thinning of the flower-buds. Some more clearly defined conceptions as to what are the points of a laced flower than now exist seem to be needful. Lacing in some flowers is so broad that it comes perilously near to ordinary shading. Lacing should be really narrow and well defined, although some flowers have a broadish belting of light colour, which may well be admissible, but true lacing in the Auricula should resemble as nearly as possible the lacing of a *Polyanthus*. Whether due to special difficulty in cultivation, through lack of constitution, or from other cause the double forms have never been seen in good condition, and it seems very doubtful whether they will ever find a permanent place as show plants. The fancies, on the other hand, if of somewhat incongruous style, have the merit of introducing shades of colour into Auriculas not other-

wise recognised on the show table. Heavy tints, especially maroons, purples, violets, blues, and blacks, make a poor show in the London light. They never can be seen in their pristine beauty as in the pure rural light; hence it is a common thing to term them dull and unattractive. Probably there can be no stronger argument against the exhibition of choice flowers in any hall in the area of London than is found in the incompetency of such places to show off certain flowers in their natural beauty and attractiveness. The fancies invariably exhibit yellow tints, and these look fairly lively even in a dull light; hence fancy Auriculas are worth preserving, but all the same it would be more satisfactory did some authority designate the required points in a show fancy flower.

A. D.

NOTES ON HARDY PLANTS.

Lathyrus tuberosus.—This is a deep-rooting species with good-sized, long egg-shaped tubers, which are formed on the black stringy underground stems. It bears numerous clusters of small, but bright rose-coloured flowers. The habit may be described as moderately climbing or creeping. It likes a deep soil, for I have found the tubers at the depth of 2 feet. The position should be sunny, and if some twiggy material is not provided for the stems to climb about 2 feet, the next best style of growing it would be on a sunny rockery in deep veins of loam, where the stems could droop over stones. So employed the effect is beautiful, and especially if the tubers are freely planted so as to get a large patch. A distant view is even better than a near one, so freely and continuously does it bloom. I believe this is not so well known as it deserves to be.

Dondia Epipactis.—Since my note on this (p. 362) I have received a letter from an expert cultivator of open-air flowers to the effect that he not only grows it in light soil with success, but that in heavy soil he found it did not thrive. I rather fancy that my meaning of the term "heavy soil" is not quite clear. What I mean by heavy soil is literally heavy stuff, as distinct from stiff soil, which I am aware is also heavy. We, however, get a heavier soil than clay where there is a deal of grit, flinty pebbles, and even sand, and no doubt the heavy grit seen surrounding some of the roots of alpins in their wild homes is heavier than clay; indeed, I have had collected clumps of such things as *Gentiana bavarica*, *Saxifraga cæsia*, &c., with natural soil or grit about their roots nearly as heavy as lead, and yet, of course, there was nothing like the adhesiveness of clay about it. I merely mention this as explaining my ground for using the term "heavy soil" as distinct from "stiff soil." Further, in my opinion there is a very great difference to the plant between such heavy and such stiff soils as just indicated. For instance, though both are heavy, the looser kind allows a much freer root-run, and I take it that this is what the above little plant, with comparatively long and thick roots, exactly requires. I am glad of this opportunity of making this explanation of an important and yet, what may seem to many, a trivial term. I do not think that we can too carefully study the roots of plants in relation to soil. A heavy soil, to my mind, means pressure or grip, with the contingent conditions of coolness, slow evaporation, and with the advantage over clays of not cracking, no dankness, nor obstruction of free root run.

Anemone vernalis.—This singular and beautiful Windflower has the reputation of being difficult to manage, and it is true that strong and vigorous specimens are seldom seen. About four years ago a lady sent me seeds freshly gathered on the Alps with the remark that the old plants seemed to be rooted in nothing but small loose stones. Of course I could not get the alpine conditions, but I could manage granite chips and grit, and with these mixed with a little black mould I began on new lines to try to grow a plant I had sometimes succeeded with, but which I had too much cause to mistrust. I began the small stone treatment

at the seed-sowing stage. I raised it by hundreds, and I have had no trouble with the plant since.

Gentiana acaulis.—As I mentioned about two years ago, the best way to grow this is from seed, and especially from the wild seed. It yields an interesting and beautiful variety, perhaps as much as any other species of its order in cultivation, and certainly as much as any species of its genus. I have also tried garden seed, but it does not produce so great a percentage of distinct forms. Silvery blues and blues with sea-green and olive-green streaks inside and outside the tubes are often got, and also others with nearly all white on their inner surfaces. White and nearly pure white forms are frequently seen in the wild homes of the species, and given a wild white and a nearly self blue in a wild state it does not require a deal of imagination to solve the cause (secondary at least) of the many forms we get from seed. In my experience there is a greater difficulty with this plant in getting old roots to flower well in some, and very many gardens, than raising varieties from seed. With young two and three-year-old roots there is no trouble to get flowers, and fine ones too, but when the plants begin to spread they, too, often fail to bloom. It is well known that in some gardens old roots without the least care produce dazzling sheets of blue year after year. What causes the difference?

Woodville, Kirkstall.

J. WOOD.

PRIMULA SIEBOLDI.

IF the very beautiful forms of this hardy *Primula* which are so plentiful at Manchester do not become widely grown it will not be for lack of enterprise on the part of Messrs. Ryder and Sons of that place. It may be all very well to regard the bringing at great cost of a big vanload of pans some half hundred in number of these diverse varieties of *Primula Sieboldi* to London as a mere advertisement, but it shows some faith on the part of the firm in the future of the flower they have taken so liberally in hand. Would that we could see numerous other hardy *Primulas* presented for exhibition in the same liberal way; the public would then begin to believe that *Primulas* really had high garden merits. With few exceptions now we see *Primula* species shown in small clumps, and not infrequently in miserable aspect. In the majority of cases it does seem as if they were fitted for a rock garden where they can exist decently perhaps, or if dying, then dying with some sort of natural surroundings; but as to making effective garden plants either for pot or for ordinary outdoor culture there is hardly another family of plants that does not give far more satisfactory results. Perhaps I may go so far as to say that one of the severest tests of a gardener's capacity is found in the growth of *Primulas*, not merely of common kinds, but of all kinds. Messrs. Ryder and Sons and some others have shown us that *Primula Sieboldi*, for the garden forms differ nothing from the species in constitution or in adaptability for cultivation, can be made a very charming greenhouse plant. Exception perhaps may be taken to the Manchester method of showing the plants in flat formal clumps in pans, because the flowers are both too crowded and kept at a dead level, but then they have to be carried long journeys by rail, and it is natural that a means of transit should be adopted which gives bulk of flowers in a small space. Generally I have found that blocking some ten or twelve strong crowns into 6-inch or 7-inch pots when repotting in the autumn gives the most pleasing effects, as clumps so produced are neither so big over nor so flat as are those produced by placing small blooming plants thickly into pans. Even if a big flat pan of plants be a little elevated above the surrounding foliage plants, it has a dumpy look, whilst small, rounded, and more irregular heads of bloom in pots may be set up at any elevation with excellent effect. *Primula Sieboldi*, whether in pots or pans, should be brought into bloom either in low light houses or in frames, to prevent undue tallness. The stems being stout and of medium height, the trusses of flowers stand up all the more boldly, and the greater the light,

or rather the nearer to the light they are, the more erect are the blooms. To ensure good trusses of flowers the chief consideration lies with the summer culture. The crowns must not be crowded so as to allow ample room for development, and if the crowns be small no bloom will follow. Then the leaves must be retained as long as possible, as their premature loss under hot sunshine injures the production of the crowns. It is doubtless because of the comparative summer coolness and dampness of the Manchester air that Messrs. Ryder and Sons do *Primula Sieboldi* so remarkably well. Of the varieties shown in London just recently the best were *alba magnifica*, fringed, and *Queen of Whites*, smooth white; *Mrs. Ryder*, pink; *Miss Kelly*, pale rose; *Miss Nellie Barnard*, red fringed; *Arthur and Ruby Queen*, both smooth-edged flowers, and reddish hues; *delicata*, mauve fringed; *Harry Leigh*, lavender, smooth-edged; *Bruce Findlay*, blue, smooth; and *Distinction*, pale red-fringed edge. All these are charming varieties.

A. D.

HARDY PLANTS IN THE GRASS.

THIS phase of gardening should have greater attention paid to it, and be more generally practised. A few exceptions could be mentioned where this interesting and effectual style of gardening is practised with the most satisfactory results. For one good instance we need go no further than Kew. There, close by the Cumberland Gate, may be seen flowers of many sorts thriving luxuriantly on the Grass beneath the shade of trees. Amongst others, *Fair Maids of France*, *Primroses* in variety, and *Bluebells* are conspicuous, and these, together with various tints of the numerous Fern fronds, produce a telling effect. The same spots are usually brightened during the first months of spring by hundreds of *Snowdrops*, *Crocuses*, *Winter Aconites*, and other early flowering bulbs. This style of gardening can be carried out at a nominal cost and minimum amount of labour, but gardeners do not take kindly to the method.

I do not recommend the lawn proper to be utilised in this manner, unless it be in a few exceptional cases, but rather the innumerable grassy plots that are to be found amid shrubs and trees and by the side of woodland walks. I am well aware that shrubs, such as *Rhododendrons*, *Ghent Azaleas*, &c., are largely used for this purpose, but what I advise is the more extensive use of hardy flowers for the embellishment of such places. Of these there is a great variety to select from. The *Primrose* in variety is by no means to be despised. Even the common wood kind with its bright golden flowers will do much towards making such spots attractive, and should be planted in quantity. I do not advise the robbing of hedgerows and copses for this purpose, inasmuch as this sort of thing has already been carried too far. Those who require *Primroses* in large quantities should obtain the seed from the proper source and raise plants themselves. For associating with *Primroses*, *Cowslips* may be planted extensively, and the same may be said of the *Wood Anemone*. All these will flourish well beneath the shade of trees or amidst shrubs, as also will the pretty *Bluebell*. The latter is a very common subject, but, nevertheless, one of the most showy of our native flowers, and if planted and naturalised in masses it produces a striking effect. In some parts of the country it would not be a very difficult matter to establish these charming flowers or the *Wood Anemones* on grassy plots in the pleasure grounds, since both of them generally abound in the neighbouring woods. Then to ensure a display of bloom in early spring what subjects are better than *Snowdrops*, *Crocuses*, *Winter Aconites*, and to follow these, *Daffodils* in variety? The whole of them will thrive under the most adverse conditions, and will not fail to brighten many an otherwise objectionable corner. I am acquainted with a nobleman's establishment in the north of England that is literally smothered, to use a common phrase, with *Snowdrops*. Not only are the pleasure grounds covered with them, but the woods also. They were easily established, and now give no trouble whatever. Associated with them are masses of the *Winter Aconite*, the bright golden flowers of

this being very attractive on a fine spring day. Then, again, *Harpalum rigidum* might well be given a place by the side of walks and open grassy plots in the pleasure ground. It is a vigorous grower and will quickly form large masses, but so far as my experience goes, it does best where it can have the full benefit of the sun. If a little care be taken at first it will soon become established, and will produce abundance of rich golden flowers through the summer months. The *Lily of the Valley*, too, must not be overlooked, since it is so well adapted for naturalising. It is the common notion that this plant will not flower satisfactorily unless it gets a certain amount of sunshine, and consequently many people do not care to plant it beneath trees and in otherwise shady places. But the idea, though common, is erroneous; at least so far as my experience is concerned. I know a gentleman's seat in Yorkshire where the woods literally abound with *Lily of the Valley* in breadths an acre or more in extent. It is perhaps better adapted for establishing in bare places, where Grass will not grow, than in more open spots that might be utilised for other purposes.

The subjects referred to above are well adapted for establishing amidst shrubs and for decorating secluded spots, but there is another phase that is worthy of notice. I refer to the embellishment of more open spaces. For this there are also many suitable subjects. The hardy *Fuchsias*, for instance, make a bold display during the summer, and so do the herbaceous and Tree *Pæonies*. The last-named may not be suitable for all parts of the country, but both *Fuchsias* and herbaceous *Pæonies* will thrive and flower well in nearly every district from *Land's End* to *John o'Groats*. *Roses* of sorts may likewise be utilised for the same purpose. Bushes of the old *China Rose* I have seen make a fine show when planted in masses on Grass; while a naturally-grown bush of *Gloire de Dijon* produces an effect not to be despised. I know of a plant that has been grown thus in the same position for ten years, and it never fails to produce a profusion of bloom both in early summer and late autumn. No pruning whatever is done beyond cutting out dead branches when necessary. Bold clumps of *Pampas Grass* may also be planted with advantage where they are likely to do well, and the same may be said with regard to *Bamboos* and *Torch Lilies* (*Tritomas*). The last named will produce a telling and bright effect during the late autumn months, and will thrive as well on Grass as on a border. Avoid, however, the common error of planting them in lines, but rather establish in bold isolated masses. Many of the strong-growing Ferns, too, are suitable for planting in clumps and so are some of the *Spiræas*, such as *S. Aruncus* and others, *Yuccas* and the Japanese *Polygonum* (*P. cuspidatum*). In addition to these, shrubs and trees of sorts as well as climbers should be brought into use. Of the latter, *Clematises*, *Honeysuckles*, *Jasmines*, &c., are useful and well adapted for establishing on tree trunks and similar positions.

Some discretion, of course, must be used in arranging the plants above mentioned, so as to produce the best effect. It would be loss of labour, time, and expense to plant any hardy subject upon grassy plots without first considering whether it is suitable for such a position. Then, again, the immediate surroundings must be taken into consideration. It would be utterly useless to plant, say, a clump of *Bamboos* in close proximity to a bank of *Laurels*, and yet I have seen it done by those who should have known better. Over-crowding, too, must be guarded against, or the effect will be spoiled.

C. L.

Poppy Windflower (*Anemone coronaria*).—A good strain of this *Anemone* produces a great variety of richly-coloured flowers which are most useful for cutting or for making bold groups of colour during spring in the flower garden. No other hardy spring-flowering plant can compare with this when we consider the brightness of the flowers, their variety and individual lasting powers, and the long season in which they are in full beauty. They well repay good cultivation in the matter of soil, which they prefer somewhat sandy and liberally dressed with

well-decayed manure from the stockyard. It is generally advised that the tubers be lifted when the foliage has ripened and planted again in October, and without doubt this is the best plan to produce one good crop of flowers, as they can be planted on newly-manured ground; but where the occasional flowers are valued, it is better to let them remain, saving seed from the best flowers and sowing one or two beds every year. The best plan is to sow where the plants are to remain, but this is not always practicable, and with care in transplanting they do just as well if sown in boxes.—J. C. TALLACK.

DAFFODILS.

I WAS pleased to see that the naturalisation of this popular flower in odd nooks and corners of the pleasure ground and wild garden was likely to be extensively carried out. There is perhaps no single flower that so well deserves a permanent home in such quarters. I was able to get out nearly 15,000 last winter in different situations, and besides brightening the foreground and thus relieving the monotony of breaks of *Laurel* and *Rhododendron*, they have furnished an unlimited supply of cut bloom when this was in special request, and from both points of view their usefulness has been noticeable from the duration of the flowering season. There are many spots in all large pleasure grounds where effect and utility can be considered even more than an absolute following of Nature in such planting operations as the naturalisation of *Daffodils*, spots, I mean, where it is not out of character to mix the varieties to such an extent and in such a manner that a fair display of bloom is furnished for nearly the whole of the *Daffodil* season. I have before noticed how this can be effected by breaking up the soil roughly, soaking it well, and planting with *Hypericum* or the small *Periwinkle*, a handful of Grass seed from the hayloft being scattered thinly between. With the idea of getting a little colour in one or two of these places, the long Grass and *St. John's-wort* were cut over with the scythe, and the ground planted rather thickly with the old double *Daffodil*. The effect of the big yellow flowers rising from the beautiful green carpet of the young growth of the *Hypericum* has been very pleasing. In more open spots, or in the immediate neighbourhood of walks or of the mansion where the planting has been done, we have endeavoured to follow Nature as closely as possible, both in confining varieties to special places and in drawing out the edges of the clumps in an irregular manner. When *Daffodils* are used in a cut state, it is advisable to set up the flower with its own foliage where this is possible; whilst for bowls or temporary *jardinières* I have found the following arrangement pretty and effective: Fill the tin or basket thickly with plants of *Isolepis gracilis*, cut the flower with some two or three leaves, and insert firmly in the soil. If a little care is taken in doing this it has a very natural appearance; the flowers and foliage seem to rise from a thick carpet of tall Grass.

Claremont.

E. BURRELL.

SHORT NOTES.—FLOWER.

Plant labels.—After having had various labels, I have come to the conclusion that the best label is, none at all. If the name of a plant is not worth remembering, it is not worth having. I have little doubt that many besides myself have come to the same conclusion.—G. H. C.

***Spiræa astilboides*.**—This is a really beautiful plant, introduced some few years ago by Mr. Wm. Bull, of Chelsea. It is a perfectly hardy plant, but it may be had in bloom by forcing as early as the month of March. I saw it in quantity during April in the nursery of Messrs. B. S. Williams and Son at Holloway and I also saw it past its best with Mr. Swan in the Castle Hill Gardens, Englefield Green, where it had been very fine.—W. H. G.

Iris Bludowii is very pretty now in a mass with Mr. Thompson at Ipswich, but probably the extremely short-lived character of the flowers will be the greatest failing. The quantity of flowers, however, which the species produces atones somewhat for their all too fleeting character, and when there is a large group of the plant, such as the one referred to, its beauty

can be enjoyed over a longer period. It is of a dwarf habit, rarely exceeding 1 foot in height, and the flower-spikes do not rise much taller. The flowers are of a soft pale yellow colour except a few veins of rich brown which intersect the lower and larger petals. It is a native of Central Asia.—A.

Iris præcox is extremely pretty in the mass at Ipswich, and the way in which it grows and flowers upon a hot and dry soil would mark it as a useful plant for gardens generally. It is of dwarf habit and might be effectively used as a front row in a border of *I. germanica*. It keeps up the flowering season between the fading of the earlier kinds and the blooming of the *germanica* forms, which in all their rich and varied loveliness come later on. The flowers are entirely of a self pale blue colour, and borne upon short stalks which scarcely rise above the foliage.—II.

Geranium atlanticum.—Among this extensive genus there are many kinds that have little more than a botanical interest, but that can hardly be said of the above named species, which is now flowering finely in a pot in a frame with Mr. Thompson at Ipswich. It grows about 1 foot high, branches freely, and flowers profusely. Individually the flowers are an inch or more in diameter, of a pretty shade of violet-purple, intersected with reddish veins. The colour fades somewhat after the flower has been open a day or two, but apart from this it is showy, free, and effective, and can be recommended to those who are interested in the genus.—II.

KITCHEN GARDEN.

TOMATOES IN PITS.

If heated pits of any kind are not wanted for plant growing during the summer, they might be turned to good account for growing Tomatoes. Each season we have had them in our pits the crops have been highly remunerative, and this year we hope to improve on anything previously done in the same positions. We have tried training the plants to wires and stakes, and over slates, boards, and hurdles, but having found the last to answer best, they are now annually fixed in the pits as they are wanted. What are known as "wattled" hurdles are the best, but in some districts they are never seen, and in this case hurdles formed of strips of wood nailed together may be substituted. Our pits are 6 feet wide, with a single row of pipes all round, and on the latter are rested the hurdles, the width of pit just suiting this arrangement. Even if the hurdles could not be thus simply laid on the pipes, very little difficulty would be found in otherwise fixing them about 12 inches from the glass. We have also tried several experiments with regard to the arranging of the plants and the number of these required for each pit. What I now consider the simplest and best plan is to arrange the plants across the pits in double rows, these being located at intervals of two lights, half being trained to the right and the rest to the left. It will thus be seen that each leading growth can extend across two hurdles, or nearly two lights, passing each other on the way. This answers far better than stopping them just when they are beginning to freely form large clusters of fruit. Whether few or many plants are put out may depend upon circumstances. If plentiful, they ought to be planted and trained about 12 inches apart, no side shoots being permitted to form, but if scarce, then fewer may be put out, and side shoots laid in thinly wherever there is room for them. The former, being the quickest way of covering the hurdles with fruiting growth, is to be preferred, though it sometimes happens that plants grown on the extension system are the most productive in the end, over-luxuriance being a great hindrance to free fruiting. The latter fact must not be lost sight of when the site is prepared for the plants, nor, on the other hand, is it advisable to adopt a starvation method of culture. Supposing the pits have been used

for forcing either Potatoes, Beans, and Asparagus, or starting Strawberries, there is no necessity to remove either the soil or heating material that may have been used. We merely collect the former into good-sized ridges across the beds, no further preparation being needed. Formerly the plants were first shifted into 10-inch or larger pots and half plunged into the old heating material, into which the roots also soon found their way, rank top-growth, however, being prevented by the confined state of the bulk of the roots in the pots. Recently the plan of preventing grossness and consequent unfruitfulness by withholding water at the roots has been repeatedly tried with good results, and the pots are now dispensed with. Should there be no heating material already in a pit intended for Tomatoes, there is no necessity to put any there, a ridge of fairly rich loamy compost about 2 feet wide and 18 inches in depth being all that is needed, and from this the plants will soon reach up to the hurdles. In any case the soil ought to be firmly rammed about the roots, care also being taken to keep the old ball of soil and roots in a moist state until the roots have taken possession of the new compost. A mulching of short manure or leaf soil will save the watering-pot considerably, and if all goes on well the plants should be kept uniformly moist at the roots. Liquid manure will also be beneficial if there is no rich food supply underneath the soil. As before hinted, a gross unfruitful habit may easily be checked by withholding water for some days, and no one need be alarmed at seeing the plants flagging badly, as they are the more likely to set a good crop under this drying-off treatment. Dryness at the roots and in the atmosphere, the lights being well blocked up in preference to sliding them up or down, is also the best preventive of disease. The leading shoots naturally have a tendency to draw up to the glass, and unless frequently gone over and carefully tied down to the hurdles many of them will get broken. During the early part of the summer all superfluous growth should be removed as fast as it forms, but later on a few shoots ought to be saved on the lower portion of the stems, and these will soon show fruit. Air may be admitted according to the state of the weather, but the plants must never be shaded or syringed overhead. Tomatoes succeed fairly well without fire heat if the position of the pit is good, though they will be much more profitable if it can be turned on in dull or cold weather.

I. M. H.

POTATOES HOME-GROWN AND IMPORTED.

A FRIEND who has been making about 2s. per bushel of his Potatoes complains that at this price they scarcely pay for growing, and has reduced the area hitherto devoted to their culture. If at this price Potatoes are not remunerative, what must be the position of those large growers who this winter have been obliged to sell at less than 1s. per bushel? Probably never during the time that this scandal has been in general use have good samples been sold at such a cheap rate as in this past season. Really good Magnums have been sold at 20s. per ton in the London markets. The depression in agriculture caused many to turn to the Potato in the hope that it would give a better return than grain crops, and no doubt money was made by Potato culture for some years. But the consumption has not nearly kept pace with production; the large stock must be cleared off for what they will make. A Covent Garden salesman, who has a first-class connection, told me that he had found the greatest difficulty in making £2 per ton of first-class samples. Deducting expense of carriage, commission, &c., there can be little or nothing of profit left to the grower, and at a less price than this there must be an absolute loss.

There can be no doubt that the ever increasing amount of imported Potatoes in spring helps to lower the value of home-grown produce. In former years prices were generally better during the early spring months, but new sources of supply are continually being discovered, and every ton of new Potatoes brought into this country from abroad must lessen the value of our own produce. Hitherto the Jersey Potatoes have been the most formidable enemy of the English growers, but now we are getting abundant supplies from the Canary Isles quite a month earlier than the Channel Islands can furnish them. Fine kidney Potatoes have been coming in plentifully from the Canary Isles all through last month; indeed their season comes, I think, to an end by May. We may certainly in the near future expect large supplies from these islands, which appear to have just the climate for early Potatoes and some other things that are in demand in spring in the London markets.

J. C. B.

LAXTON'S PEAS.

I AM pleased to find that you have reproduced Mr. Laxton's interesting paper which he read on Peas at the Chiswick vegetable conference, if only for the reason that it would be a good thing did its re-publication evolve a discussion on Peas. A Pea election of a dozen of the very best kinds for ordinary garden use would not be a bad idea, as in that way it might be possible to elicit the opinions of many gardeners who would not otherwise care to take part in a discussion. I am all the more tempted to urge this matter because the writer of the paper referred to, Mr. Laxton, has been a most prolific raiser of Peas, although he has of late been run very hard by Mr. Eckford. Almost scores of these Peas have from time to time been grown at Chiswick for trial, and have received certificates of merit, showing that they were really good sorts and yet have hardly got into commerce. Of all Mr. Laxton's Peas how few are in common use, although why is inexplicable, except for the reason that they did not eventually meet the tastes of growers and consumers. For a time Supreme was a most popular market Pea, but its dryness and lack of flavour have told against it so much that it has given place to Telegraph, Telephone, and similar large-podded Peas, although neither of those just named are to be regarded as first-class in flavour. Mr. Laxton's very best hit for quality was the dwarf green Omega, well described as a dwarf Ne Plus Ultra, and which I still grow because of its marked excellence. Did Mr. Laxton make a mistake when he started with the Scimitar, or sword-shaped podded Peas such as the Auvergne? No doubt from this source constitution and freedom of bearing have been derived, but then how largely at the cost of flavour. Nearly all our best flavoured Peas are straight-podded, an odd fact, but still, nevertheless, true. Of all our tall Peas we have never excelled the flavour found in British Queen, Strathmore Hero, Champion of England, or Ne Plus Ultra, but we have had presented many varieties which are more prolific. If one kind of apparent excellence of flavour has come up, it is doubtful whether it is not a select stock of an old sort or reproduction of it. There has, so far as I can learn, never been put into the market trade a more popular dwarf late Marrow than Veitch's Perfection. Plenty of fine prolific sorts of dwarf habit suited for field culture have been tried, and few have stood the test. If without flavour the public will not buy again; hence the growers have found it needful to stick to the old favourite sorts. Perhaps many good new Peas have been cast aside simply to make room for others, as they came from the raisers in such rapid succession.

There can be no doubt but that our greatest need is found in the lack of comparative earliness of even the hardiest kinds. Whether it may be eventually possible to produce a race of Peas which shall be so hardy that they will bear sowing in the autumn and will bloom and pod through April and May, is a problem which experts may well try to solve. It seems difficult to understand that the

mere reproduction by the score through cross-fertilisation of sorts that have gone before or are in plenty now is of any material advantage. If some new kind were produced that combined remarkable properties far beyond those possessed by any other variety, it might prove to be meritorious, but so far among Peas of recent introduction I have not found any appreciable improvements in them. Two years ago I grew a Pea of somewhat dwarf habit which seemed to possess specially good qualities, but I soon found that, like so many other novelties, it had not been properly fixed, and the general sample was as mixed as would be the sweepings of a seed shop. I destroyed everything but one plant, and have started the kind literally afresh. It is also one of the straight-podded sorts and of high flavour. Whether it will prove to be all that was stated remains to be seen. Peas have such a natural tendency to run back that only by constant selection or the weeding out of inferior forms can they be kept true to character. To do this well needs not only sharp eyes and a perfect knowledge of the character of the type, but also much time and patience. It is only through the exercise of this patient watchfulness that our wholesale seed houses have been enabled to maintain old sorts in that excellent condition still found. It is just possible that the more Peas are intercrossed the more will they tend to variation and reversion; hence the difficulty of keeping the stocks of new kinds very true. I should like to see my idea as to a Pea election adopted, but would prefer it be left to the close of the season, when the growth and character of the sorts are still fresh in the mind. A. D.

TOMATO PLANTS UNHEALTHY.

I ENCLOSE two stems of Tomatoes—No. 1 a healthy plant, No. 2 a diseased one. The plants were put out in good loamy soil in January, and up to this last week they have done well. They are about 6 feet high and full of fruit. The plants look vigorous and well one hour and the next they flag, as if they were in want of water, but no amount of that will bring them round. The disease seems to be quite at the bottom of the stem. I find on cutting the stem of a diseased plant that it is very hard and woody, and dark brown in colour, with no pith, while a healthy plant I find is white in appearance, with a vein of pith quite down to the bottom. I have grown this sort five years, but do not know the name. The seed was imported from France. The plants have been well attended to in regard to water, ventilation, &c. I shall be glad to know the cause, and if there is any means of stopping the disease. I believe I shall lose 1000 plants.—G. F.

** In all probability the stems have been injured, either by something mixed with a top-dressing, or else by an overdose of strong special manure of some kind. Neither surmise may be correct, but from the fact of the stems being injured at the bottom, or just where they would be affected by a powerful manure, notably sulphate of ammonia, it seems feasible. That special manures if used to excess or recklessly will injure any green vegetable matter, including the stems of plants it comes into contact with, I have found to my cost, and of late years rarely trust these in the hands of careless assistants. If, however, "G. F." has not used any strong special manure, either in the form of a surfacing or dissolved in water, then the evil may perhaps be traceable to the ordinary water. For instance, last season a friend of mine had most of his Chrysanthemums nearly spoilt, owing to strong sewage having unexpectedly found its way into an open tank, and it may be "G. F.'s" water supply is also poisoned in some way. There are destructive fungoid diseases that spread on the surface of soils, but I have never known a case of the loss of Tomato plants from this cause. Such large plants as those described by "G. F." are not easily recovered, but prompt measures might save them. I should advise that all the stems be mounded up well above the injured parts, a moderately rich porous compost being used. Then if the plants are kept somewhat dry at the roots and the new compost con-

stantly moist, a brisk heat, accompanied by atmospheric moisture being maintained, new and strong roots may be emitted from the stems above the injured part, and a fresh start be made. It is also advisable to shade the plants from bright sunshine till they have recovered somewhat. This is a most uncommon case of failure, and I should be glad to know what results from any remedies that may be tried.—W. IGGULDEN.

STOVE AND GREENHOUSE.

THE WATER FAIRY FLOWER.

THE illustration of the Shui Sin Far, or Chinese Water Fairy Flower, gives a fair idea of this splendid variety of *Narcissus Tazetta*, which is universally cultivated in the Celestial Empire as one of the essential accompaniments of the new year festival. The legend as to its origin is well known, and was particularly referred to in



A fine specimen of the Water Fairy Flower. Engraved for THE GARDEN.

THE GARDEN of March 2, 1889. The native cultivation is almost entirely confined to the growth of a few bulbs for the new year, but much store is set by them and ingenuity displayed in blooming them at the right time, as the date of the festival varies in precisely the same way as that of the Western Easter. An ordinary-sized bulb bears from four to six spikes of bloom, and as a pot plant, therefore, the Water Fairy Flower produces a very fine effect, as if four or five bulbs are grown in a pan a mass of bloom results; planted thickly in a large bed the effect is simply magnificent, as the flowers stand well up above the broad strap-leaved foliage, which is itself exceedingly handsome, and few more delightful objects can be imagined than this fragrant mass of bloom on a cool winter's morning after the heat and discomfort of a tropical summer.

Both the single and double varieties are cultivated, but the single form is much superior in

form and habit to the double. The bulbs are cultivated as annuals, and although they survive a second season after being sent out from the farms, they seldom bloom in South China, and are generally thrown away after the flowering season is over.

J. BARTON.

Hong-Kong.

** This variety of *Narcissus Tazetta* was largely imported last year by some of our London seedsmen, and by the kindness of Mr. Barr we were enabled to grow some bulbs. One of these, placed in a bowl such as that represented in the engraving, and filled with small stones and water, flowered freely, producing seven spikes of bloom. The flowers are very sweetly scented, and the plant grown thus is a very suitable object for room decoration. We hope at an early date to give an illustration showing the effect of a mass of this *Narcissus* as growing in the open air in China.—ED.

A SMALL GREENHOUSE IN APRIL.

FROM the letters I have received concerning my brief notes on my small greenhouse, I am hopeful that they are not without interest to others besides myself, nor do I think the reason is far to seek. It has nothing whatever to do with the merits or demerits of the writer, but arises simply from this fact, that there is a large number of the lovers of a garden whose space and means are circumscribed and who are always glad to hear of the successes or failures of those who are similarly situated, just as when one goes through some grand gardens he feels all this is very grand and fine, but he cannot attempt anything of the kind, and so it is *caviare* to him; but when he goes "poaching about," as I was once told, the garden of a brother florist, he feels that it has a far deeper interest for him. Here he can perhaps get a hint or two that may be useful; here he can see how difficulties have been overcome and riddles solved which at one time puzzled him greatly. I am aware that even in big places there are difficulties, but I also know the resources are great too. I may grow half-a-dozen winter-flowering Carnations, but I derive little benefit from seeing in a big place 600 plants of *Souvenir de la Malmaison* and the same number of *Germania*. For this reason, therefore, I continue my notes on my small greenhouse.

Of course, there will be as the months progress some survivals of the preceding ones, and thus, although all the early-flowering bulbs which I have used—*Roman Hyacinths*, *Narcissi*, *Daffodils*, *Tulips*, &c.—have departed, still a few of the *Cyclamens* and the *Cinerarias*, which helped to make the house gay, occupy their places; in fact, the *Cyclamens* are, I think, better now than they were last month. The higher temperature suits them better, and there is more freedom of flowering amongst them than when the temperature was lower, or rather, I should say, the flowers do not damp off as they were apt to do. There is no question that they like warmth, and this is one of the cases in which I am obliged to sacrifice excellence to convenience, contenting myself with smaller results, but there are other plants and bulbs which have now asserted themselves and make the house gay. I have three plants of a bulb which is not nearly so much grown as it ought to be—*Tropeolum tricolor*. I know nothing in a small way more gay or pretty than a good plant of this. Mine are trained on a wire trellis, which they completely cover and hang about in festoons. They have generally done well. This year they flowered freely as usual, but from some cause or other the foliage every soon became yellow. I rather fancy from manure watering; however, this is simply an accident, and I cannot too highly recommend them for the gay and singular character of their flowers. I have had about half-a-dozen pots of *Lachenalia tricolor*, with its very showy flowers, and one or two *Lachenalia Nelsoni* and *luteola*, but these latter have not done well with me

this year. I quite think that the best way of growing these *Lachenalias* is in baskets, for the foliage is untidy-looking, hanging down so much as it does; but I have no room for this. The baskets would hang down over the other plants to their injury. Another bulb I have about four pots of, and which I can highly recommend, is *Allium Hermetti grandiflorum*; in its inflorescence it is very much like the well-known neapolitanum, but it is very much better; it is dwarfer, and the flower stems come up straight at once; whereas in neapolitanum they bend down and come up straight afterwards. The blooms last a long time, and although it has a very faint *soupeon* of the peculiar odour of the tribe, it is not offensive, and when mixed in a bouquet with sweet-smelling flowers such as Wallflowers and Mignonette it is not distinguishable.

The chief colour in the house is now furnished by some eight small plants of *Azalea mollis* and three or four of the Indian *Azaleas*, so called. The former are of various shades of yellow and orange, while of the latter I have now in fine bloom a plant of that exquisite pink-coloured flower Mrs. Turner, another of Marie Van Houtte, and one of Apollon. These plants are not trained, but allowed to grow naturally, and I have not repotted them for three years. I merely take off the surface and add some fresh peat and sand, and they do very well under this treatment, for there is not a leaf to be seen on them, they are so completely covered with flowers; in fact, in this matter of repotting I believe that a good many plants are more injured than benefited by it. When these *Azaleas* have done flowering they are taken down into the annexe, and there under the shade of the Vine they make their growth. I know that it is recommended at this time to place them in heat, but I have none at my command, and they make quite enough growth for me in this way, and continue to bloom very freely, which is the great point to be aimed at; and I am never troubled with thrips, which I should probably be if I gave them heat. The plants of *A. mollis* are stood out in a shady place to make their growth. Some advocate planting them out and taking them up again at the end of the summer, but as my object is rather to keep my plants small, I do not adopt this plan.

One of the prettiest plants and certainly one of the sweetest that I have had in bloom this month is *Primula verticillata*; it has a centre stem about 18 inches high, with three whorls of flower, and then from the bottom of this stem six flower-stems come out almost at right angles, making quite a symmetrical plant without any training. This and its peculiarly dusty foliage make it a noticeable object. I have besides half-a-dozen plants of *Primula Sieboldi* and its varieties. These do not bloom so freely as some of the *Primulas*, but they are elegant and graceful in habit, and the flowers are very useful for cutting. Now, too, some of the zonal and decorative *Pelargoniums* are beginning to show flowers—that very distinct white *Volonte Nationale album* is in full bloom, and is by far the best and purest white of this class.

There are few plants which I found more useful for adding lightness to the house during the early months of the year, and especially now, than the pretty annual *Schizanthus*. I have now about half-a-dozen pots of it in full flower. Everyone who comes into the house is delighted with it, for, strange to say, it is but little known. I sow the seed at the latter end of July or beginning of August, and as soon as the plants are large enough prick them off, three or four into a 6-inch pot. They are kept in a cool frame until frost sets in, and are then removed to the annexe, where they remain until a place can be found for them in the greenhouse. With me they begin to flower at the end of March, but when heat is used they can be had during January and February, and I am much surprised that those who have to fill large houses at this season of the year do not more utilise this and other half-hardy annuals, such as *Browallias*, dwarf *Scabious*, &c. When it is desired to set out flowers in a light and graceful manner, there are few things that are more serviceable than the *Schizanthus*; there are various species, and they vary much in their

colouring, so that there may be a very pleasant variety perhaps in the same pot. I have also at present in flower a few pots of winter-flowering *Carnations Alegatière*, *Vulcan*, and others. They do not come in so early with me as they might, owing to the house not being warmed, but now they are very useful, and their sweet perfume makes them very acceptable. I have also a few small plants of *Abutilon* which also add to the colour of the house during this season. I cannot allow them to grow larger, as I have not space for them, and so am obliged to renew them from cuttings from year to year.

This then is the aspect of my little greenhouse at this time. I see symptoms of change. *Pelargoniums* are beginning to show for bloom, and in another three weeks the aspect of the house will be very different from what it is at present.

I have found one or two plants of *Fuchsia splendens* most useful for flowering in the early spring, and they are now in bloom in the house. I am somewhat surprised that this plant is not more used; its red flowers with green tops are most striking, and it is very good for cutting, being like all the tribe graceful in its habit. Another plant I find also useful is *Lonicera semperflorens*, which well deserves its name, for it is very persistent in flowering. Of course, the difficulty with me is to give it sufficient room, and I am obliged to raise plants and cast out the old ones. Thus I lose a good deal, but I have the consolation that it is not only the possessor of one small greenhouse who complains of being crowded out, but those who have a score make the same complaint. DELTA.

Leaf bracts of Rhododendrons.—These bracts are very conspicuous in the case of *Rhododendron Aucklandi*, and when the new growth is pushed forth they hang down in long shreds, bright pink in colour. Another of the Himalayan *Rhododendrons* in which the character is very pronounced is in the curious hairy-leaved *R. barbatum*, but in its case the bracts are bright crimson. In addition to the beauty of its bracts, *R. Aucklandi* is clothed with noble foliage; indeed, many of these greenhouse *Rhododendrons* are apart from their flowers very beautiful. Those with coloured bracts as well as those in which the young leaves are brightly tinged are in every case of a more decided hue where the plants are fully exposed to the light than if they are partially or wholly shaded.—H. P.

Asparagus plumosus nanus in the greenhouse.—Though this is usually grown in a stove, it does well in the greenhouse. Not only does its foliage last well when cut, but it is one of the best plants that can be grown for room decoration, as it rivals the *Aspidistra* in the way in which it adapts itself to apparently uncongenial surroundings. A plant of it has been on the floor of a room in my cottage for more than two years, and though it is quite away from the window and the room has had no fire on many of the sharpest nights of winter during that period, it has made good progress, and is now a much stronger and better plant than it was when first brought in. Of course, it does not make such strong growth as it would if grown in heat, but this is an advantage rather than otherwise, as it does not get too big for its position.—J. C. TALLACK.

Dianellas.—These form a genus of Australian Liliaceous plants that grow into large masses of deep green Sedge-like foliage, which at this season of the year are overtopped by branching panicles of blossoms for the most part of a light blue colour, against which the yellow or orange-tinted anthers stand out conspicuously. The *Dianellas* are just now very attractive, though they are most showy when the bright blue berries are ripe. On *D. aspera*, which is perhaps the best, the berries are about the size of large Peas, and of a bright rich blue colour. As the fruit-laden panicles stand well above the foliage they are, of course, most conspicuous, and retain their beauty for a considerable time, that is if they are untouched by birds, for I have had plants totally stripped by them in a few hours. There are several other species of *Dianella*, but through the whole of them there runs a strong family likeness, and they

all succeed under ordinary greenhouse treatment. To be effective, however, they need to be grown in large masses or clumps, as small plants confined in pots are seldom or never satisfactory. A large pot or tubful, as we often see in the case of the old blue *Agapanthus*, shows the stronger growing kinds off to advantage, but perhaps the most satisfactory way, where a suitable space exists, is to plant them out in the conservatory border, as so treated the foliage usually becomes more richly coloured than where they are confined in pots. Other species besides that previously mentioned are *D. cærulea*, *intermedia*, *lævis*, and *tasmanica*. They are all easily increased by division, or the seeds germinate readily and grow away quickly when favourably placed.—T.

VARIETIES OF THE FLAMINGO FLOWER.

WHEN one recalls the varieties of *Anthurium Scherzerianum* that were seen during the first few years of its introduction into this country and compares them with those grown at the present day, the great advance made in the case of this *Anthurium* will be evident. There is a long list of varieties with scarlet spathes, but the difference between some of them is so slight that it is almost impossible to distinguish the one from the other. There is one feature too often overlooked in selecting varieties of this *Anthurium*, and that is the objectionable habit some have of the spathe becoming twisted around the stem in such a manner that a good deal of the size of the flower is lost. In selecting seedlings, this is one point that should be fully considered, for though the seed may be saved only from fine flat flowers, it by no means follows that the progeny will be all of equal merit, for this *Anthurium* is very variable when raised from seed. Seedlings on flowering, however, for the first time must not be judged too severely, as they will after a season or two often improve in a marked manner. A good illustration of this was brought home to me in the case of a batch of young plants raised from seed which was saved from a good variety, and as the seedlings flowered for the first time, they were all condemned as vastly inferior to their parent. However, it was resolved to give them a further chance, and all the flowers were at once cut off, the plants repotted and encouraged to grow away freely. The following season all the flowers were removed as soon as they could be seen, but the next year (by which time the plants had become vigorous) the blooms were allowed to open, when their quality fully justified such a mode of treatment. Again, I have saved seed from some of the spotted varieties, and while many of them on flowering turned out to be only the ordinary *A. Scherzerianum* and never showed any signs of change, on the other hand, there were a few whose first two or three flowers were scarlet, but the later ones came spotted, and the plants retained this character afterwards. The raising of *Anthuriums* from seed is a very simple matter, and at the same time very interesting. The seed takes about one year to mature, and consequently we are just gathering that which resulted from last year's flowering. It is easy to see when they are ripe, as the pulp in which they are imbedded becomes of an orange-scarlet colour, and when this takes place the earliest of them will soon drop, but when this happens they are easily found, as their bright hue renders them very conspicuous. It is much better to leave a few to drop than to gather them too soon. By some the seeds are kept for the pulp which surrounds them to become dry, but I prefer to sow at once, as the seed then germinates much more readily than if it is kept for some time. In addition to this, the sooner they are sown the stronger will be the young plants by the time winter sets in. Before sowing it is a very good plan to rub them with some dry sand to remove the glutinous pulp in which they are imbedded. Whether sown in pots or pans, the drainage must be good, and the pots filled to within an inch of the top with a compost consisting of peat, chopped Sphagnum, and silver sand, as in such material the roots run freely. The seed, having been thinly sprinkled on the surface of the soil, should be covered with silver sand, and when this is

done the best place for the seed pots is in a close propagating case in a stove temperature, as the seeds germinate much more readily when they are kept in an even state of moisture than if they are exposed to the ordinary atmosphere of the plant stove. When the young plants are sufficiently advanced they may be potted off, using for the purpose small pots, and the same kind of compost as that in which they were sown. The young plants make more rapid progress if they are kept during their earlier stages in a close case, as the moisture-laden atmosphere just suits their requirements. After the flowering season is over is a good time to repot the larger Anthuriums, and from the copious supplies of water necessary for their well doing, the soil around the roots is often in a very decomposed state, and when this happens as much of it as possible should be shaken or washed from the roots before repotting them. A compost that remains sweet for a long time is a mixture of fibrous peat, Sphagnum, nodules of charcoal, and silver sand, and this just meets the requirements of the Anthuriums. H. P.

PLANTS FOR SMALL CONSERVATORIES.

THERE has been a wonderful increase of late years in the number of amateur gardeners, and perhaps the increase is hardly so remarkable as the increased ability shown by such amateurs in the cultivation of the various specialities they take in hand, a fact no doubt largely attributable to the cheap horticultural press, which affords sound and practical information to all lovers of a garden. In common with most gardeners, I get complaints occasionally from amateurs that this or that is not doing satisfactorily, especially, as a rule, among the various inmates of the small conservatories, and I have therefore penned a short list of plants that are almost certain (with ordinary care and attention) to do well. As a matter of fact, there are many plants hardly suitable for the amateur grower, unless he can bestow upon them a considerable amount of time and exceptional skill, and it is therefore not advisable to attempt their cultivation. All soft-wooded plants, for instance, that are very susceptible to the attacks of insect pests, as show and fancy Pelargoniums, Cinerarias, Calceolarias, &c., and hard-wooded and Australian plants, as Azaleas, Ericas, Pimeleas, Chorozeas, and the like, are unsuitable.

Fortunately, there are many things at once comparatively hardy, easy of culture, and nearly exempt from the attacks of insects, and of such it may be said that they are specially adapted to the requirements of the small conservatory. It may be remarked at the outset that a considerable number of well-grown small plants are far more desirable in such structures than a few large straggling specimens. To commence with a few things useful at the present time, two very attractive plants are the white and yellow Hoop-petticoat Narcissus (*Bulbocodium*), and a lengthened season of these can be secured by two separate pottings of the bulbs in October and the beginning of December. *Lachenalia tricolor* is a handsome little plant, easy of culture, and, like the Narcissus, requires only the shelter of a glass structure, from which frost can be excluded, to have it in perfection. *Primula obconica* is a plant for all. We have a number on the front stage of a cool greenhouse that have been flowering profusely for months, and the young flower-spikes are still making their appearance. The amateur who wishes to commence the cultivation of this *Primula* should procure two or three old plants next month, split each into four or five pieces, pot in a fairly light open soil, and grow on through the summer in a cool frame. If show Pelargoniums are objectionable, the remark does not apply to the zonal section, and a few of the

free-flowering varieties are always acceptable for their bright colours. They will not throw much flower through the winter months unless a minimum temperature of 55° can be obtained, but with the advent of genial spring weather they will produce a display that will be maintained more or less until the autumn. Such varieties as Raspail, Guillion Mangilli, H. Jacoby, Colonel Seeley, and Constance may lay the foundation of a small collection. Use nearly all loam when these Geraniums are transferred to flowering pots to ensure a short stocky growth and plenty of flower. *Saxifraga pyramidalis* is another wonderfully pretty thing that is easily grown. Insert side shoots or off-sets in small pots, strike in a cold frame that is lightly shaded, and transfer to 4½-inch pots when the cutting pots are full of roots. This plant likes a nice open soil with which a few handfuls of broken crocks or charcoal have been incorporated; damp is its chief enemy, and a sharp look out must be kept that no water lodges in the centre of the plant as it advances towards the flowering stage, or the bud will be destroyed. *Rochea falcata* is another handsome succulent also easy of culture. I believe the tuberous *Begonia* is likely to become the amateur's plant; it is so easily grown, practically free from insect pests, and has a long season. It is not necessary to enlarge here on its culture in pots, as the subject has been thoroughly ventilated by able and successful cultivators, but I may just mention that the upright-flowered section of singles and the compact very free doubles (of which *Octavia* is a type) are best for pot work. The fine-leaved white *Marguerite* is also an amateur's plant, as it is easy of culture, very free, and also exempt from the disease so often fatal to the large-foliaged varieties. *Dracæna indivisa*, *D. gracilis*, and *Aspidistra lurida variegata* are three serviceable foliage plants, but in their case the amateur may possibly have to rely on others to increase his stock. If a smaller variegated plant is required, *Phalangium argenteum lineare* may be grown. For a combination of flower and foliage and to give a semi-tropical appearance to the structures under consideration there is probably nothing better than a small collection of the new dwarf Cannas; they are very handsome plants and will ere long be indispensable in the cool greenhouse. Store away in dry earth during the winter months in any place from which frost can be excluded, pot up in early spring in any ordinary soil, water sparingly for a time, but give a copious supply as the leaves develop. A few plants of drooping and trailing habit will be serviceable to form an edging, and to hang down over the side of the staging, and these can be found in *Isolepis gracilis*, in the green and variegated *Tradescant*, and in the common Musk. A few wire baskets suspended from the roof are attractive in all conservatories whether large or small. *Saxifraga sarmentosa* is probably one of the best all-round basket plants in cultivation for a cool house, as it forms a dense mass of foliage very quickly, and the thread-like runners supporting the young plants are just what is required in an overhanging plant. There is a variegated or rather a tricolor form of this which is very handsome, but it is of poor weakly growth when compared with the type. One or two of the Campanulas, as *carpatula* and its varieties and *fragilis*, are also useful for this purpose, whilst if a mass of green is required a good centre plant of *Adiantum gracillimum*, and the sides and bottom of the basket clothed with *Selaginella* or a well-furnished basket of *Adiantum concinnum* leave little to be desired. If a few plants are required for covering roofs and pillars (it is not advisable to select for small houses very

free-growing creepers, as, for instance, the *Cobæas* or *Tacsonia exoniensis*), three plants that may be likely to give satisfaction in their respective colours are *Plumbago capensis*, *Habrothamnus elegans*, and *Solanum Comptonianum*. All small conservatories require to be shaded in some way, especially in these days of scanty woodwork and very large panes of glass. A little fresh lime mixed very thinly with sour milk and put on with the syringe will answer the purpose, or if the glaring white is objected to, summer cloud can be applied in a similar manner.

Claremont.

E. BURRELL.

DRIED BULBS OF LILIUM HARRISI.

IT is difficult to understand why the bulbs of this Lily mentioned in THE GARDEN, May 3 (p. 421), did not start more quickly into growth, for, as a rule, they soon commence to grow when placed under favourable conditions. I should think it was due to their being potted and placed in heat at once, as some that I obtained about the same time and treated in a similar fashion, except that they were placed in a cold frame and just protected from frost, commenced to push forth roots at once. By Christmas the foliage made its appearance above ground, when they were removed to the greenhouse, and now some of the earliest are almost in flower. Though the Lilies mentioned on p. 421 were placed in the greenhouse, their nearness to the hot-water pipes would suggest that they were there much warmer than in the rest of the structure, and possibly the soil at times got very dry. The fact that the bulbs cannot be satisfactorily forced, unless they are well rooted, before taking them in heat is fully recognised by those who grow them in quantity for market; hence the desire to get Tulips, Hyacinths, &c., potted as early as possible, in order that they may become thoroughly established before forcing them. By many the pots of bulbs are stood in a bed, given a good watering, and covered with a thick coating of ashes or Cocoa-nut refuse, as the uniform temperature and even state of moisture thus given them are very favourable for the action of rooting. Then when they are removed to the forcing house the flowers quickly appear, while if potted and attempted to be forced at once, the majority would refuse to start at all.

With regard to the query, "Is the Bermuda Lily grown and exported by the Japanese?" I say, yes; for large importations reach here from that country during the winter months, which are very similar to, if not actually the same as *L. Harrisii*. Generally speaking, they are sound, firm bulbs, which are slower in starting into growth than the Bermuda or American types, so that I should be inclined to think your correspondent's Lilies were the Japanese ones. Those referred to by me included examples of both. In returning to the question, Is there any difference between the Japanese and American Lilies? my opinion that there is none is based on their behaviour for several seasons, as the first year after they are imported there is certainly a difference between them, the American bulbs reaching this country before the Japanese ones. As they also start more quickly into growth, they can consequently be had in flower much earlier than those from the Old World. However, after growing them under similar conditions for a few seasons it is impossible to see any difference between them, and planted in the open ground or in pots they will after the first year all flower at the same time. In some of the Japanese ones the leaves are a shade wider and the flower slightly more open than in the American *L. Harrisii*, and then it represents the type usually known as *Wilsoni*. All these varieties, from whatever source they are obtained, are superior to the typical *L. longiflorum*, and also flower more satisfactorily. There is little doubt that most of the varieties of *L. longiflorum* are geographical forms.

Concerning the bulbs of *L. speciosum*, which are imported from Japan in such numbers, their refusal to start is new to me, as I have never found the

least difficulty in this respect; indeed out of about 200 that were potted and stood in a cold frame there are only four that are not growing. The superiority of these Japanese forms of *L. speciosum* over those sent here from Holland may be noted, the white *Krætzeri* being very distinct from and more handsome than the Dutch album, while the varieties roseum and rubrum are much finer than the European ones.

Of *L. auratum* I scarcely know what to say, this Lily being to me, as to many others, a puzzle. My difficulty is not to induce it to start into growth, but to keep it in a healthy state till flowering, and I find the experience of others is the same. While many will grow and flower well, some, on the other hand, just as the buds show themselves lose many of their leaves. When this takes place, though the flowers may open they are wanting in the beauty of the healthy specimens, and after blooming it will usually be found that the bulbs of these sickly plants are almost, if not quite decayed. The forms of the golden-rayed Lily known as *platyphyllum* and *macranthum* seem better able to resist the vicissitudes of our climate than the ordinary type.

H. P.

THE CLEMATIS AS AN EXHIBITION PLANT.

THE Clematis is undoubtedly on the decline as an exhibition plant, and yet a group of well-grown and bloomed Clematises is a striking object at a flower show like that of the great Whitsun one at Manchester. Even there, where Jackman's unrivalled plants used to startle the northern folk, Clematises now, unfortunately, play but a small part compared with formerly, and what plants are shown are furnished by one of the largest trade growers of Clematises in the midlands. If it may be objected that specimen Clematises for exhibition are of necessity formally trained plants, they are surely not so much so as the *Pelargoniums* one sees at the Regent's Park, Crystal Palace, and other shows. A specimen Clematis trained to a balloon-shaped trellis is, after all, only a shapely mass of leaves and blossoms, and there is in the case of a well-grown and trained plant no trace of sticks, as one sees in a formally trained, large-flowering *Pelargonium*.

It is the spring-flowering varieties of the patens and florida types that are best adapted for exhibitions in May and June, and these are generally very free bloomers; when well grown they make a vigorous growth helped by stimulants, and put forth flowers characterised by large size and fine colouring. I have mentioned May and June because these are the months of the year when some of the largest exhibitions take place; but it is not difficult to have the plants in flower during April. The grower can make his specimens as large in reason as he pleases, but a cylindrical trellis 2 feet or so in height and not quite so much across will make a very fine specimen, because the flowers stand out above the luxuriant leaves, and so greatly augment the size of the specimens. The Clematis being a plant that roots freely and a somewhat gross feeder needs pots 10 ins. or 12 ins. in diameter to do it justice; the compost should be a rich loamy one, and a free drainage must be provided. The spring-blooming varieties flower from the ripened wood of the previous year, and therefore the plants during the previous season should be encouraged to make a free growth, for in proportion to the number of shoots will be the flowers on a specimen. These growths are put forth as soon as the plants have done flowering. But an exhibition specimen cannot be made all at once. The plants should be potted and grown on for two or three years, plunging the pots to the rims during the summer in ashes, Cocoa fibre, or such like, and freely mulching with manure, doing this as often as needed. As a matter of course the flowers of sorts required for exhibition in May or June must be perfected under glass, and it is worthy of note that the spring-flowering varieties stand a course of culture in pots better than the summer-blooming types.

A somewhat different treatment is required on the part of the summer-flowering types. Occa-

sionally one sees in the month of August a specimen of *C. Jackmani* or *C. rubella* staged in a collection of stove and greenhouse plants, but rarely well done. The plants intended for exhibition require to be grown pretty much as if in the open garden. This type of Clematis is more impatient of limitation of root space than the varieties of the patens type, and therefore it is almost impossible to secure such fine flowers as are produced on plants grown in the open air. The cultivator, therefore, has to help the plants in every way in his power. Tubs are therefore recommended in preference to pots, as affording greater root space. It is best to grow on young plants into size until they are large enough to go into the tubs and become exhibition specimens. The plants require to be pruned down rather closely, while the aid of top-dressing, liquid manure, and other stimulants must be resorted to, so that there may be during summer a vigorous growth of the branches.

The foregoing cultural directions serve to show how the Clematis can be grown for conservatory decoration early in the year. The cultivator should confine himself entirely to the patens and florida types, as they are more amenable to pot culture. The plants need close attention, and that is perhaps the main reason why they are not so much grown as they deserve to be. I have grown and flowered plants in a cold house by looking closely after them in the matters of training, watering, and cleanliness. By placing a few stakes round the pot and tying the shoots to them in a circular form, commencing at the bottom of the stakes and working upwards until they were covered with the shoots, the flowers would thus come outward, and very useful decorative specimens be thus formed.

R. D.

SHORT NOTES.—STOVE AND GREENHOUSE.

Azalea indica Ceres.—For growing naturally for decorations this Azalea is well suited. Its habit is that of a low, somewhat flat, spreading bush, without any tendency to make straggling, sucker-like growths, and it does not lend itself readily to training into stiff pyramids. The flowers, which are freely produced, are pure white for the most part, but here and there a splash or line of bright pink enlivens the plant and has a good effect. It bears gentle forcing well.—J. C. T.

Begonia Juarezi.—Under this appellation Messrs. J. Laing and Sons, of Forest Hill, exhibited at the Royal Aquarium on April 29 a novelty in Begonias. The flowers are large, of a deep, rich red hue and semi-double. The peculiarity of the inner or surplus petals is that they come somewhat crumpled and fluted, the edges being slightly cut or laciniated, thus giving promise of yielding a new race of this very beautiful and favourite family of tender plants. The Messrs. Laing in naming the variety Juarezi evidently regard the novelty as the progenitor of a sort of Cactus-flowered section of Begonias, just as *D. Juarezi* was of Cactus Dahlias. Anything almost would be better than are the formal, rotund, solid, double flowers now seen. They are veritable round balls of petals, whilst the large singles are not less formal because so flat. If the new break would produce distinctly fringed petalled flowers, not too densely set, they would prove most attractive.—A. D.

Clivias at Upper Holloway.—There was a fine show of this flower, also still labelled *Imantophyllum* miniatum, in the nurseries of Messrs. B. S. Williams and Son, Upper Holloway, and massed together in a large group, the plants make a glow of rich orange-scarlet shades. One of the finest varieties is *cruentum*, and another excellent kind is *Van Houtte*, the flowers deep scarlet; while others that deserve notice are *Mrs. Carmichael*, which bears very large bright coloured trusses; *Perfection*, *Splendens*, and *Ambroise Verschaffelt*, a bright and handsome variety. The Clivia has now become, in the truest sense of the word, popular, and this shows the wisdom of gardeners and others who know that not only is it a handsome foliaged plant, but the flowers are bright in colour, showy in a mass, and can be used individually when cut for the table. We have seen many decorations in which the flowers of the Clivia have been used with

charming taste. The value of the Clivia for groups in the conservatory can be judged by the display in the Victoria Nurseries.

GARDEN FLORA.

PLATE 753.

ASIATIC IRISES.

(WITH A COLOURED PLATE OF I. BAKERIANA AND I. BORNMULLERI.*)

Two such additions to the hardy spring flower garden as are depicted on the accompanying coloured plate are indeed acquisitions, even to our already large collections of the lovely Iris family. Bulbous plants of all kinds, coming as they do in early spring to delight us with their pure fresh beauty, gentle reminders of a better time in store for us, are doubly welcome when they combine, as in the present instance, all the rich beauty of the rare exotic Orchid with the delightful fragrance of the Violet. These two charming Irises speak for themselves, and when we remember that they may be cultivated in the open air and are within the reach of all, we have much to thank our energetic collectors for.

I. BAKERIANA.—This most charming of all the early spring Irises, first sent, I believe, to Dr. Foster by the Rev. G. F. Gates, of the American Mission, flowered in his garden at Shelford the following spring. The honour of its introduction, however, will have to be shared by the indefatigable Herr Max Leichtlin, of Baden-Baden, who had it collected in quantity and shipped to Europe in company with the curious *I. persica* var. *purpurea*, a handsome form of *I. lupina*, and *I. iberica*, that most wonderful of all the *Oncocyclus* group. *I. Bakeriana* promises to be an extremely variable plant, many forms being found amongst this importation, all vying with each other in their gaudy colouring, and all as fragrant as the Violet. The yellow streak on the fall conspicuous in some of the forms is almost entirely absent on others; the size and number of the violet spots and the breadth of the rich violet edging as well as the size and the brilliancy of their tints vary in individual flowers. The varieties do not, however, seem at present to differ enough to warrant special names, and it will doubtless be most convenient to grow them under one name. Its only fault, if such it may be called, is its earliness to bloom in the spring, and although it may be welcomed at Christmas or early in the new year, its real worth as a garden plant will depend chiefly on a later flowering period, which there is every reason to believe it may develop if the bulbs are properly managed and planted in suitable positions in the open air. It is almost too soon to give a definite opinion on this Iris as a hardy spring flower, but so far it has proved perfectly amenable to outdoor culture, showing all the qualities of the old *I. reticulata* without its vices. Its most near ally is no doubt *I. reticulata*, the structure of the

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, January 19, 1890. Lithographed and printed by Guillaume Severeys.



1 IRIS BAKERIANA. 2. IRIS BOENMULLERI

flowers, &c., being somewhat similar. It clearly differs from that species, however, in its having cylindrical and conspicuously ridged leaves, not tetragonal, as in *I. reticulata*, the ridges in long spirals, and the whole glaucous green, 6 inches to 9 inches long at flowering time, finally 12 inches to 15 inches long, and furnished, as in most of this class, with a horny tip, and rarely more than three to four leaves to a bulb. The flowers, as may be seen in the accompanying coloured plate, are tipped with intense pure violet and edged with the same tint, the lower part violet on a creamy yellow ground. It also differs from *I. reticulata* in the absence of a ridge or crest on the fall and in its broader and more pointed blade. In colour and markings it comes nearest to the beautiful *I. cyanea*. It is a native of Asia Minor near to Mardin, and is figured in the *Botanical Magazine*, tab. 7084. It is a species eminently fitted for sheltered nooks on the rockery, its variability adding rather than detracting from the charming effect produced in a group.

I. BORNMULLERI.—This handsome species was first described in the *Journal of Botany*, 1876, p. 265, under the name of *Xiphion Danfordiæ*. Boissier in "*Flora Orientalis*" changes it to *Iris Danfordiæ*, and Haussknecht in "*Flora*," 1889, p. 141, mistaking it for a new species, described it under the name by which it is now known in gardens—*I. Bornmülleri*. Some little doubt was thrown on its identity when it first flowered and in the absence of leaves, but since these have developed there can now be no doubt that both plants are identical, both, indeed, being found in the same country, the latter agreeing in every particular with the original specimens in the Kew herbarium, which were collected by Mrs. Danford on the Cilician Taurus. In a note Mrs. Danford says:—

It is pretty abundant where it occurs, but evidently very local, and only met with twice in bloom about the beginning of March at an elevation of 4000 feet above sea level. It is one-flowered, each plant growing apart from the other. When in bloom it has only narrow sheathing leaves, the flower-stem, including the bloom, ranging from 2 inches to 4 inches high. Its exact locality is the north side of Anaslia Mountain, really a continuation of the Ala Dag range, resembling it in formation, and merely divided from it by the deep ravine through which flows the Sihoun. Here on a slope of sandy earth grows the yellow *Iris*, in close company with a brilliant orange *Crocus*, *C. vitellinus*; the banks of the little rivulet are patched with beds of *Primroses*, *Violets*, the beautiful blossoms of *Scilla bifolia*, and on the grey rocks from which the water gushes are huge tufts of *Cystopteris fragilis*, *Asplenium Trichomanes*, and *A. Ruta-muraria*.

Amongst other things collected about the same spot and which may give the cultivator an idea as to the proper treatment are *Hyanthus* (*Muscari*) *azureus*, *Fritillaria aurea*, *Ornithogalum lanceolatum*, *Crocus chrysanthus*, *C. biflorus*, *C. Fleischeri*, and *C. parviflorus*, and many other well-known plants. *I. Danfordiæ* most nearly resembles *I. persica* in its general habit; it has the same solitary flowers, with a long tube and which is nearly stemless in the centre of the basal rosette of leaves. The flowers, as may be

seen, are bright orange with brown spots, instead of being lilac, as in *I. persica*. The most remarkable thing about this new *Iris* is the almost entire absence of the three inner segments. They are in their place, but in such a rudimentary state as to be invisible to the casual observer; they take the form of mere tiny threads or filaments; the three outer ones are of good size and substance with a faint beard down the claw. The bulbs introduced by Herr Max Leichtlin were received from Armenia, and in the locality where it occurs it was found in full flower near to the melting snow. There can be no doubt about its hardiness, and as little about its beauty and utility as a spring flower. It is a most charming little species, well worth procuring and establishing on the rockery.

D. K.

ORCHARD AND FRUIT GARDEN.

THINNING STONE FRUITS.

THE prospect of a very heavy crop of stone fruit, Plums excepted, is most promising, and, provided all goes well, the work of thinning, already commenced, will form a pressing, important and pleasant operation. Young fruits under the size of Marrow Peas, unless very thickly set, do no great amount of harm to healthy established trees, but once they have cast the remains of the flowers the work of reducing should be commenced, in order that the best placed and most promising may obtain and continue the lead. Opinions vary as to the quantity, say, of Royal George Peaches an established tree may carry to maturity, and, judging from the absurd ideas which sometimes find their way into print, one might suppose that wall trees are Samsons in strength and Succis in point of endurance. A writer a few years ago told me, through the columns of *THE GARDEN*, that my advice was misleading—that instead of leaving one Peach to a foot he left twelve, and they finished admirably. Statements of this kind, like potting ten thousand plants a day, grafting three stocks within the minute, or thinning 800 pounds of Grapes in two days, may be quite true, but inexpedient, as feats so far above the ordinary are not likely to maintain our high character as cultivators or workmen. But, returning to the Peach tree, thinning may be followed up as steadily as we follow up disbudding, so that by the time stoning is perfect there may be 10 per cent. of fruit to fall or be pulled off. But why fall off, when up to a certain stage there is no perceptible difference between those fruits which stand and those which do not stone? Well, flowering is a heavy tax when the energies of the trees are low and the sap is subject to checks; hence my reason for advising thinning the buds; but stoning is the most severe of all, and it is thus courting dropping by deferring thinning which compels Nature to resent man's abuse. Too much sap and vigour, on the other hand, often produce a similar effect, but healthy trees which do not drop their buds and set plenty of fruit rarely drop at stoning time if freely thinned by degrees. One hundred Peaches upon a tree whose foliage covers as many square feet of wall may not appear a very heavy crop, but it is heavier than 90 per cent. of the gardeners in open gardens secure, and this crop, unless the trees are wonderfully well managed, cannot be obtained for any great number of years.

The mechanical part of the operation is fairly simple, as almost anyone can retain the

finest and best-placed fruits, but a man must be well acquainted with the condition of the roots and the abilities of his trees before he can decide upon the number of fruits he must leave, for if he thins too much the trees become gross, if too little they receive a check, and fruits which he might have saved fall off. Viewed from another point, and assuming that there is no dropping, the miser does not score again, not only with the Peach, but with any other fruit, including the Vine, for if he leaves too great a number, the weight in the aggregate does not exceed that of a moderate crop. The balance, in fact, is on the wrong side, as each Peach must have a stone, and the greater the number of stones the smaller the quantity of pulp. The smaller the size of the fruit the poorer the flavour when ripe. This being so, and flavour the true test of merit, Peaches should be thinned until those retained can and will attain their fullest average size.

W. COLEMAN.

THE FRUIT CROP.

How very disappointing the seasons are, and this present seems as if it will be no exception, as the long continued cold has had its effect and is now telling its tale in abortive blossoms, which are fast falling off without setting. A fortnight or so ago Peaches and Nectarines were full of promise, as they were then aglow with strong bloom, which looked so bold and fresh that a crop seemed a certainty, but I fear, judging from present appearances, that the sunless weather and almost continuous north and east winds have been too much for them, as the young embryo fruits do not swell or seem able to move. Whether they would do so if we get a quick and favourable change remains to be seen, but as regards Plums their case is hopeless, as they are unlike Peaches, and soon show what they mean to do, and they are falling fast and leave their hold at the slightest touch.

Pears and Cherries may be able to stand it, and from a close examination of the first named I feel sure that up to the present they are safe. The flowers are, or have been, so numerous, too, that they will bear some thinning, which will be an advantage and save that operation being carried out by hand, as if only a moderate percentage set, the fruit will be too thick for the trees to carry it properly. I am pleasantly surprised to find that we have a crop of Apricots, as when in bloom we had 22° of frost, but the trees were thickly covered, and it may be that what fruit are set and swelling off may be the flowers that were in bud then, as Apricots open their blooms in succession, and sometimes there is the difference of a fortnight or more between the first and the last. This gives a greater chance of a crop, and we seem to be profiting by their prolonged movements, and if Peaches took the same course it would be an advantage, as a week in the expansion of blossoms makes all the difference, and means success or failure with the set according to weather.

Apples have been kept so very backward that surely they must be safe, as up to the present (May 3) I have not seen a flower open, but some of the kinds are just ready to burst. This very gentle pushing forth is, I think, all in their favour, as when they come on with a rush they are not so strong, and they fail to set.

Gooseberries look thin and not at all like swelling, but Morello Cherries are full of promise, as the trees are as white as a sheet. Strawberries, too, are pushing up fine strong trusses of bloom, and as they are late, we cannot get frosts that will affect them, and if not the crop will be great. I may just add that it helps the plants very much if the beds are mulched or strawed down at this stage, as not only does it assist greatly in protecting the tops, but it favours the roots by conserving the moisture in the soil, as evaporation is cut off or intercepted, and the Strawberries never suffer from drought.

S. D.

Grape thinning in Jersey.—Mr. Coleman seems very much concerned with regard to a para-

graph that he has read in a contemporary on this subject. I am responsible for the few lines that Mr. Coleman has quoted. I was asked by an old friend who paid me a visit last summer to write a few notes on Jersey farming and gardening to be read before the Bournemouth Gardeners' Society. One of these was on "Grape Thinning in Jersey," and the statement contained in the few lines quoted by Mr. Coleman is a fact and can be proved, and the same man is prepared at any time and under the same conditions to thin the amount of Grapes mentioned. The Black Hamburgs were well advanced, and should have been thinned a week before they were, but other work prevented this being done. All the laterals were tied down and the bunches easy to get at; the man did nothing else during the time he was at the work, not even put on air or take it off, and worked from 6 o'clock in the morning till 7 o'clock at night. I should here state the bunches were not large, very few of them requiring shouldering, but the work was done well. The Gros Colman was also in a nice state for thinning. The Vines were young and the bunches large, many of them weighing from 3 lb. to 5 lb. each. The man in question is undoubtedly one of the best, if not the best Grape thinner in Jersey.—HERBERT PARKER, *Tyneville Vineeries, St. Aubin's Bay, Jersey.*

SHY VINES ON THE LONG ROD PRINCIPLE.

THIS mode of pruning and training Vines is almost out of date, the spur system having taken its place, and yet there are certain varieties of Vines at the present time voted shy which might and would soon redeem their character if treated upon this principle, especially in short-roofed houses. When gardeners of the past generation wished for extra large bunches of Grapes, they invariably cut down an old rod and trained up one or more young canes, whilst others who followed up this semi-extension system cut out all the oldest rods annually and allowed others of the preceding year to take their places. In some houses where the run of rafter exceeded 20 feet, a certain number were allowed two and three years' grace in order to keep the whole of the trellis covered with foliage and fruit, but it is questionable if the weight of Grapes ever approached that now obtained from spur-pruned Vines as grown in modern houses.

This question of weight against weight, however, matters little, as I do not advocate a general return to a system so liable to be abused by overcrowding, but having noticed that some varieties are most prolific on young canes, and almost if not positively barren upon old, hard-spurred rods which have carried full crops in the preceding year, it has occurred to me that disappointment might often be avoided by adopting this mode of management. The tone and vigour of old Vines would be greatly improved by the development of young wood and foliage, the Grapes would attain their best size and colour, and when cut the lower parts of the rods might be divested of their spurs, or, being superfluous, they might be cut out altogether immediately after the fall of the leaf in the autumn. All Vines fruit well on the long rod system, but some, although they break strongly, too strongly from hard-pruned spurs, do not show a bunch on their whole length, or if they do make an effort, the abortion invariably runs out into a tendril. Immature wood, some may say, is at the bottom of the mischief, but this is not my definition, for whilst admitting the importance of getting the wood ripe, I can adduce instances of Vines started in December, with the spring and summer before them, proving perfectly barren the following season. Being very strong growers, and possibly cramped for room, the buds near the base of each shoot are imperfectly formed, whilst the fourth or fifth may contain all the elements of a large and perfect cluster; but then the knife comes in, all sorts and sizes must be pruned alike, the bunch-bearing buds go to the fire, the incipient buds produce gross shoots, but they are fruitless. Hamburgs, Muscats and the majority of varieties will stand this close home pruning, but when we find ourselves dealing with the old Barossa, Buckland Sweetwater, Duke of Buccleuch,

Gros Maroc, and some others, we may be gainers by keeping our knives in the sheaths and harking back to the old system adopted by our forefathers.

W. C.

TASMANIAN APPLES.

ON April 28, 2400 cases of these were sold in Covent Garden Market. They consisted chiefly of Ribstons, Cox's Orange Pippin, Scarlet Nonpareil, and King Pippin, other kinds including Sturmer Pippin, Blenheim Orange, Prince Albert, and Crow's Egg, also several cases of Pears. There can be no doubt that in the near future these Australian Apples will take a very important place among foreign fruit imports. It cannot well be otherwise, for they have no competitors worth speaking of, our own Apple season being practically at an end by the time they are due. They have but one fault, and that is a want of that crispness that distinguishes good fruit of home growth. But they have what is, perhaps, more in their favour—a fine appearance, and it will be a long time before the inhabitants of large towns learn to buy fruit for its flavour alone. Colour and size are indispensable to make any fruit sell well in the London markets, and these points are just what the Tasmanian Apples are strong in. Probably in a few years Tasmanian Apples will be as plentiful with us as American Apples are now, although it must be borne in mind that the cost of transport is much more, not only by reason of a longer sea voyage, but also because the deterioration of the fruit on the journey must be guarded against by means of specially constructed cool chambers. The rapid growth of this trade shows, however, that the profits are sufficiently large to warrant this extra expense, and we may now regard Australian Apples as forming an important item in the supply of our fruit markets.

Home growers, contrary to what is usually the case when a new source of supply is opened, may regard the probable great extension of the Australian Apple trade with indifference, as they have time to dispose of their own produce before the foreign fruit comes to hand. Whether the importation in bulk of good Apples during the spring months is likely to affect the value of home-grown forced fruits of various kinds is another matter, but it is evident that the Apple is as much appreciated at this time of year as in the winter.

J. C. B.

FAN-TRAINED FRUIT TREES.

FAN-TRAINED fruit trees against walls are very common, but the same form of training away from walls or buildings is, so far as I am aware, rarely to be seen. It is only quite recently that I met with an example, and I was much struck with its usefulness as well as superiority over the horizontal form. The trees to which I refer are, I should think, about twenty years old. There are two rows of them; some of the trees have a spread of branches on each side of the stem of from 8 feet to 10 feet, the average height being about 7 feet. The growth is trained to wires on ordinary iron supports, which are 6 feet out of the ground. Many of the branches have made spurs which reach 1 foot or more above the wires. The trees had evidently been well trained in the earlier part of their time, as the whole of the wires are now well covered with fruit-bearing spurs, showing an abundant lot of blossom-buds. It is unfortunate that in the case in question the soil of the garden is of a retentive and clayey nature with a northern aspect, or else this example of fan-training for hardy fruits would afford the best possible evidence of its suitability for general application. As it is, the trees do not look quite so well as they would do under more favourable conditions. The principle of the system of training is not, however, affected; the amount of bearing surface secured by it surpasses the espalier form of training, because all, or nearly all, the branches that start away from the stem are of about equal proportions as regards size, whereas in espalier-trained trees the top branches on each side generally monopolise the greatest portion of the strength of the roots. It

will be seen that the wind has but very little power over such trees, thus further enhancing the value of this style of training; every branch being secured to the wires, there is but little danger of losing the finest of the fruit, as is the case with hard-pruned pyramids. The first cost of providing the uprights and wires will tell against the system with some people, but as compared with employing wooden stakes to train them on, or as against the espalier form in the same way, the cost of the wire will in the end prove to be the best. Setting aside the question of expense, the fact that the fan form is more natural than the espalier or horizontal should go a good way to convince anyone that it is the best.

J. C. C.

DESTROYERS.

CATERPILLARS ON FRUIT TREES.

THE Board of Agriculture being advised that caterpillars are now present in numbers on the fruit trees, consider it desirable to publish information with regard to remedial measures to be taken against them.

Upon examination of the leaf-buds and blossom-buds of fruit trees, and especially those of Apple trees, it will be seen that many tiny greyish caterpillars are already at work eating the leaves while they are still unfolded, or slowly unfolding. The caterpillars are so small as to escape notice unless attention is specially directed to them, but they can be found in alarming numbers in many orchards and fruit plantations, particularly in those in which so much mischief has been occasioned in the two last years, and it is most important that steps should be taken at once to check their progress.

First.—It should be noted that syringing the trees infested with caterpillars proved advantageous in many places during the last season; it was more particularly useful in respect of Plum, Damson, and small Apple trees. The large old Apple trees were beyond the reach of ordinary machines used for this purpose, and it was only in Hop-growing districts where Hop-washing machines are generally used that the systematic syringing of standard trees was adopted. The machines can be moved about easily enough in orchards. In plantations, with fruit bushes under the standards, it is more difficult to move them about and to get the supplies of liquid brought through the thick undergrowth.

The mixtures employed for syringing fruit trees are—

1st. The extract of 10 lbs. of Quassia, obtained by boiling Quassia in water, to 100 gallons of water and 7 lbs. of soft soap.

2nd. The extract of 5 lbs. of Quassia to 100 gallons of water, with 6 lb. of soft soap and 4 pints of paraffin, well stirred.

3rd. The extract of 5 lbs. of Quassia to 100 gallons of water, with 6 lbs. of soft soap and 4 pints of Calvert's carbolic acid, No. 5.

4th. Eight lbs. of soft soap and 2 lbs. of finely ground hellebore, and a quart of paraffin, boiled and well stirred together. This is sufficient for 100 gallons of water.

The soft soap is dissolved in a tub with hot water. The Quassia chips are boiled in water and put into another tub. Where paraffin is used it should be well stirred up with boiling soap and water before it is mixed with the cold water. Water carts, ordinary barrels, or wine casks set upon frames with wheels, are brought full of water to where the materials are being prepared, either at the farm buildings or in an extemporised shed with a copper in it, and the requisite amount of dissolved soap and other ingredients is added. The cart is then driven to the scene of action, the materials being kept well mixed by the jolting. It is important that syringing should be done at once, as to be effective it must be commenced early. Directly there are signs of the pest the process should be begun. As the hatching out of caterpillars is not simultaneous, but is extended over some days, the syringings must be renewed.

Secondly.—Fruit growers in several parts of the

country are now for the first time trying the arsenical insecticides used extensively in the United States and Canada. These have not been hitherto adopted in this country on account of their poisonous properties. The time has now arrived when they should be fully tried.

There are two special substances of this nature. The one, "Paris Green," or "Emerald Green," is strongly recommended by several American and Canadian entomologists. Professor Lintner, the entomologist of the State of New York, in a recent letter, says that, in his opinion, fruit growers who do not use Paris Green as a remedy against caterpillars infesting fruit trees are guilty of culpable negligence. Professor Lintner believes that the produce of fruit land may be doubled by the judicious use of this substance. A trial of this is urged. Care must, however, be taken to observe strictly the regulations laid down for its use or injury will be caused to the foliage and blossoms. The latest advice from experienced practical entomologists is to put 1 lb. of the Paris Green into from 165 to 200 gallons of water. The mixture must be kept well stirred in order that the solution may be maintained at an uniform strength. Paris Green solutions must be sent in the form of spray, or mist, upon the leaves, and not squirted violently against them. The object is not to dislodge the caterpillars, but to poison them with the arsenical solution, which should fall, like gentle rain, upon the leaves. For this purpose fine "rose" jets should be used. Riley's "cyclone nozzle" is used in America. Messrs. Blundell, Spence, and Co., of Upper Thames Street, London, supply Paris Green at 1s. per lb.

The other arsenical compound is "London Purple," obtained in the manufacture of aniline dyes and composed of lime and arsenious acid. It is highly recommended by Professor Riley, the well-known entomologist to the United States Department of Agriculture, who reported in 1885 that it "has an advantage over Paris Green in cheapness, better diffusibility and visibility upon the foliage, and experience showed that the Paris Green injured the foliage more than the London Purple." One pound of London Purple should be mixed with from 140 to 150 gallons of water, and kept well stirred, being applied in the same manner as the Paris Green, sprayed on in the form of a heavy dew, or mist.

London Purple can be obtained at Hemingway's, 60, Mark Lane, E.C., at about 7d. per lb., as a powder, and in a fluid form ready for mixing with water. It is as poisonous as Paris Green.

Stock must not be put on Grass in orchards where these arsenical solutions have been used on the fruit trees until a considerable period has elapsed and rains have fallen, nor must they be used where vegetables are grown under the trees. Three or four days will elapse before the effect of these solutions is apparent. As a rule, it will be found necessary to repeat the application when the leaves are fully out.

It is believed that Paris Green and London Purple will be destructive to the larvæ of the Anthonomus pomorum, the Apple blossom weevil, whose presence has already been remarked in the Apple blossom buds. This insect occasioned an enormous amount of harm last spring. These solutions can be put on with Hop-washing engines, ordinary garden engines, hydronettes, and other pail engines, such as Snow's Universal engine.—C. W.

—The Board of Agriculture has done good service in calling attention to the state of the fruit trees on which in many districts caterpillars are said to be very plentiful. Very often but little notice is taken of what is going on till it is too late to repair the mischief, and it is very certain if we wait till nearly all the foliage and much of the fruit is eaten by caterpillars before any precautionary or preventive measures are taken, we shall have good cause to regret it. As far as orchard trees are concerned, I have no doubt about the wisdom of well syringing these with one of the several decoctions recommended in the circular distributed by the aforesaid board, and the arsenical compounds, doubtless, are also comparatively cheap and effective. These probably will have come be-

fore the majority of interested fruit growers, and my object in alluding to the subject is to suggest to those who own or are in charge of wall and other trained fruit trees the advisability of also taking timely steps to prevent the ruin of the crops, and, it may be, the trees as well. Should the various trees liable to be over-run by caterpillars, notably Apples, and Pears in a less degree, and Plums, be both large and numerous, then ought the garden engine and one of the decoctions of Quassia and soft-soap to be used. Paraffin, or more properly petroleum, is also recommended to be mixed with the above, but I should be very chary about using this somewhat dangerous remedy, especially in bright weather. As a rule, however, the simplest and most effective plan is to go over the trees carefully, gathering all curled-up leaves and crushing the caterpillars wherever found. The clusters of fruit offer a good shelter to the caterpillars, and from which they are not easily dislodged other than by the finger and thumb. Thinning out may well accompany this cleansing process, and if this is done at once it may be the means of preventing the loss of every fruit in a cluster.—I. M. H.

RED SPIDER ON VINES.

I QUITE agree with "H." (p. 411) that one of the worst pests a gardener has to battle with is red spider on Vines, and do what one may in the way of care or taking precautions against the insidious pest, it now and then will make its appearance. The causes of red spider are various, as when Vines are not very strong and have thin leaves, or are overcropped or get dry at the roots or are in any way defective at that particular part, red spider seems to be waiting or springs into existence. Heat and poverty are the sure precursors, as the first it must have and revels in, and it always follows in the wake of the latter, and is hardly ever seen where there is free growth or fine foliage. Free ventilation and cold water are very inimical to its welfare, as it does not like fresh, sweet air nor the bath. Having been troubled with red spider last year in an early viney that had been hard forced, I had recourse to the garden engine, which we kept charged with plenty of clean water and plied freely against the Vines and so washed the pests off. This way of dealing with red spider is one of the best, from the gardener's point of view, I ever found out, as it is not only effectual, but expeditious and cleanly, and does less harm to the leaves and Grapes than anything else that may be tried. At first I rather hesitated to take such measures, but seeing the spider spreading so rapidly and being fully aware of the great mischief that would be done if it were not checked, I made up my mind to try it, and was rewarded with success. When I applied the cold water cure, the Grapes were colouring, and this the water did not interfere with in the least, as it left neither spot nor blemish, but it need hardly be said that the water must be very clear and without lime, or there would probably be spot on the berries where the drops hang. The time I chose for the operation was early in the morning of a fine, warm sunny day, when the lights, back and front, were left wide open to get the foliage all dry again as quickly as possible. The better plan for those who may pursue the same course as I took will be to use a fine rose on the engine or be very careful in breaking the stream, or the leaves are almost sure to be torn. At one time, as a precaution against red spider, I used, immediately after the thinning was done, to mix flowers of sulphur in water and syringe the Vines, when the sulphur by that means was carried everywhere and stayed on woodwork and other surfaces till washed off in the autumn. The Grapes, being so small, did not show any trace of the sulphur when ripe, and I think that way of applying it and getting its fumes is far preferable to painting hot-water pipes and running the risk of over-heating, and so injuring the foliage. I do not quite see how it is possible to use dry sulphur, as "H." recommends, as it cannot well be applied to the under sides of the leaves, unless driven there by a proper machine. It is much to be desired that some discovery will

be made of an insecticide that can be evaporated in houses, and so annihilate red spider without harm to foliage. Has anyone ever tried paraffin, and if so, with what result? J. SHEPPARD.

BIRDS AND INSECTS.

BETWEEN birds which plunder and insects which destroy wholesale, things in the garden are bad enough, whilst worse than either probably are inclemencies of seasons—wind, frost, hail, fog, burning heat, and drought, all helping to render cultivation of even ordinary garden subjects difficult. We may even go further and find a fourth redoubtable enemy in the various fungoid diseases which at times very seriously affect plants, so that there are probably no class of workers whose labours are beset on every hand with so many difficulties and trials. Whether we are worse off than our forefathers in all these things, or whether we have better knowledge of them is not certain. At least in one thing we may be said to have the advantage, that there are myriads of so-called remedies placed at our disposal if we have faith enough to purchase and employ them, but of which our forefathers knew nothing. Somehow with all the remedies the trials and difficulties remain as before, and even so experienced a gardener as Mr. Iggulden still falls back upon the gun, or, holding prevention to be best, advises the covering in of fruit bush and tree breadths with fine wire netting. The worst of it is that when we employ either form of protection we do not very well know how far we may be doing right. That we know mischief is done by birds is certain, but still it is very difficult to say whether it is performed during the destruction by them of insect pests or whether done in search of vegetable food. I put aside absolutely the suggestion that birds do anything wantonly. The dominating idea in birds' minds no doubt is, food to satisfy hunger of themselves and their young. Beyond that I credit them with no really mischievous intent; even the myriads of insects are engaged in nothing better or worse than in getting food when they do so much harm; indeed, all Nature shows us one struggle for existence, and it unfortunately happens that the struggle to live of some creatures brings them into contact with and to find food on those products which gardeners so earnestly strive to grow for a very different purpose. If, instead of destroying insects, we destroy birds which prey upon them, we leave the field to our insect pests, as no human beings can cope with insects as birds do. The feathered tribe are their natural enemies, and the insects in proper season are the birds' natural food. Even as I write I look into a large Apple tree now in bloom, and see dozens of small birds busy pecking here and there amongst the leaves and bloom. Who can doubt but that they are eating up insects of probably some harmful kind, and possibly preserving the bloom and the crop from destruction. I would not that a gun should disturb them for one moment when they are rendering me such service. It would be madness to startle them away. Indeed here, birds know that they can live and feed with impunity as well as sing their sweetest, for no gun is permitted to be used. All the same, the harm resulting to crops of any kind from birds is infinitesimal. But then ours is not a woodland district, and the destructive bullfinch is not seen here. It is not possible to read what is written about the doings of this hard-billed little bird without feeling sympathy with the sufferers and some strong indignation against the depredator. But the gun, which frightens away or kills the brigand of the gardens, may also drive away or destroy those birds which do our trees and vegetables great service, whilst the wire protector, in preventing the access of bullfinches, would exclude every other bird, and leave trees and bushes beneath a prey to insects. If someone would plant a large area with Plums, Pears, Cherries, bush fruits, and Strawberries in a district where birds do these things great harm now, and wire it over so as to exclude birds absolutely for several years, the experiments would be of a most interesting and valuable kind. It may be said that the same thing is already practically done when we grow

these fruits in glass houses, but then there is with those of sheer necessity, arising from the somewhat artificial nature of the cultivation, such cleanings and dressings, and incessant watchfulness to repress insect life, which could not possibly be carried out in an open though wire-enclosed garden, that the cases would in no sense be similar. Even if the cost would freely be met I very much doubt whether any gardener would care to have all birds excluded absolutely from garden trees and crops, and Mr. Iggluden suggests wisely that the birds be admitted at certain seasons, as, for instance, when they have young, as it is beyond all question that then they do an immense amount of good. What to do for the best is a difficult problem to solve. We see much more of the harm done by birds than of the good, and reason accordingly. It is a mistake into which human beings fall easily. What is most obvious is that whilst even the most harmful of birds work mischief only during limited periods of the year, myriads of others are eternally subsisting upon insect life or on weed seeds. Such being the case, there can be no doubt but that the good done in nature by birds very far outweighs the evil.

A. D.

TREES AND SHRUBS.

THE JUNE-BERRY.

(AMELANCHIER CANADENSIS.)

CERTAINLY amongst early flowering trees this is one of the most distinct and handsome, while at the same time it is, unfortunately, one of the rarest. For the past fortnight it has been the brightest subject in our woodlands, for literally each branch is so thickly covered with flowers that at a short distance away one is quite puzzled to account satisfactorily for such banks of almost the purest white so early in the season as mid-April. I lately measured a couple of unusually large specimens in the grounds of Mr. Buchanan, The Towers, Keston, and found the stem girths to be 2 feet 4 inches and 2 feet 1 inch respectively. Such grand old specimens when in full flower are very beautiful, but nineteen out of every twenty persons who pass that way and cast a glance at the trees come at once to the conclusion that they are the Gean, or wild Cherry, never for a moment entertaining the idea that the Juneberry attains to anything approaching the size of these goodly specimens.

But not only for its early flowering is the Juneberry valuable as a lawn or shrubbery tree, but we may well ask which of our forest denizens can compete with it for wealth of colouring in the autumnal foliage? It is quite a *Prunus Pissardi* in its way. In spring, too, the tender and nicely serrated leaves are of a most enticing colour, and contrast strangely with the pure white blooms, though, as a rule, the flowers are past their best before the leaves have quite unfolded. Growing side by side in my garden are specimens of both the Juneberry and *Pissard's Plum*, or Cherry, and this season at least, the flowers of the Cherry were quite past before those of the Juneberry had opened. These two trees are valuable for their successional flowering.

There is a fine specimen of the Juneberry at Dane Lodge, near Epping, it being fully 30 feet in height, about 6 yards in greatest spread of branches, and with a stem girthing 4 feet 1 inch. I hardly think that either this tree or those that I have mentioned as growing at Keston are equalled for height, branch-spread, or stem-girth anywhere throughout the country, but I will be glad to hear that my statement is incorrect. In its native wilds the Juneberry rarely exceeds or even attains to 40 feet in height, so that we may consider that in this country it feels perfectly at home. Fruit is not, however, produced here in the quantity, nor does it approach in quality that grown abroad, but although of fine flavour, we can well dispense with it when we are favoured with such a wealth of snowy white flowers as the tree generally produces.

Warm soil with a mixture of chalk seems a happy combination for the Juneberry, but a calcareous flavouring is hardly necessary, for I have seen it

doing well where not a trace of such was present in the soil. It is too late in the season now for me to recommend the planting of a specimen or two of the Juneberry, but I certainly would advise everyone who has not already a plant to make a note of so handsome and free-flowering a small-growing tree. The decaying leaves are of the richest golden yellow and are fairly lasting, for serenity in this case does not mean an immediate dropping off.

That the Juneberry is a rare tree all will readily admit, but why so is another thing, for it is cheap enough, easily cultivated, and the brightest spring floral ornament that we are in possession of. Perhaps, however, it is not well known.

A. D. WEBSTER.

RHODODENDRONS IN AMERICA.

IT has been suggested that the experience of an old grower and lover of Rhododendrons might prove of interest and possibly help to promote the cultivation of these beautiful shrubs, and I therefore send a few notes of a general character, based upon many years of labour and careful observation.

It must be admitted that the cultivation of the Rhododendron in this country has made comparatively slow progress, in spite of liberal prizes offered by our horticultural societies and the high appreciation in which the plant is held in England, where it is a prominent feature in the decoration of all the fine places and where those grand exhibitions under canvas excite so much interest and admiration every year. The explanation of this indifference is found to some extent in a general impression, in New England especially, that our winters are too severe, or that the Rhododendron is so difficult of cultivation that only a few can succeed with it, and then only at the cost of much labour and money. That there is some foundation for this belief cannot be denied, and it is true that the mild and moist atmosphere of England is better adapted to its special requirements than the extreme cold winters and the hot, dry summers of this country. It is true also that many of the very finest varieties can be grown there which are tender here. But, on the other hand, it is equally true that a sufficient number of very attractive hardy kinds remain to satisfy the most ambitious horticulturist, and these, under favourable circumstances, can be grown here without much more care than is given to ordinary garden shrubs.

It should be more generally known that the list of well tested hardy kinds has been largely increased of late years, thanks to some of the skilful hybridisers in England, who have raised new varieties for this country with special reference to their hardiness combined with splendid foliage and the most gorgeous flowers. Enterprising nurserymen on this side of the water have also accomplished much in this direction, and it is to be hoped they will be repaid for their trouble and expense. To show what progress has been made in the introduction of new and choice varieties, I can testify that it is not a great many years ago when but very few of the bright flowering varieties termed precariously hardy were to be seen here; and I remember hearing the statement made by one of our most intelligent horticulturists that not one of them could be considered perfectly reliable in our most severe New England winters. All doubt, however, on this point has been entirely removed at the present day, for we have numerous fine crimson and scarlets, many of which have proved as hardy and reliable as the old favourite *Everestianum*.

In the cultivation of Rhododendrons, a mistake is frequently made in selecting for them the most sheltered southern exposure that can be found and one where the sun shines on them the whole day, under the impression that they are all extremely tender. In such a location the soil is likely to become very dry and parched in midsummer, and the result is that the plants suffer from drought, which, together with poor cultivation, in my judgment causes more injury than our most severe winters. As is well known, the Rhododendron requires a cool and moist soil, and it is sure to suffer the moment

the roots become dry, though the injury may not be apparent to the casual observer at the moment. The latter part of the winter, however, tells the tale in the browned foliage, and then the injury is often wrongly attributed to cold weather. The bad effect of drought is also occasionally seen in the spring in dead flower-buds which have never fully ripened. For many years I thought extreme cold weather was the cause, but with closer investigation I have concluded it is oftener owing to very dry weather, and I am confirmed in the opinion by the fact that this rarely occurs except after an unusually dry summer. This objection, however, of selecting a southern exposure for planting will not apply with the same force in cases where the place is a reclaimed meadow or has a soil which keeps moist even in very hot weather; but these are conditions not very often met with, and I would recommend as far as practicable that plantations be made on the northern slope of hills, or where they will be shaded during some portion of the day by belts of trees or buildings.

After what has been said in regard to the great importance of moisture in the cultivation of Rhododendrons, it follows as a matter of course, that a careful and thorough preparation of the soil in making borders for plantations is a necessity. Two feet or 3 feet of loam may answer for ordinary shrubs, but twice that depth is better for Rhododendrons, especially when they attain considerable size. It is now generally understood that peat is not indispensable, still it is highly beneficial, and I would confidently advise its liberal use when easily obtained, as well as a good supply of leaf mould, which I believe to be equally desirable.

The hybrids of *R. catawbiense*, which are the most hardy in constitution, and from which by crossing the finest crimson and scarlet varieties are produced, have been sent out from England during the last dozen or fifteen years in large quantities, and varying as they all do in respect to hardiness, it has been no easy matter to ascertain with certainty which could be depended upon in our severe and changeable climate. An inspection of the foliage is generally a very sure guide, but it is not conclusive, and many cases of so doubtful a character occur that it is necessary, before a positive decision is reached, that they should be left out for several winters in order to settle this question satisfactorily. There are, however, many of these new and charming varieties which have been so thoroughly tested that they can be confidently recommended for general cultivation in this part of the country. One of these which is a favourite with many is *Lady Armstrong*, a pale rose, spotted and showy, with good habit and foliage. Others are *Scipio*, *giganteum*, and *Sherwoodianum*—all rose coloured—and *Charles Bagley*, cherry red, with extra fine foliage. Among the crimsons we have quite a number which are great acquisitions to the hardy list and must soon find their way into all collections. *Mrs. Milner*, a rich crimson, I have had out many years. *Kettledrum* has proved very satisfactory, and so has *E. S. Rand*, which has been somewhat lost sight of. *H. W. Sargent* is a grand crimson, with an immense truss, but it has proved a little disappointing in habit. *Guido*, crimson; *James Bateman*, *Lady Clermont*, rosy scarlet and very desirable; *Caractacus*, a rich purple-crimson, and *Old Port*, plum colour, are all good. *Alexander Dancer* can be strongly recommended as of good habit and foliage, with a grand truss of bright rose flowers. *Minnie*, blush white, spotted with chocolate; *Charles Dickens*, very hardy, dark scarlet; *John Waterer*, a free blooming dark crimson; *Mrs. Thos. Wain*, pale rose; and *Maximum Wellesianum*, blush, changing to white, with fine foliage, can also be safely recommended.

I now come to some of the still more recent and choice English varieties, which for several years I treated as half-hardy, moving them into pits in the autumn, where they remained during the winter. This mode of treatment not proving an entire success, I have been testing many of them by leaving them out in the borders all winter, some for several years and others only during the past two years,

with very encouraging results, though it will be remembered that both summers and winters of the past two years have been exceptionally favourable for Rhododendrons. Still the thermometer at Wellesley has been down to 5° below zero once, and twice to zero this last winter. They are magnificent plants with flowers of great beauty, and my experience with them, though limited to a few years, has been so very promising that I think they can be recommended to anyone disposed to give a little extra attention to favourite plants.

J. Marshall Brooks is a rich scarlet, with a bronze spot, distinct and beautiful; J. McIntosh, a rosy scarlet; F. D. Godman, crimson, fine foliage; Ralph Saunders, purplish crimson, large truss; Rosabel, pale rose; Lady Grey Egerton, silvery blush, splendid truss and foliage. C. S. Sargent is one of the finest crimsons, and with its catawbiense foliage will doubtless stand any old-fashioned New England winter. The Queen has a fine-shaped flower, blush changing to white. Mrs. Arthur Hunnewell is pink with primrose centre, very showy, and promising. Mrs. John Clutten comes with the recommendation of being the best hardy white Rhododendron in cultivation; I have at times felt

be well cared for, and if water is not abundantly and easily applied, they must be thoroughly mulched with some suitable material, or they will surely suffer from our hot and dry summers. I use for this purpose large quantities of forest leaves, which are effectual, and when decayed make excellent nutriment for the plants. The objection that they are not very neat is easily met by a good covering of Pine needles.

I will here add to what has already been said on the importance of selecting a location where the plants will be shaded from the midday sun, that it is a precaution particularly desirable with these very choice and distinct varieties for the reason that if the weather happens to be very hot at the moment they come into bloom, the length of time the brilliant flowers remain in perfection is shortened materially.—H. H. HUNNEWELL, Wellesley, Mass., in *Garden and Forest*.

THORNS.

(CRATEGUS.)

A FEW of the Thorns are familiar trees in most gardens, and very valuable ornaments they are,

the fortnight it is in bloom. Then there are the double pink, double white, the single scarlet (punicea), rose (carminata or rosea), and various others. Some of the varieties are remarkable for their growth, like the graceful pendula, others have foliage different from that of the type, and a few differ as regards their fruit, there being yellow-berried as well as white-berried varieties. Altogether our native Hawthorn is one of the most important trees in our gardens.

The list of other species deserving of attention in private gardens is long; a selection of the very best would include the following: The Cockspur Thorn (*C. Crus-galli*) from North America, usually seen about 10 feet in height, is chiefly remarkable for its peculiar growth, particularly that of the variety *pyracanthifolia*. In this the branches spread out horizontally like a table, and the older the tree becomes the more pronounced the table-like growth. The scarlet-fruited Thorn, also North American, is beautiful both when covered with white bloom in



A spray of the common Hawthorn.

discouraged in regard to its success in this part of the country, but with some coaxing have finally succeeded in raising some fine good-sized plants. Other noteworthy varieties are Joseph Whitworth, dark purple-lake, large blooms, beautiful foliage; Duchess of Edinburgh, crimson, with light centre; Duchess of Sutherland, white, with margin of rosy lilac; Duchess of Bedford, crimson, light centre; Marchioness of Lansdowne, pale rose, with intense black spot, very showy; Charles Napier, clear rose; Mrs. Shuttleworth, scarlet, much spotted, and a very free bloomer; Sigismund Rucker, magenta; William Austin, bright crimson, abundant bloomer; Meteor, fiery crimson; Sir Arthur Guinness, fine clear rose; Bacchus, crimson, large truss; Ne Plus Ultra, finely shaded lilac-purple, good foliage.

Here is a list of over twenty very beautiful varieties supposed by me for many years to be tender in this vicinity, but I now believe a large portion of them certainly will be found hardy and great acquisitions to any collection. They, however, must

but the genus, numbering over fifty species, is not nearly so well represented as it should be. Some of the most beautiful kinds are seldom seen outside botanical gardens. Almost every Thorn is hardy in English gardens; some are remarkable for their flowers, others for their ornamental fruits, while in a few the habit of growth renders them most important to the landscape gardener. The commonest and perhaps the most beautiful of all the Thorns is the common *C. Oxyacantha*, the native Hawthorn or Whitethorn (here figured). The typical white kind is lovely enough, but being so common everywhere its varieties are most important. We have now every gradation or tint in the Hawthorn from the deepest crimson through pinks and carmines to the snowy whiteness of the double sort. Everyone now knows Paul's Double Scarlet, undoubtedly the best of all, a tree that glows with rich crimson during

early summer or with scarlet fruits in autumn. The Tansy-leaved Thorn (*C. tanacetifolia*) is very handsome in foliage. It may always be recognised by its cut leaves of a whitish hue, and by its being one of the latest of all Thorns to flower. Three very fine species in fruit are *C. Azarolus*, *Aronia*, and *orientalis*, all natives of the Levant, and, therefore, not quite so suitable for general cultivation in this country as the more hardy kinds. But they are so beautiful in autumn, with their fruits as big as Hazel nuts and coloured either scarlet or gold, that they deserve attention. One specimen of either of these on a lawn would be quite sufficient in a small garden, as they are of spreading growth, and grow in good soils quite 15 feet or 20 feet high. The Washington Thorn (*C. cordata*) has the merit of flowering when all the others are past, hence its value. *C. glandulosa*, also known as *C. flava*, has yellow fruits. *C. Douglasi* has dark purple haws, and those of *C. melanocarpa* and *C. nigra* are black. The *Pyraantha* (*C. Pyraantha*), so common as a wall climber, is a general favourite because of its profuse crop of orange-scarlet berries and luxuriant evergreen foliage. It is suitable also for planting in the open, and some beautiful effects may be made by making the spreading and trailing growth of the *Pyraantha* serve as a margin to groups of taller Thorns or other small trees. The variety *Lælandi* fruits more freely than the common *Pyraantha* when planted as a bush. The hardy Thorns are suitable for nearly all kinds of soils, while the majority are quite at home on chalk.

SHORT NOTES.—TREES AND SHRUBS.

Cycas revoluta in flower.—This, of which I sent you a photograph in 1888, and an engraving of which appeared in *THE GARDEN*, August 4, 1888, has lately developed a large flower (female), which consists of a number of short woolly golden leaves with the ovules dotted about on most of them. It is very pretty and interesting.—WM. SHAVE, *Beau Sejour, St. Heliers, Jersey*.

The white Cydonia.—This has been remarkably good this year and has retained its flowers longer than usual; indeed this characteristic would seem peculiar to this variety, as it certainly lasts much longer in a perfect state than either the old red or rosea. It has

set a goodly number of fruit, and will be quite a feature during the coming autumn with its shining foliage and peculiar fruit. It is decidedly one of the wall plants that ought to find a place in every collection, for an almost pure white flower that will pass practically unscathed through an English spring is a most important acquisition.—E. BURRELL, *Claremont*.

Bryanthus erectus.—This pretty little Ericaceous shrub, nearly allied to *Menziesia*, is now laden with blossoms. It forms a somewhat Heath-like plant, plentifully clothed with dark green leaves, while the flowers, which are borne in crowded clusters on the points of the shoots, are bell-shaped and of a pleasing reddish-lilac colour. In its flowering stage it is very bright, forming a suitable companion to many of the smaller Ericaceæ, such as the Heaths, *Callunas*, *Menziesia*, *Daboecia*, the lesser-growing *Kalmias*, and others. The *Bryanthus* needs a fairly cool moist soil of a peaty nature, and is quite hardy in this country; in fact, all the members of the genus (and there are three of them) are natives of the extreme northern parts of Europe and America.—T.

Vaccinium rugosum.—This *Vaccinium* is a native of the Himalayan region, and, like most of the *Rhododendrons* from that district, is seen at its best when treated as a greenhouse plant, though it might possibly survive most winters in the open ground, provided it was in a favourable locality. *V. rugosum* is an evergreen shrub of a somewhat loose habit of growth, that is to say, the branches are rather few and spreading, while the lance-shaped leaves are deep green on the upper surface. The drooping blossoms are borne on the ripened wood, and consequently the open character of the plant enables them to be more readily seen. They are very pretty and quaintly marked. The blooms are about a couple of inches in length, urn-shaped, while their ground colour is yellowish, marked transversely with zig-zag lines of a reddish-brown, the calyx being entirely of that hue. In common with many of its allies, the stout waxy character of the blossoms enables them to remain fresh for a long time, and a healthy specimen will yield an almost continual succession of bloom from spring until autumn. It succeeds perfectly under the treatment usually given to the Himalayan *Rhododendrons* when grown in the greenhouse, either planted out or in pots, that is to say, a soil composed principally of rough sandy peat and ample drainage. When this last is ensured, plenty of water can be given during the summer months, and a liberal use of the syringe is also of great service. The correct name for this *Vaccinium* is, I believe, *Pentapterygium rugosum*. An allied genus, *Enkianthus*, also includes some pretty and singular flowering shrubs in the way of *Vaccinium rugosum*.—T.

THE WEEK'S WORK.

PLANT HOUSES.

CHRYSANTHEMUMS.—Where *Chrysanthemums* have been struck without fire heat, except to keep out frost, the plants will now be strong and short-jointed and their stems clothed to the bottom with leaves. Plants that are intended to have a natural appearance when fully grown, if not already stopped sufficiently to induce the formation of the requisite amount of shoots, should at once be attended to. *Chrysanthemums* will now be better in the open air, and should have their pots plunged in ashes in an open situation, where they will be fully exposed to the light. The advantage of plunging, even before the plants have the final shift into the pots in which they are to bloom, is that it keeps the roots at a more equable temperature than when the sun shines fully upon the sides of the pots. With the closest possible attention in watering I always found it difficult to keep the lower leaves green and healthy without plunging the plants from the time they were stood out of doors. Plunging is also more necessary, as the plants have to be stood far enough apart to allow the light and air to play freely on them on all sides, as in this way the top of one does little to shade the pot of its neighbour. See that they are quite free from aphides.

CHRYSANTHEMUMS PLANTED OUT FOR LAYERING.—For ordinary decoration or for standing in rooms when in flower, there is no method of cultivation better worth adopting than layering after the buds are formed, and then transferring the plants to pots. Under this system pots not more than half the size of those usually used will suffice, and more flowers of a useful size can be had. Medium-sized old plants that bloomed last autumn, or young stock propagated since then, will answer for planting out. An open situation should be chosen, and care must be taken to put the plants far enough apart to allow room for layering the stems. The soil should be good in quality and well enriched with manure. If at all heavy and adhesive, enough sand ought to be dug in to lighten it sufficiently. The plants may be turned out at once. All the labour involved under this system is keeping them free from aphides and the leaf-boring grub, and watering in dry weather.

NERINES.—In most cases the plants will now have their annual crop of leaves nearly matured. Let them have all the light possible. Attend regularly to them with water, and keep the foliage free from red spider, for though it is necessary to give them sun-roasting and drying off later on, the more vitality the leaves retain until the time for their natural decay arrives, the more the plants will be strengthened.

AMARYLLISES.—The time of blooming in *Amaryllises* much depends upon when the bulbs are started and the heat that is given them. Many growers aim at having the greater portion of their collection in flower about the end of April and the beginning of May, starting them with a moderate amount of heat, so as to have them in at the time named. It is not everyone who can afford a house or pit for the accommodation of *Amaryllises* alone, but have to grow them with other things. Strong healthy leaves with plenty of substance in them result in large bulbs that will produce fine and numerous flowers. *Amaryllises* require all the light that can be given them, and whilst they are making their growth, the nearer they are to the glass the better it is for them. Do not let the leaves get injured by the sun and keep the soil moderately moist, but not too wet, until the leaves have attained their full size and solidity, after which less water will suffice. The roots must never, however, be allowed to get so dry as to hasten the decay of the foliage until it shows signs of dying off in the autumn. The plants should be well syringed daily as long as the leaves remain green, being careful that the water reaches the whole surface; without this red spider is almost sure to attack the plants. Some growers of *Amaryllises* cease syringing as soon as the leaf growth is complete. This is a mistake, as anything that hastens the decay of the leaves before the time comes for their dying off naturally, weakens the plants. This latter is a matter of the first importance in scarce and valuable varieties. When *Amaryllises* are grown on the cool system, and only start into growth with the increase of sun-heat as the season advances, the flowers keep coming in during the summer. With these late flowering plants it will be necessary to utilise sun-heat by shutting up early, so as to get the growth completed early enough to allow the requisite time to elapse before the leaves die down. Weak manure water helps the plants from the time the growth begins to move until the leaves have attained their full size, after which it is better withheld.

EPACRISES.—As the late flowering varieties, such as *miniata splendens*, *Eclipse*, and *grandiflora rubra*, go out of bloom, the shoots made last summer should be shortened back, reducing them to one-half or one-third their length according to the strength of the plants. It is necessary to attend to this annually, especially when the specimens are vigorous, in which case the strongest shoots will run from 2 feet to 3 feet in length, and if they are not cut back the plants soon get unsightly. After cutting in they should be syringed overhead once a day. They will break into growth immediately after being cut in if strong and in good health; any that require larger pots should have a shift as soon as the new growth has begun to move freely. Good brown peat that contains plenty of

fibre, with sand added, is the best material for *Epacris*. In potting it is necessary to see that the whole of the new soil from the drainage up to the top is made as solid as the old balls. The strong growing varieties when in full vigour form many roots, which fill the soil so as to make it a compact solid mass. After potting shade from the sun in the middle of the day for a few weeks, closing the lights early enough in the afternoon to encourage the growth, which in the case of these late-flowering examples it is needful to push on, so as to give time for the plants being stood out of doors for a few weeks before autumn. Unless the shoots are hardened up in this way the plants will not make a full display of bloom.

EPACRISES, EARLY FLOWERING.—Any of the early flowering plants that were cut in as advised after they had done blooming and that require potting should now be attended to. Much less pot room will suffice for these early blooming varieties than is wanted by the stronger growing late sorts, and it is necessary to be careful not to over-pot them. When the plants of either the late or the early flowering section have attained something like specimen size, they may be kept in full vigour for a considerable time by the use of manure water during the growing season. This must be given in a weak, transparent state. The thick, muddy stuff that is sometimes supposed to be the right thing to use is bad for plants, and particularly so for those that belong to the hard-wooded, fine-rooted section. T. B.

THE KITCHEN GARDEN.

EARLY in the year I anticipated a good crop of *Asparagus* this season, and to all appearances no mistake was made in the matter. The shoots are pushing up strongly and in abundance, the quality also being most satisfactory. A dry winter evidently suits this important crop, only those who have been too free with their solid manure in the autumn complaining of the lateness and thinness of their *Asparagus*. Warm sunshine fetches up the growths rapidly, this necessitating daily cutting over. Many gardeners err in mixing their shoots indiscriminately. Instead of this all ought to be cut to as great a length as possible, short of damaging the crowns (the best plan being to trace them down to the roots, and there twist them off in preference to cutting them), and then sorted over prior to bunching up. Keep the best by itself and the smaller in separate bundles, this being useful for soup. The fresher *Asparagus* is when used the more succulent and tender it proves, and the less, therefore, the bundles are immersed or set in water the better.

YOUNG ASPARAGUS.—Newly formed or comparatively young beds are doing well, the ground being in a warmer, drier state than is often the case in April and May. If the shoots pushed up are stronger than expected, that is no reason why a bed should be cut from before the plants have had at least two seasons' clear growth in their present position, and if cutting can be deferred till the plants are four years old, very superior crops may reasonably be anticipated as a consequence of this self-denial. In any case young beds ought not to be cut from after the third or fourth week in May, or according to the earliness or lateness of the locality. Thus favoured, strong early growths will form, these in their turn building up stout crowns and buds for next season. Not being so deeply and well rooted as old plants, young *Asparagus* will suffer from drought in a dry hot season, and the beds may well, therefore, be early mulched with short, strawy litter, or some substitute for the same. Where the rows are wide apart, *Kidney Beans*, dwarf *Peas*, *salading*, *Turnips*, *Spinach*, or other dwarf, quick-growing crops may be safely grown between them, and a few *Lettuces*, *Radishes*, and *Carrots* might also be grown on the raised beds.

MAIN-CROP CELERY.—At this time of year there is a great stress of work, but the Celery must not be neglected, especially when the plants are raised thickly in pots, pans, or boxes. Such are not fit to prick out direct into the trenches, nor even into beds, without some kind of covering or shading. It

ought now to be possible to withdraw the frames from beds occupied by Carrots, Turnips, Lettuces, and other early crops, and to utilise these for preparing whatever Celery plants may be required. Set these or any other rough frame on a hard level bottom, and inside place a solid layer of short manure, or leaves and manure, about 4 inches thick, surfacing this over with 2 inches of sifted soil. Prick out the Celery plants 4 inches or rather more apart each way, water them in, put on the lights, and keep rather close and shaded from bright sunshine till they start into fresh growth, after which give air freely, completely withdrawing the lights before the plants lose their sturdiness. If kept well supplied with water strong plants will result, and these will move off cleanly from the hard bottom, each with a good square of roots and soil attached.

CELERIAC.—The plants of this ought to be prepared as advised in the case of ordinary main-crop Celery. The roots cannot well be grown too large, and if properly cooked will prove acceptable as a vegetable, besides being suitable for mixing in salads or for flavouring soups. From 100 to 200 plants would be ample for moderately large establishments, and these should eventually be planted on the surface of well-manured ground, or say in close succession to the earliest Cauliflowers.

POTATOES.—Seldom have these come up more strongly and regularly, only the most forward being checked by frost. Hoeing between the rows ought not long to be deferred. If this is done thoroughly and with somewhat heavy hoes, the ground between the rows and well up to the haulm will be loosened to a good depth, this, in addition to bringing it to a desirable fineness, also admitting warmth and air to the roots. If soot or some kind of special manure is sown among the rows and hoed in, it will benefit both the Potatoes and any successional crop. Nor ought the moulding-up to be put off, especially if there is any likelihood of injurious white frosts being experienced. Neither Brussels Sprouts, Broccoli, nor Cauliflower plants should be put out between the widely-disposed rows of Potatoes before the latter have been finally moulded up.

PEAS.—These are making capital progress. Those planted out from boxes were greatly checked by cold easterly winds, but if they yield lighter crops these will be considerably earlier than will be the case with the stronger rows sown in the open. If stakes are scarce the very thin rows of medium height varieties may well be left to take their chance, and they may yet yield several good pickings. None of the plants in the rows to be staked ought to be allowed to fall about before the supports are placed to them. There is no necessity to work in the stakes very thickly, nor ought they to wedge together where they meet over the rows, or otherwise the haulm will most probably find its way through and break down long before the top of the stakes is reached. There are several substitutes for good Hazel or other stakes, but the latter are still to be preferred. The wooden lattice trellising answers fairly well if placed on both sides of the rows and well supported by stout stakes. So also do galvanised wire supports similarly fixed, these, if the dearest at the outset, being much more durable and therefore the cheapest in the end.

RETARDING BROCCOLI.—Hot sunshine, unusually powerful, is materially shortening the duration of the Broccoli crops, a great glut being experienced just now. It is to be hoped that many who had good breadths of strong plants have long since transferred a good portion of the late varieties especially to cool or north borders, and if the work was done well, this will ensure a late supply without greatly reducing the size of the hearts. The supply may be prolonged for another week or more, or just long enough for Broccoli to shake hands with Cauliflower, by lifting some of the latest of the former, with a good ball of soil and roots, and replanting somewhat closely in the coolest border available. It will completely check their growth, and comparatively small heads are better than none at all.

W. I.

FRUITS UNDER GLASS.

CUCUMBERS.—The secret of success in summer culture consists in daily attention to details, including stopping, thin training, moderate cropping, cutting the fruit young, cleanliness, good feeding, and a liberal use of warm water. The heat, as a matter of course, must be tropical both above and below the surface of the bed, and the lighter the firing the greater the freedom from insects. A temperature of 68° to 70° by night and 78° to 85° on fine days should be the aim, as the quicker the growth the sweeter the fruit, and these figures may often be improved upon by giving a vapour bath of 90° to 100° after closing for the day. A little night air along the front is good, and although some profess to grow Cucumbers in closed houses, a free circulation through the best part of the day is most sensible, as progress really follows very early closing on fine afternoons and through the hours of darkness. Then as to food, the Cucumber enjoys sound, rich, moderately light compost, of which fibry turf forms the staple, bone-dust, rough charcoal, and lime rubble being added, not only to keep it open and porous, but also to act as absorbents of liquids for use when the foliage is perspiring freely. This should be kept dry and warm for application, little and often, as the roots appear on the surface, and provided clarified liquid, varied with guano and soot-water, is used at each watering, there will be no need for solid manure, which encourages worms, and induces grossness followed by canker. Under this mode of treatment insects rarely put in an appearance, but if they do, fly may be checked and destroyed by mild fumes from Bloxham's tobacco puffer and sulphur, or a taste of soft soap in the syringing water will keep down red spider.

PLANTS IN FRAMES will now be growing fast, their requirements here, as in houses, being daily attention to all details. If the top and bottom-heat is entirely dependent upon fermenting material, the linings must be renovated, back and front alternately, once or twice a week; all manipulating, training; regulating, earthing, and root-watering must be performed within the hour which precedes closing for the day, when, filled with atmospheric moisture, the frame may run up to 90° or 100°. Once closed, there must be no reopening of the lights, but the latter will require early covering with mats or canvas to prevent the night heat from falling below 70°. Where Cucumbers are planted out after Potatoes and bedding plants, a few seeds of some hardy spined varieties should now be sown singly in 4-inch pots, filled with rough turf and plunged in rough bottom-heat. As these plants will be grown and fruited upon temperate lines, they must be kept close to the glass, have plenty of air, and full exposure to sunshine.

MELONS.—When the early Melons have attained full size and are nicely netted, the use of stimulants must be discontinued, but pure water equal to the maintenance of a fresh healthy condition of the foliage may be given until a slight cracking round the stalks shows that ripening is near. Maintain a brisk temperature, ventilate freely on fine days, and, if possible, keep up the bottom-heat, as the too common practice of allowing this to decline is detrimental to the flavour of the fruit. When all the Melons are cut, clear out and thoroughly cleanse the house, renovate the bed, and having strong plants established in pots, plunge to the rims where they are to remain. Feed freely plants now swelling up their fruit, and top-dress with stiff loam and bone dust as often as the surface becomes matted with roots. Damp the walls and surface of the bed on fine mornings, but avoid wetting the stems and leaves until the house is closed with strong sun heat, when they will derive great benefit from the afternoon bath. In the selection of fruit always choose those which swell evenly together, support them with small pieces of board or wire netting, remove all laterals and spray, unless there is room for the full development of more foliage, and carefully avoid doing injury to the oldest leaves. Make sowings of seeds equal to future demands at least once a fortnight, and turn out the young plants before they become pot-bound, or, the

bed being too hot, prevent checks and spider by giving them a good shift.

Pits and frames.—Where this old-fashioned method of growing Melons is still practised, the beds and hills should be in good condition for the reception of strong plants by the middle of May. They will then have the best part of the season for the setting, swelling, and ripening of their fruit, but unless time and unwearied attention can be given, this mode of culture will not pay. Next to the maintenance of a steady bottom-heat the most important point is the use of sound, heavy loam in moderate quantity, just rich enough to produce hard wiry vine without the aid of stimulants until after the fruit is set. Pinch the points out of all the main vines when within a foot of the sides of the frame and regularly renovate the linings, as the bottom-heat must be up to the maximum when the female flowers begin to expand. Fertilise from day to day, and when the crop is abundantly secured pinch the laterals at the first or second joint beyond the fruit, but defer thinning until those likely to swell in unison are the size of pigeons' eggs. Elevate these on inverted pots, top-dress with loam and bone-dust, shut up very early with a nice overhead syringing, but avoid wetting the foliage on flooding days, and mat well every night.

FIGS now ripening must have plenty of fresh air and less moisture, especially through the night, but on no account must the roots feel the want of water, as anything approaching drought may damage the second crop. The weather being unsettled and often very cold, fire heat will be needed every night, and not unfrequently through the day, as Figs ripened in a low temperature with insufficient fresh air are rapid and flat, when of all fruits under cultivation they are the most disagreeable to the taste. Green Figs, on the other hand, are greatly improved by full exposure to light and a circulation of tropical heat, also by being allowed to hang until they are dead ripe and slightly open at the eye. To have them in this condition the consumer should have them direct from the tree, or if after a long journey inodorous packing materials must be provided, and then they should be opened the moment they arrive.

Midseason houses, in which the fruit is undergoing the fructifying stage, must be regularly syringed and ventilated, and kept at a temperature which suits swelling Muscat Grapes. This apparently non-progressive period extends over about one month, and no power can make them move unless it be to fall off, but once this semblance of fertilisation is over the most forward Figs swell rapidly and soon become ripe. Maintain 65° to 70° at night and 80° by day, run up to 85° or 90° after closing with moisture and fire to an extent that will favour a little fresh air through the night.

HARDY FRUIT GARDEN.

FIGS on open walls are unusually late this season, so late, and, worse still, slightly damaged at the points, that we have deferred pruning and regulating for the present. The young figlets and buds on points which have escaped at last are pushing, and when these get a little more advanced all faulty pieces will be cut away, and the roots, still very dry, will be mulched and watered. There are two distinct modes of managing wall Fig trees; the let-alone, applicable to the south and coast counties, and the close training system generally adopted in cold districts away from marine influence. Where the trees do well under unskilled treatment all that is needed is thinning the shoots where too thickly placed, and pruning back to good buds where the first year's growths have been injured. Trees which require protection, on the contrary, should be kept close to the walls, and the shoots, 9 inches to 12 inches apart, should be kept within bounds by annual autumnal root-pruning. Again this year I have tried both methods, and although the winter has been mild, my vote must go in favour of close training.

STRAWBERRIES.—The work amongst these just now is important, for not only must bad weeds be removed, but the spring having been so dry, planta-

tions on light land may require copious watering. Our soil, extra heavy and cool, just suits the Strawberry, consequently watering is not imperative; a good soaking before the flowers open, nevertheless, will do them no harm; therefore when littered down the hose will be turned upon them. All Strawberry growers, I believe, admit that a good covering of some kind should be placed on the borders, if only to keep in moisture and prevent the splashing of the fruit when ripening, and the earlier this is done the better, as certain damage follows the introduction of stable litter when the plants have made fresh young leaves, or it may be are coming into flower. Where spring planting is practised, runners placed in nursery beds last autumn may be transferred to their permanent quarters in showery weather during the present month. If strong enough to produce flowers, the latter must be pinched out, and, provided they are made very firm and watered home, they will make fine fruiting beds for another year. If the rows are 2 feet 6 inches apart the deeply worked ground may be turned to profitable account, as there will be ample room for the finer kinds of Cos Lettuce sown thinly in drills, and, singled out to 18 inches from plant to plant. By sowing fortnightly a row or two at a time, fine crisp heads, not always plentiful in August, may be obtained throughout the hottest and driest summers.

Stock plants put out last August specially for runners, if not already relieved, must now be divested of all their flower trusses, made firm, mulched and watered to induce a flush of early wires. Stock being plentiful, all the weak wires should be cut away, whilst those retained must be pinched in front of the first runner, which in due course will be hand-layered upon pots or the open ground.

PEACHES which have set plenty of fruit may be helped forward by daily syringing with tepid water not later than 3 p.m., when there is no danger of frost. Thinning and disbudding also in mild weather may now be followed up, and the covering, consisting of two and three-ply fishing net, may be drawn up through the day, if let down again at night. Thinning at the outset should be confined to the reduction of doubles and trebles to one, naturally the best, and the removal of inferior fruits which are badly placed.

Disbudding, commencing at the top, must be performed piecemeal when the weather is mild, the main point being a gradual reduction without producing a check upon the trees, or sudden exposure of the tender fruit to frost or cutting winds. In my own case I take the foreright shoots first, then a few of those emanating from the lower sides of the fruiting wood, but several along its whole length above and below are pinched in the first instance, a few leaves being of great service as protectors of the fruit to which they also draw the sap.

Watering.—Unless very shortly we have copious rain from the south or west, the roots as well as the leaves will require water, a dry ball being fatal to the swelling of the fruit. Vigorous young trees do not suffer so quickly as old ones, whose balls in course of years become as hard and not unfrequently as dry as mud walls, whilst the points of the roots may be moist enough. Uniform watering in cases of this kind, more common than many people suspect, is useless and misleading, as the water will not face a hard, dry ball if it can find a more open outlet, but there are ways and means, and these consist in forming a semi-circular wall of soil round each bole, filling and refilling the dam thus made until the whole mass is properly moistened. Quite recently one of my large trees thirty years planted did not seem inclined to swell away its fruit, but the application of some 300 gallons of water poured into a 4-feet dam produced the desired effect, not only upon the fruit, but also upon the foliage, which soon doubled in size and improved in colour and substance. Instances of this kind may not be general on deep, heavy loams, but drained borders on light soils frequently suffer from drought, not perhaps near the surface, but down amongst and below the main roots, and so long as this thirst for more water continues the

fruit will drop—rejected by Nature, some will say—growth will be puny, and red spider will be rampant.

THE ORCHARD.—The grafting of old trees has been brought to a close, and warm steady rain is now much wanted, not only to give impetus to the sap, but to wash the grub out of the flower-trusses, never more abundant and promising upon all sorts and conditions of trees, Plums excepted. These generally are very shy, whilst Cherries at the present time are simply superb. Pears are equally good, but not quite so forward, and Apples, including the Blenheim and Ribston Pippin, will soon be loaded with their finely tinted blossoms. If the greasing and smearing of stems are of any use, the experiment will soon be put to the test, the dry weather so far having been highly favourable to the rapid development of the insects whose parents may have passed the greasy cordon. I have not, however, much faith in the greasing business, at least in these parts, as this and the adjoining counties contain thousands of old Lichen-clad trees capable of sheltering myriads of moths who need not descend to the ground, and so long as this state of affairs continues a tithe of their progeny may be equal to the destruction of all the Apples in the most free-flowering orchards. W. C.

CHRYSANTHEMUMS.

CHRYSANTHEMUM NOTES.

CUTTING DOWN PLANTS.—Repeated private inquiries for information lead me to suppose that the wish to cultivate Chrysanthemums on the "cutting down" principle is now stronger, especially among those who have not sufficient convenience for arranging while in bloom. The "cutting down" method of culture has much to recommend it, as by its use not only are large blooms produced, but the plants can readily be seen without the aid of stepladders and other conveniences. As the present is the commencement of the season for the important part of the duties required to produce the plants, I thought a few notes would be acceptable to those persons who have not had experience in this manner of growth. At the outset I would point out the fact that growers of cut-down plants must not expect to compete with success in the cut-bloom classes against those who produce blooms by the opposite method, because it is not possible that dwarf plants can equal the tall ones in producing the finest blooms. I am speaking, of course, in a general way of cultivation. Chance flowers of some varieties may be had from cut-down plants which may equal those obtained in other ways, but chance flowers are not of much consequence when a collection of, say, twenty-four or forty-eight sorts is required.

As before stated, the plan is an estimable one for grouping, and well worthy the attention required to have plants in the best possible condition. The subject which is most perplexing to persons living in various districts is the time to cut down the plants. From the returns sent in by growers for the statistics in connection with the Chrysanthemum conference held at Chiswick last year, I am able to give the opinions of residents in various localities, which will serve as a guide to those similarly placed. All agree that the naturally late flowering kinds, of which grandiflorum, Boule d'Or, and Meg Merrilies are examples, should be dealt with first, so as to arrange their growth to correspond with the earlier flowering sorts, such as Elaine, Mlle. Lacroix, Edwin Molyneux, and the Rundle family in the incurved section. Around and south of London about May 20 may be considered the best time to cut down the late sorts, and the remainder should be finished by the second or third week in June. The midland

counties differ but little in the times required as compared with the south. Northern counties require a slight alteration; for instance, cutting down in Yorkshire should be finished by the middle of May, and so on in proportion. In the north of England, grouping Chrysanthemums is not practised nearly so much at shows as in the southern parts; therefore, I do not think this manner of cultivation is so general. To obtain a nicely balanced group some of the dwarf growing sorts should be cut down to within 3 inches of the soil, ranging up to 9 inches for the taller. The leaves on the stem should be left intact, and the plants should not be watered for a few days after cutting down, as an excess of moisture at the roots then would cause the stems to bleed. Syringe the stems daily to encourage shoots to break freely. If after they have been cut down the plants could be stood in a cold frame to shield them from heavy rains, so much the better. Thin out the shoots when they are 1 inch or 2 inches long, so that the most perfect ones can be determined, allowing three for the sorts which are largest flowering, and as many as five or six for small sorts—for instance, the Rundle family. When the shoots are from 2 inches to 4 inches long, the plants should be potted for the last time, still syringing them freely in fine weather.

BUSH PLANTS.

This method also produces dwarf plants, and finds much favour with those who wish to have a lot of flowers to cut. There are two ways of growing bush plants, one by rigidly pinching the stems as fast as they make a few inches of growth until the middle or end of July or later even than that, then allowing all the flowers which show to develop. This plan gives a great number of blooms, but they are generally poor both in quality and form; their stems also are weak, and do not make nearly such an effective display for that reason. The other plan is to pinch out the point of the shoots twice or thrice when 4 inches long, afterwards allowing all growth to develop and produce flowers; the result of this treatment will be branches clothed with flowers for fully 2 feet.

Plants intended to provide large individual blooms will now be growing freely in 5½-inch pots, and should have abundance of air night and day, removing the lights each day. Where a suitable position cannot be afforded them, such as at the foot of a south wall, the plants can now stand outside if frame-room is scarce. Water must be liberally given them during hot weather, so that the foliage may not suffer. Green and black fly will now be troublesome in the points of the shoots, and tobacco powder should be applied before any damage is done. Some sorts are now making their first natural break, thus providing additional shoots.

Those who have not previously had experience with this style of cultivation are sorely puzzled what to do with the new shoots made at the first natural break. Many failures in Chrysanthemum culture could be traced to this want of knowledge. A little information on this detail may serve to prevent some beginners from committing errors in this respect. The cause of the natural break occurring is the formation of a flower-bud at the point of the shoot, which checks the growth; while the bud is forming, several growths appear in the nodes immediately below the bud. These in time burst forth, and need restricting in point of numbers. The cultivator must determine now for what object the plants are to be grown. If for the production of the finest blooms, then I advise the shoots to be reduced to three upon each plant; if numbers are a greater consideration than size,

four shoots may be allowed to remain, increasing these to six or more at the next break. Directly it can be seen which shoots are the most likely to grow freely and these are generally those which grow nearest the point or immediately under the flower-bud—remove the bud and all other shoots but those selected to produce the ultimate blooms. Thus the whole energy of the plant is concentrated in the selected growths, which will at once grow away and gather strength as they proceed. Each plant should be supported with a stake; the selected new growths must be loosely tied to it as soon as they are long enough to handle, as in consequence of their being so sappy, they are very liable to be broken.

E. MOLYNEUX.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

IT appears paradoxical to hold a "summer" show on the 10th of May when we are enjoying to the full the flowers of spring, but this is the custom that has long prevailed. The earliness of the date, therefore, cannot account for the conspicuously poor exhibition at the Crystal Palace on Saturday last, the worst that we ever remember there. This may be due to the fact that such miscellaneous exhibitions comprising the same routine of classes, six stove and greenhouse plants, and so forth, have had their day, as all who have watched the general shows of recent years know full well. But there were comparatively few of what are called miscellaneous exhibits, which seems to show that the Crystal Palace exhibitions, once as famous in their way as those of the Royal Botanic Society, have lost their interest. There was little desire apparently to make the best use of what was shown; Calceolarias were lumped together on tall stands, and several of the exhibits so spread about that it was not easy to distinguish them from the ordinary decorations of the place. Greater encouragement to hardy flowers and less to those things that everyone knows have become positively distasteful by reason of their constant appearance in public in stiff and ungainly forms may do something, with good management, to raise the tone of the annual exhibition at the Crystal Palace. There was the same falling off in the spring display, so that unless the subsequent shows are up to the average there will be a poor record for the year 1890.

As a full list of the prizes is published, it is only necessary to point to a few of the finest things exhibited, and amongst the greenhouse plants the specimens of Azaleas from Mr. A. Offer, Handcross Park Gardens, Crawley, were noteworthy. The varieties comprised Model, Mrs. Turner, and Baronne de Vries, all a mass of bloom. Another fine exhibit was the single specimen of Azalea Duc de Nassau from Mr. C. Turner, of Slough, and in both cases the exhibitors were placed first. *Ixora* *Dixiana* from Mr. W. Chapman, gardener to Mr. J. Spode, Hawkesyard, Rugeley, Staffs, was also worthy of note in the stove plants. Mr. Turner exhibited eighteen charming plants of Azaleas in the class for these, and was placed first. The plants were not large, but pretty, unlike the big gaunt specimens once considered the acme of perfection. The varieties included Bernhard Andreas alba, pure white; Baronne de Rothschild, Mlle. Marie Lefebvre, Charmer, and Mrs. Turner. Show *Pelargoniums* were well exhibited by Mr. C. Turner, who was first for eighteen specimens, all well grown and full of flower. Amongst the varieties were such favourites as Prince Leopold, Marie Mallet, Lady Isabel, Gold Mine, and Marguerite. The same firm also came first in the class for nine plants of fancy varieties. Mr. D. Phillips, Langley Broom, Slough, exhibited *Pelargoniums* of the show section remarkably well. The plants were models of good culture, and as full of bloom as we are accustomed to see at the best exhibitions. The old Kingston Beauty, Prince Leopold, and Comte de Choiseul were the finest. The same exhibitor also had the best plants

of fancy varieties. Calceolarias made the showiest break of colour. It would have been difficult to find eighteen finer plants than those of Mr. J. Ford, gardener to Sir C. Piggott, Slough. They were dwarf and bushy in habit, sturdy, and in full bloom, the flowers of various colours, sometimes netted and blotched, and occasionally self. The effect of this mass of gaudy colouring was spoiled by the want of a green foil in the way of foliage plants to set off the variety of pretty shades. The same exhibitor was also first for twelve specimens. *Gloxinias* were also shown well, but the plants in some instances seemed rather drawn. Mr. S. Ballard, gardener to Mr. L. C. Davidson, Sydenham Hill, was first for good specimens, the flowers showing great richness of colouring. There was good competition here, the second prize exhibit also meriting notice. Mr. W. Clark, gardener to Mr. W. Soper, had the six finest plants, all well grown, and representing fine colours. The *Orchids* were poor. Mr. Douglas, The Gardens, Great Gearies, had a fair group of six specimens, which contained a handsome plant of *Cypripedium* *caudatum* roseum, and the same exhibitor had the best specimen—a good example of *Dendrobium* *nobile*, but except for these, *Orchids* were practically absent. Fortunately, there were three entries for the group of *Roses*, Mr. Rumsey, Waltham Cross, showing the finest. Messrs. Paul and Son, Cheshunt, being second. Of course, there were classes for foliage and stove and greenhouse plants, and the prizes were chiefly distributed amongst Mr. J. A. Causton, Lodgemore Park, Mr. W. Chapman, and Mr. Albert Offer. The *Caladiums* of Messrs. John Laing and Sons, who were placed first for excellent specimens, must not be passed over without a word of mention.

Cut flowers and table decorations occupied much space. There were some splendid flowers for twenty-four bunches, Mr. J. Prewett, Hammersmith, who was first, showing excellent blooms of *Maréchal* *Niel* *Rose* and other things. Mr. W. Clark had the finest twelve bunches, which comprised *Odontoglossum* *cirrhosum*, *Dendrobium* *nobile*, *Cattleya* *Mossiae*, and the pretty pink-coloured *Rhododendron* *Maiden's Blush*. The table decorations showed, as a rule, conspicuous absence of taste. An arrangement composed almost entirely of the rich green indoor *Asparagus* was awarded the first prize, and a far prettier thing, but not faultless, made up of white *Gladioli* and *Lilies* of the Valley, the third. Throughout there was an absence of delicate contrasts of colour and lightness of arrangement. The bouquets were in the usual lumpy style in favour now.

MISCELLANEOUS COLLECTIONS, if fewer in number, contained the most interesting exhibits in the show. The Calceolarias from Messrs. Sutton and Sons, Reading, showed not only skilful culture, but a rich and beautiful strain; the plants were dwarf, compact, and densely bloomed, the flowers showing a rich variety of the deepest tints, large, and in such a type as Cloth of Gold, rich self yellow, the others beautifully netted, blotched, and veined. The seed was sown in the third week of May, 1889, and the plants given very little fire heat. It is an undue amount of warmth that spoils Calceolarias. The kinds shown by this firm were principally seedlings, but one named Cloth of Gold is of the deepest self yellow colour, and the plants covered with bloom. Tuberous *Begonias* were well exhibited by Messrs. J. Laing and Sons, Forest Hill. A noble group of *Roses* came from Messrs. Wm. Paul and Sons, Waltham Cross, comprising many pot specimens and several boxes of cut blooms. Messrs. Paul and Son, Cheshunt, exhibited the pretty Broom, *Genista* *Andreana*, the subject of an interesting note in THE GARDEN April 26 (p. 386); a fine clump of *Cypripedium* *Calceolus* and other hardy flowers, and a rich selection of tufted *Pansies*. Messrs. Balchin and Sons, Hassocks Gate, exhibited *Leschenaultia* *biloba* *major*, illustrated by a coloured plate in THE GARDEN, October 4, 1884. A large group of *Anthurium* *Scherzerianum* came from Messrs. J. Peed and Sons, Streatham, also *Sarracenias*. It was interesting to note the varieties both in shade of colour and size of spathe in the Flamingo Flowers. The Japanese

Primula, P. Sieboldi, was again finely exhibited, as at previous shows this season, by Messrs. Ryder and Sons, Sale, Manchester, the varieties for the most part comprising those already mentioned in THE GARDEN. Messrs. Barr and Son, Long Ditton, had a large and excellent group, for the season, of Daffodils, Tulips, and other hardy flowers. The Tulips were such kinds as *T. retroflexa*, a lovely yellow-coloured species; *T. elegans* alba, ivory-white with each segment margined with crimson; *Gesneriana*, fulgens, and cornuta, besides *Iris* *iberica* and *Phlox* *divaricata*. Mr. T. S. Ware, Tottenham, exhibited Tulips in variety and several *Irises*, *I. missouriensis*, pale blue, amongst the number. The same exhibitor also had the almost hardy pure white *Pancratium* *illyricum* and *Paeonia* *Reine Elizabeth*, illustrated in THE GARDEN, Jan. 22, 1887. Mr. J. H. Causton showed a group of *Mignonette*, some being standard plants, but the advantage of specimens thus grown is not evident, unless it is to show how a beautiful flower can be distorted by twisting it into various shapes. Messrs. James Carter and Co. had a fine golden-coloured bedding Wallflower, the flowers very rich in colour and the plant dwarf. A variety named Miss Primrose Carter was poor in colour compared to the other. Distinct it may be, but useful garden flowers are wanted, not mere novelties.

A full prize list is given in our advertising columns.

ROYAL HORTICULTURAL.

THE meeting in the Drill Hall, Victoria Street, on Tuesday last week was worthy of the month of May, and of interest especially for the rich variety of spring-flowering trees and shrubs of the best kinds, too often neglected in English gardens.

FIRST-CLASS CERTIFICATES were awarded to each of the following:—

CYTISUS SCOPARIUS ANDREANUS.—This is simply a variety of the common Broom, and originated about five years ago in Normandy, occurring in a field of the ordinary *scoparius*. It is a lovely shrub, perfectly hardy, very distinct, and likely to find its way quickly into all good English gardens. The flowers are unusually richly coloured, the upper part being of an intense yellow, and the lower ruddy crimson-brown, a combination at once striking and effective. It grows as freely as the type and is quite as graceful. Crowning a knoll or in some position to show off its free display of handsome flowers it would make a charming feature in any garden. All who wish for a distinct and beautiful Broom should make a note of it, and there will be no difficulty in obtaining it, as the plant seems freely distributed. It was shown in the collection from the Royal Gardens, Kew, by Messrs. Paul and Son, Cheshunt. Messrs. Veitch and Son, Chelsea, and Sir Trevor Lawrence, Bart.

CALLA ELLIOTTIANA.—This is another striking flower, which reminds one strongly of *C. hastata*, but it has sufficient character of its own to fully warrant a distinct name. The spathe is almost as large as that of the ordinary *C. æthiopica*, and deep yellow, while the bold leaves are blotched with white. Last season the spathe came still larger, but the plant has been weakened through propagation, so that we have not yet seen its full beauty. There is no doubt a great future for this rich yellow-spathed *Calla*—a colour most unusual and striking; of its distinctness there can be no two opinions. From Mr. G. M. Knight, gardener to Capt. Elliott, Farnborough Park, Farnborough.

CYDONIA JAPONICA MOERLOOSEI.—This is a beautiful form of the old Japan Quince, and a good addition to a charming race of spring-flowering shrubs. It blooms earlier and more continuously than the type, while the flowers are brighter in colour. It is of Continental origin, and worth note by all interested in bright May-blooming shrubs. We believe this is its correct name, though labelled *Moorlezi*. From Messrs. J. Veitch and Sons.

ACER PRINCE HENDJERY.—This is a variety of the common Sycamore, but its name is a sufficient bar, we should think, to its cultivation. The tender foliage is of a charming pale brown

colour, richly shaded with a deeper tint. From Messrs. Paul and Son.

LILAC MME. KREUTER.—We have so many beautiful varieties of the Lilacs, that it is not necessary to plant the common kind so abundant in gardens. This variety is a rich addition, and makes a charming companion to such kinds as the pure white Marie Legrange. The clusters are dense and large, the buds being of a rich purplish-crimson, which becomes paler in the expanded blooms. There is the same sweet scent as in the ordinary Lilac, and if this variety proves as free-flowering, our gardens should gain much in beauty. From Messrs. Paul & Son.

BLANDFORDIA NOBILIS IMPERIALIS.—The type *B. nobilis* was introduced from New South Wales early in the present century, and is to be seen occasionally in botanic gardens, but the present variety shown by Messrs. Sander & Co., of St. Albans, is a distinct advance, the flowers reminding one in shape and manner of production of those of the pretty *Urecolina pendula*, while they are almost twice as large as those of the type. The plant bore two spikes, each carrying about four open flowers and three buds, each one of bell shape, widely expanded at the mouth, and rich scarlet, except at the margin, which is yellow. If it grows freely, as seems to be the case, there is every hope that this will prove a useful plant.

ODONTOGLOSSUM MACULATUM ANCEPS.—This is a strongly marked variety, the spike having eight flowers of deep and decided colouring; each flower is large and rich chestnut-brown on the sepals, but the petals are only blotched with this colour on a yellow ground; the lip is ornamented in the same way. There are several good types of this Orchid, but as far as we remember this is the finest. From Mr. W. C. Atkinson, Aigburth, Liverpool.

An award of merit was given to each of the following:—

JUNIPERUS CANADENSIS AUREA.—A nicely variegated variety, the young foliage rich golden yellow and very bright against the deep green. It is not spotty and diseased in aspect, as many variegated things. A pretty thing to make a good group of. From Messrs. Paul and Son and Messrs. J. Veitch and Sons.

VARIEGATED HONESTY (*Lunaria biennis variegata*).—There is no accounting for taste, and, therefore, some may even admire this novel border plant. We may well ask why an award was given to it, when the old Honesty of the cottage garden is infinitely more beautiful. From Messrs. Cutbush and Sons, Highgate.

CŒLOGYNE TOMENTOSA.—A very fine specimen of this came from Mr. R. J. Measures, Cambridge Lodge, Camberwell. The plant exhibited carried five of the long and slender pendent spikes, the individual flowers being about the size of those of *C. ochracea*, and coloured in the sepals and petals with a kind of terra-cotta. The outside of the lip is almost white, the inside yellow, and the surface enriched with three raised ridges or frills of brown. It is not a showy Orchid, but pretty when a large plant, with its *Lycaste*-like leaves, is hanging in a house.

TUFTED PANSY EYNSFORD YELLOW.—This is a showy tufted or bedding variety, the flowers not large, but rich self yellow, deepening to orange on the lower petals; the few ray-like streaks of purple in the centre add to its beauty. From Messrs. H. Cannell and Sons, Swanley.

PRIMULA SIEBOLDI ALBA MAGNIFICA.—This is a snow-white fringed flower, very delicate and beautiful in a mass as shown by Messrs. Ryder and Sons, Sale, Manchester.

TREE PÆONY BEATRICE KELWAY.—A perfectly single variety, and as lovely a flower in the Pæony way as one could wish for. Its apparent frailty, delicate whiteness, relieved only by the yellow anthers, and breadth of petals are charming. From Messrs. Kelway and Son, Langport.

ENKIANTHUS CAMPANULATUS.—This is sometimes classed with the *Andromedas*, and called *A. campanulata*. Imagine a deep rose-coloured *A. japonica* with the flowers veined, and one can form

an idea of this Japanese plant. It has leaves about 2 inches long, and is quite hardy. From Messrs. J. Veitch and Sons.

BROCCOLI VEITCH'S MODEL.—This variety was shown by Mr. Leach, Albury Park Gardens, Guildford, and is a good type for cutting in May and June. The heads are of medium size, compact, and somewhat conical in shape. The protecting leaves keep the heads pure in colour, and there is also the advantage of a hardy constitution.

The meeting consisted for the most part of a series of groups from trade growers. Thus we had twelve boxes of cut flowers of tree and herbaceous Pæonies from Messrs. Kelway and Son, Langport, Somerset. The tree varieties were of rich and varied colours, bold, loosely arranged flowers, amongst which such varieties as *Roserlin odorata*, rose-magenta; *Maria Kelway*, white; *T. D. Vander-malin*, rich glowing rose; *Duhamel*, white, lilac in the centre; *Fascinatius*, lovely blush; *Mr. S. Low*, scarlet; and *splendens*, a deep crimson single flower, strikingly handsome. The same firm had single *Pyrethrums*, masses of the white *Lilac alba grandiflora*, *Eurybia Gunni*, the pure white *Anemone sylvestris*, and other border things (silver-gilt medal). Messrs. Paul and Son, Cheshunt, also filled almost one side of the hall with an extensive group of cut branches of some of our best hardy flowering trees and shrubs. Such an exhibition as this shows the wealth of good things unseen in three-fourths of English gardens. There was the beautiful weeping variety of the common *Mahaleb*, a lovely deciduous tree; *Ulmus aurea*, a richly coloured tree as regards foliage; *Malus Toringo*, a handsome flower, large, and almost pure white, but rich crimson in the bud; and several of the best varieties of Lilac. The same firm had several trusses of a beautiful hardy *Rhododendron*, named *Mrs. Charles Butler*, the flowers each about 4 inches across, and richly tinted with delicate rose; it is a lovely thing, and flowering freely now in the open at the High Beech nurseries. *Cunningham's White*, which is not a white, rather a rose-coloured variety, and several other kinds were shown, one, *Broughton*, having flowers of the brightest carmine. *Andromeda formosa*, with its richly coloured brown leafage and white bell-like flowers, is pretty, also the rose and white forms of the old Japanese Quince. The delicate pink *Cerasus Sieboldi*, similar to, if not identical with, *Waterer's Cherry*, was shown; also Japanese Maples and *Ghent* and *mollis* Azaleas. One specimen of *A. mollis*, named *Consul Pecher*, had finely coloured flowers. A plant was shown of *A. erecta alba*, a small white-flowered kind, approaching *viscosa* (silver medal).

Pansies, both tufted and show kinds, were exhibited well. Mr. F. Hooper, of Bath, had a collection of beautiful varieties, fine in colour and bold in shape. They were of the show type, but remarkably handsome and rich, especially such a self purple-coloured kind as *Jupiter*, the most intense of all in depth of hue. The same exhibitor had several boxes of the pure white *Carnation Her Majesty*, a handsome flower, full, and pure white. It is a charming variety for cutting and the open air as well as for pots (bronze medal). Mr. John Forbes, Hawick, N.B., had a fine selection of his choice show, fancy, and tufted varieties. George Murray, rich yellow with a deep central blotch; A. Scott, rich violet-blue; *virginialis*, white, yellow eye; John Morrison, violet, shaded purple in the centre; Archie Grant, and W. Wright, yellow, were amongst the best of the tufted section. *Bronze Queen* and G. O. Trevelyan are two finely shaded flowers. Mr. Forbes had *Pelargonium Duchess of Buccleuch*, a semi-double white variety of great beauty (silver medal). Messrs. Cannell and Sons, Swanley, had, besides several stands of French and zonal *Pelargoniums*, baskets of tufted Pansies arranged in distinct colours. *Waverley*, violet-blue; *Eynsford*, yellow; *True Blue*, a deep violet-blue variety; *Cloth of Gold*, rich gold yellow; and *Champion*, creamy white, were the finest.

Daffodils, Irises, Tulips, and other hardy flowers were shown by Messrs. Barr and Son, Covent Garden (bronze medal), and Messrs. J. Veitch and Sons exhibited masses of *Azalea Consul Pecher*,

clear yellow, shaded with a reddish colour; *Ledum latifolium*, *L. buxifolium*, small crimson and white flowers in dense clusters, and *Abies excelsa mutabilis*, deep green, the young foliage pale creamy yellow. The *Ledums* are an interesting class of so-called American plants, though little grown in English gardens. The same firm had also *Genista Andreana*, *Epiphyllum Gærtneri*, and several *Phyllocactuses*, which showed the delightful beauty of this genus. They are plants that deserve to be well grown, as could be seen from the brilliant flowers of those varieties exhibited. *P. delicatus*, represented by a coloured plate in *THE GARDEN* of September, 21, 1889, first bloomed in the spring of last year; its large flowers are of a charming rose colour, bright and satiny in the full sun. *Rose Perfection* has smaller flowers, of a shining rose shade, lovely in the full sunlight; while in *P. Admiration* they are rich crimson, shot with a pellucid violet lustre that lights up the flower with peculiar brilliancy. *Lilies of the Valley* were well shown by Mr. Poupart, Twickenham.

Japanese Primroses (*P. Sieboldi*) in variety and Pansies of rich colour were shown by Messrs. Ryder and Sons, Sale, Manchester. The practice of inserting the plants in Moss is a great advantage over the common way of exhibiting (bronze medal).

Mr. G. Prince, Oxford, showed plants of the *Tea Rose Souvenir de S. A. Prince*, the sport from *Souvenir d'un Ami*; and Messrs. Wm. Paul and Son also had a sport from the same variety named *The Queen*, and which, we believe, appeared first. It is the same as *Souvenir de S. A. Prince*. The Waltham Cross firm had a new Hybrid Perpetual Rose named *Danmark*. It resembles *La France*, the flower finely built, large, rich rose, and sweetly scented. Its sturdy, vigorous habit promises to make it an excellent pot variety. Mr. R. Dean, Ealing, sent several alpine *Auriculas* of fine colours, curiously-formed *Polyanthuses*, and a rich variety of *Anemone coronaria*, the *Peacock Windflower*, came from M. Hennequin, Angers, France. Flowering branches of the old *Judas Tree*, which clusters against a wall in the gardens of Gunnersbury House, came from Mr. Hudson. It is a rare tree in all but old gardens.

A collection of curious plants was exhibited by Mr. Lynch, of the Botanic Gardens, Cambridge. There were several rare things, as *Neviusia alabamensis*, *Asarum Hookeri*, *A. proboscideum*, *Baccharis patagonica*, and *Vanda alpina*, a rare species of small growth, the flowers not unlike those of *Epidendrum Wallisi* in appearance, and with green sepals and petals, the lip pale yellow richly streaked with crimson-brown. It is of botanical interest only.

A large collection of cut sprays of trees and shrubs, with flowers of *Narcissus Bernardi*, recently commented on in *THE GARDEN*, were shown from the Royal Gardens, Kew. The majority of May blooming trees and shrubs was represented from the several kinds of Broom to such things as the yellow *Piptanthus nepalensis*, *Cytisus albus*, *Olearia stellularia*, one of the finest of the family introduced into England, the flowers like white Daisies, the sweetly scented *Rubus deliciosus*, *Lilacs* of several kinds, *Crataegus coccinea*, and *Rhododendron kewense* were in this interesting collection. This *Rhododendron* is a hybrid between *R. Aucklandi* and *R. Hookeri*, the flowers pink in colour, deepening in the bud. It is a lovely free-blooming type.

ORCHIDS.—The best group, consisting of eighteen specimens of *Cypripedium barbatum majus*, a large and richly coloured form, came from Mr. G. Wythes, Syon House, Brentford, who knows the value of such *Lady's Slippers* when each specimen is crowded with flowers. Thus shown it makes a handsome group, and deserved something more than the meaningless vote of thanks. It is an exceptionally good variety of the old *barbatum*. Mr. R. J. Measures, of Cambridge Lodge, Camberwell, exhibited several interesting Orchids, amongst them *Cattleya Mendeli Venus*, which recalls the softly coloured *C. Schroederi*; the sepals are narrow, just tinged with a lilac colour; the petals broader and frilled at the edge; while the lip is large, white, and rich lilac in the front; the throat veined with yellow, and the whole finely frilled at the margin; a

large specimen of *Masdevallia ignea* Southgatei, a finely coloured variety, light red, with deeper stripes. A seedling *Pelargonium*, named Miss F. Measures, the flowers pure white, came also from Mr. Measures. M. Lucien Linden, Parc Leopold, Brussels, exhibited *Cattleya Warocqueana*, which promises to be a fine flower. It is of very rich colour, especially in the lip, but one cannot now judge of its merits; *Dendrobium Gallicianum*, one of the *thyrsoflorum* group, has a large raceme of flowers which have white sepals and petals; the lip rich yellow in the upper portion surrounded by a broad margin of creamy white. A very handsome form of *Odontoglossum crispum virginale* came from M. Linden; the spike bore nine flowers, each about 4 inches across, the sepals and petals narrower than usual, but large, and with the latter broad and cut into at the edge, the crest yellow, and also the upper portion of the lip. It is one of the most robust types we have seen. Mr. G. Burnham, Stoke Newington, showed the small-flowered *Cymbidium albucaeflorum*, of botanical interest only, and a fine plant carrying several flowers of *Dendrobium thyrsoflorum*. Sir Charles Strickland, Bart., showed *Cattleya citrina*, and Sir Trevor Lawrence, Bart., Dorking, *Lælia purpurata* Brysiana, noted recently in THE GARDEN. A beautiful variety of *Odontoglossum crispum* came from Mr. N. Sherwood, Dunedin, Streatham, the flowers bold and suffused with a warm lilac-magenta colour, and also a good spike of the white *Phalenopsis grandiflora*. Mr. Cypher, gardener to Mrs. Studd, Royal Crescent, Bath, brought a fine plant of *Lælia purpurata*, the flowers large and richly coloured, especially in the lip, where it is deep purple, shading to a paler tint in front. *Odontoglossum Pescatorei*, Poë's variety, was represented by a cut spike; it is one of the most finely spotted of all the varieties of this none too variable Orchid. Messrs. Sander and Co., St. Albans, showed *Odontoglossum excellens* var. *Albert Edward*, a bold flower, well shaped and white in the centre, with a broad margin of yellow. The flowers are richly blotched with chestnut, and the lip is pale primrose, also blotched with the same colour. Mr. Cullimore, gardener to Mr. S. Malcolm Cooke, sent *Cattleya Mossiæ* Mrs. M. S. Cooke, a large flower, rich rose in the sepals and petals, and with a broad lip, veined crimson, and shading to pale lilac at the margin, the throat veined with yellow. He also sent *Lycaste* or *Maxillaria Harrisoniæ* and a good form of *Lælia purpurata* named *Cullimoriana*, besides a deep purple seedling *Gloxinia*. We have, however, plenty like it. *Cattleya Warneri* and *Cymbidium Lowi* came from Mr. Balderson, Hemel Hempstead.

An interesting exhibit was the group of Orchids from Messrs. Pitcher and Manda, Dulwich.

Fruit committee.—A collection of Cauliflowers was sent from the Royal Horticultural Gardens, Chiswick, comprising *Welcome Improved*, *Veitch's Criterion*, *Gilbert's Victoria*, *Ledsham's Latest* of All, *Cattell's Eclipse*, *Ransome's Conqueror* (which has large heads), and *May Giant*, all late varieties. Mr. Leach showed a large curled *Parsley*, and Mr. Butler, gardener to Mr. G. Aslett, Warren Wood, Hatfield, good fruits of *Alexander Peach*. Outdoor Mushrooms came from Mr. Miller, Ruxley Lodge, Esher, and a new *Asparagus*, but of its value we cannot speak. Fruits of *Horsford's Prelude Tomato*, an excellent variety for early work, were brought by Mr. Wythes.

ROYAL BOTANIC.

A BRILLIANT May day welcomed the first summer show of the Royal Botanic Society, and the exhibition itself was better than usual, due partly to the excellent disposition of the various plants. There were, of course, the usual stove and greenhouse specimens that have long since become an established thing at such exhibitions, but a happy feature of the shows in the Regent's Park Gardens is always the large clumps of hardy flowers, which give greater interest and variety than the trained *Azaleas*, and so forth. Of course the usual bank

was given to Orchids, and, unlike last season, the specimens were exceedingly fine. Mr. Whillans, gardener to the Duke of Marlborough, showing several splendid masses of leading species. It would not be unwise to put something else on this bank, even if only to vary the show from year to year. Roses were exhibited in quantity, large groups occupying two of the central beds, the others being occupied with charmingly arranged collections of miscellaneous plants. On the whole, it was the prettiest May show we have seen in recent years at the Royal Botanic, and that is saying much in this age of exhibitions of one individual flower.

The *Pelargoniums* were noteworthy for the fine culture of the fancy varieties shown by Mr. D. Phillips, Langley Broom, Slough, who was first for six plants. The same exhibitor also had the best show specimens. Mr. Turner also showed plants one mass of bloom, excellent specimens of their kind. *Azaleas* give rich colour to such shows as these. Mr. Turner exhibited the finest twelve, and Mr. Albert Offer, Handcross Gardens, Crawley, was successful in other classes for these, both exhibiting plants of good culture, and not over-trained, as in years gone by. There were, of course, the usual classes for stove and greenhouse and fine foliage plants, *Cape Heaths*, and *Ferns*, in which the principal prize-winners, as will be seen from the prize list, were Mr. J. F. Mould, Pewsey Nurseries, Wilts; Mr. A. Offer, who seems to keep up the character of the trained specimens; Mr. W. Chapman, gardener to Mr. J. Spode, Hawkesyard Park, Rugeley; and Mr. Henry James, Castle Nursery, Norwood. The *Calceolarias* were exceptionally fine, and Mr. J. James, Farnham Royal, had the best; his plants were dwarf, bushy, and covered with flowers, which displayed a rich variety of soft and deep colours. The self golden yellow varieties are telling in a group.

Roses filled no small part of the show, and there was a good competition in the several classes. The great class was for twenty specimens in which Mr. William Rumsey, Waltham Cross, was first. Messrs. W. Paul and Son exhibited a splendid miscellaneous group, which contained several boxes of cut flowers, amongst them beautiful blooms of *Ulrich Brunner*, *Etoile de Lyon*, *Merveille de Lyon*, and other varieties, of which want of space prevents mention. Messrs. Paul and Son, Cheshunt, had the best nine plants. Two beautiful boxes of cut blooms of *Maréchal Niel* Rose were exhibited by Mr. Walker, of Thame, whose success with this variety is pronounced. The flowers were faultless.

There were not many Orchids, but those shown were unusually good, the twelve specimens from Mr. Whillans, who was the only exhibitor in this class, being remarkably fine. This group contained a noble specimen of *Odontoglossum seeptrum*, bearing five strong spikes, one carrying upwards of sixteen flowers. Mr. Henry Little, Twickenham, was first for a collection in which were a series of varieties of *Lycaste Skinneri*, *Cypripedium caudatum*, and other things. A charming group also came from Mr. White, of Winchmore Hill, including several specimens of *Cattleya Mendeli*, the flowers of various shades, and in the variety albens almost pure white, but on the centre of the front lobe of the lip there is a delicate suffusion of lilac with pale yellow colouring in the throat.

Two classes were provided for hardy plants, and in both instances Messrs. Paul and Son, of Cheshunt, were first. One was for a collection of herbaceous plants, which included *Azalea mollis* Consul Pecher, a brilliant orange-scarlet flower; several varieties of the common *Scilla nutans*, *Geum miniatum*, the rose-coloured *Thalictrum aquilegifolium rubrum*, *Primula japonica alba*, the white variety of the Japanese Primrose, and tufted *Pansies* Countess of Kildare, rich purple-violet; *Trentham*, purple; and *Queen of the Purples*, all deeply coloured varieties. The collection of alpine plants shown by this firm was also of great interest, as the plants were in good sized pieces, not small tufts that convey little of their true beauty. *Cypripedium Cal-*

ceolus, *Saxifraga muscoides purpurea*, with small reddish flowers, the pretty little *Hutchinsia alpina*, *Prophet's Flower* (*Arnebia echioides*), and *Arenaria tetraquetra*, which has larger flowers and growth than the commoner *balearica*.

MISCELLANEOUS CONTRIBUTIONS were always the most interesting feature of the Botanic shows. Mr. T. S. Ware, Tottenham, exhibited a large group, in which were several Tree *Pæonies* of fine colour. The same firm had the delicate blue *Iris missouriensis*, *Anemone palmata alba*, a white variety of this *Windflower*, and very pretty; its flowers are about the same size as those of *A. sylvestris*, not such a pure white, and with rich yellow anthers. Messrs. Barr and Son, Long Ditton, showed *Daffodils*, *Tulips*, amongst them the white elegans *alba*, and a rich, deep crimson-coloured *Parrot Tulip*, the most intense we have seen. A charming group, comprising foliage plants, varieties of *Cattleya Mendeli*, and double and single tuberous *Begonias*, came from Messrs. J. Laing and Sons, Forest Hill, who also had *Caladiums* Mrs. H. Veitch and *Gaspard Cayer*, both good kinds, the first rich red. A fine group was that from Messrs. B. S. Williams & Son, Upper Holloway, who had a choice selection of Orchids—*Cattleya Lawrenceana*, the pretty *C. lobata*, *Calanthe masuca*, *Oncidium concolor* in fine masses, *Odontoglossum cirrhosum* and *O. citrosimum*, besides many other things, the whole beautifully arranged to make a bright and tasteful effect. Messrs. Ryder and Sons, Sale, Manchester, exhibited *Primula Sieboldi* and *Pansies*, which were also shown by Mr. Forbes, Hawick, N.B., and Mr. Hooper, of Bath. Messrs. Kelway and Sons, Langport, showed the same kind of things as at the Drill Hall on the previous day. The pretty *Cytisus Andreanus* was exhibited by Messrs. Paul and Son, *Calla Elliottiana* by Mr. G. W. Knight, and several French *Pelargoniums* by Messrs. J. and J. Hayes, Edmonton. *Ericas* and *Mignonette* from Mr. A. H. Morle, a large group of the deep blue *Leschenaultia biloba* major from Messrs. W. Balchin and Sons, Hassocks Gate, and *Lunaria biennis variegata* from Messrs. Cutbush and Sons were also exhibited.

The group of *Lilium Harrisii*, arranged with *Palms*, from Mr. Turner, was exceedingly fine, the plants splendidly flowered, and showing well the striking beauty of this flower. The same firm had several new *Azaleas*, amongst them *A. indica* J. T. D. Llewellyn, a lovely double light salmon flower, the upper petals spotted with crimson, and the whole margined with white. Messrs. H. Canell and Sons showed several new tuberous *Begonias* of fine colours, and Mr. O'Brien *Disa tripetaloides*, described in "Notes of the Week."

A small group from Messrs. J. Veitch and Sons contained several *Phyllocactuses*, amongst them those shown at the Royal Horticultural Society's meeting the previous day, and one named *Brilliant*, rich crimson, shot with a metallic magenta lustre, the sweetly-scented and lilac-coloured *Rhododendron Fortunei*, greenhouse varieties; *The Queen*, pale primrose-yellow; and *Niobe*, light red; *Gloxinia* Mrs. J. Donaldson, rich crimson, a finely coloured self variety, and *Lomaria discolor bipinnatifida*, a pretty and distinct Fern of dense habit. Messrs. H. Low and Co., Upper Clapton, exhibited a fine specimen, representing an unusually good form of *Cypripedium Elliottianum*.

A full list of prizes is given in our advertising columns.

Staining Grasses.—Will any reader kindly inform me how I can stain Grasses?—RICHARD VESEY.

A correspondent writes: What do you think of this for a choice English sentence? "Mr. Buffham exhibited, under the microscope, specimens of *Myristichia claviformis* with pluricellular sporangia and conjugation of *Rhabdomena arcticatum*, found upon *Zostera maritima*." (Proceedings of Linnean Society, *Gardeners' Chronicle*, p. 386).

Names of plants.—H. D.—1, Borage; 2, *Epimedium pinnatum*; 3, Lungwort (*Pulmonaria officinalis*); 4, *Thuja elegantissima*.—A. S. Adams.—We do not name florist's flowers.—J. A. Pouch.—The Snowy *Mespilus* (*Amelanchier Botrypium*).

WOODS AND FORESTS.

FORESTRY.

THE late genial weather has proved favourable to the growth of trees and shrubs of all kinds, and many of them are already in full leaf and flower. In many parts of the country Larch has bloomed well. Pruning and sorting the tops of young trees that have suffered damage by black game and hares should now claim the attention of the woodman. This applies particularly to coniferous trees planted a few years ago upon ground that is well stocked with game. The Scotch Fir and other Pines often suffer immense damage by the black cock and grey hen picking out the terminal buds of the branches and leaders of young trees, and as this promotes the formation of several shoots at the top, these should be pruned or pinched off as soon as they make their appearance in early summer, in order to prevent the plant forming a quantity of branches and assuming the shape of a mere bush. Pines raised from seed on the spot require particular attention in this way, for although bushy trees afford good shelter, yet they are almost worthless as timber trees. Winged game are less destructive to the Larch than to Pines, but hares often do immense damage by eating off the leaders of Larch and other trees in the early stages of their growth, the result being that such plants produce a plurality of leaders, which should be corrected in early summer with the view of training the tree to one stem, and thus promoting the formation of valuable timber in the trunk. Hard-wooded trees are by no means exempt from such injury, and the treatment recommended for Larch and Pines may be applied here with advantage. Trees, however, that are known to bleed after pruning had better be left over till the month of August or September, when the work can then be carried out with less risk of injury. Young trees are likewise occasionally retarded in their growth by imperfect drainage at the time of planting, for although the surface of the ground may have appeared in some cases to be quite dry and firm, yet in after years the trees here and there in the plantation may show by the yellowish tinge of their foliage that they are suffering from the presence of cold subsoil water underneath. This is a proper time to have this corrected by cutting drains of such a size and depth as may be found necessary. To obviate this state of things a few test holes should be dug here and there when preparing the ground for planting, and if these should attract and retain any considerable quantity of water they show that draining is requisite. When once the trees are fully established it is astonishing how they drain the ground for themselves. This applies more in the case of Coniferæ than hard-wooded trees. Drains that have been damaged by winter rains or become choked up with weeds and rubbish should now be attended to. Roads and bridges should also be examined and put into repair where necessary in order to give them time to become firm by the time they will be used in the month of August. J. B. WEBSTER.

Proposed National School of Forestry.—

A deputation from the Association of Chambers of Commerce of the United Kingdom lately waited upon the Right Hon. Henry Chaplin, President of the Board of Agriculture, at the office of the Department in St. James's Square, to urge the desirability of establishing a national school of forestry, and of utilising the Crown lands for the purpose of the institution. Colonel Hill, M.P., in introducing the deputation, said that it was, in

his opinion, very important, in the face of the gradual cutting down of the foreign forests on which we relied for timber, that serious attention should be given to the subject of forestry in the United Kingdom. Mr. J. T. Harper, of Southampton, pointed out that England stood alone among the nations of Europe in having no national school of forestry. He was informed that 27,000,000 acres of land in this country were out of cultivation, which were eminently adapted for the growth of white and red Fir, so much demanded for commercial purposes. The President of the Board of Agriculture, in reply, said that there could be no doubt about the growing interest and importance of the subject which had been brought under his notice. The powers the Board of Agriculture possessed under the Act by which it was created were, however, limited to inspecting, aiding, and assisting schools; and it would not be in its power, so far as he read the Act, to establish a national school of forestry such as that which the deputation had asked him to consider. He expressed a desire to have further information as to the 27,000,000 acres of land out of cultivation which it was said might be profitably planted; also as to the quality of the soil; and as to whether the forests on the Continent which had been referred to had not an advantage over English forests in regard to climate.

EFFECTS OF LIGHTNING.

MR. HERMAN BIDELE, of Playford, writing in a recent issue of the *East Anglian Times*, says:—

I shall be glad to draw the attention of those interested in thunderstorms to a magnificent example of ruin by lightning we have in this village. The parish of Playford was visited on Saturday last (the 26th) by one of those volatile clouds heavily charged with electricity that so often remind us of the approach of summer. The tree struck stands about 300 yards north-east of the church, close by the footpath leading to Great Bealings, one of a row of "old English" Poplars running east and west. At the foot the tree is about 2½ feet in diameter, tapering more or less regularly to a 10-inch diameter at the top. Here the electric fluid came in contact with the trunk some 40 feet from the ground. The two topmost branches are intact, but the bark is completely stripped from top to bottom, the southern half of the body being riven into matchwood. The storm came up from north-west, with a very light breeze, shifting right and left of north. The cloud was a dense dark blue—the effect, in part, of the sun in front—a detached mass of vapour with fringed edges, differing little, except in density and its proximity to the earth, from others which during the forenoon had floated over. At half-past one o'clock a few drops warned four or five men at work close to the tree to take shelter under a stack 200 yards off—a fortunate warning, for no sooner had the cloud drifted overhead than a blinding flash, accompanied by a terrific peal of thunder, left the tree a magnificent ruin, spread over not less than two acres of land, more or less covered with bark, branches, and riven trunk. One solid piece of 5½ lbs. was picked up 126 yards away from the tree. Other *débris* lies 70 yards in an opposite direction, and as an evidence of still more inconceivable force, small pieces of riven trunk or bark, some under half an ounce in weight, were found right in the face of the wind, nearly 60 yards from the tree. What force could have been applied to such light particles is beyond comprehension. Nothing that I have ever seen effected by lightning approaches this ruin. Larger trees have been shivered in this parish, but I never saw a tree completely barked all round, with one half literally riven into fibre, leaving the other half of the trunk a whitened stem, still standing as a 40-foot shaft to be seen a mile away. (The remnant is a conspicuous object in a north-westerly direction all the way from a point east of the old Kesgrave Schools for half a mile towards Ipswich on the Martlesham and Rushmere Roads). The electric fluid left the tree at the foot, following the direction of the fence for about 15 feet or 20 feet, threw up a sod about

a foot square, and there pierced the soil into the earth. Four hundred yards in a direct line north-east of the tree stands Playford Mount, the residence of Mr. Kemp-West, a commanding object in the landscape. Here some half-dozen of the fine glass plates in the front windows are shattered to atoms, the result, I apprehend, of concussion from the report of the explosion. I have never known this effect from the severest storm in the neighbourhood, but the thunderclap is described as terrific. The tree, as standing, is worth going to see, and, I will add, is of easy access from the road past the church.

The purple Birch.—There is a great diversity among the varieties of the common Birch, the ordinary form being by far the most graceful inhabitant of our woods; while there are also weeping, erect, and cut-leaved kinds, besides those in which the tint of the foliage rivals that of the Copper Beech. As an ornamental tree the Purple Birch should take high rank, for it has the grace and elegance of the common form; but like all other very pronounced coloured trees they must not be planted too extensively, a specimen or two well placed being far more attractive than when they are dotted indiscriminately here and there.—W.

The Lombardy Poplar.—According to M. Boissier, this Poplar is a distinct species which he calls *Populus pyramidalis*. It is believed by the best authorities to have originated in Persia; some writers, on the other hand, state that it is truly indigenous to Italy; but the evidence, however, is in favour of Persia, from whence most probably it was introduced into Italy, where it is now a favourite tree and extensively grown. Lord Rockford has the credit of having imported this Poplar into England, by means of cuttings brought from Turin in the year 1758. The original trees raised from those cuttings are supposed to have been planted at Blenheim, in Oxfordshire.

The two Elms.—What a very superior tree the common English Elm is to the one often substituted for it, and of which one often finds ancient examples in parks. I mean the Dutch Elm, said by some to be only a variety of the English Elm, but the two are most distinct in habit and general appearance. The English Elm is, as a rule, clean barked, even when old, tall and spreading; whereas the Dutch variety is of a much stiffer outline, has a corky bark and gnarled trunk; and is shorter lived. These characteristics are more apparent as the tree grows older.—S.

Trees and shrubs for wet ground.—I know of nothing more profitable, or that will succeed better in wet land than the Alder. When once the plants become established, it is astonishing how quickly after being cut down they start again and yield fine poles, that is, if protected from the attacks of game, such as hares and rabbits which are fond of nibbling the young shoots as they start into growth. Next to Alders in point of profit and suitability for wet land stands the Ash, the wood of which always meets with a quick and ready sale. Elm, too, does well where it can get plenty of moisture at the roots, and it is only when so favoured that it keeps healthy for any length of time or acquires much size; when sound and large Elm trees are valuable. By planting the two last-named at wide intervals, the Alder will be found to do well between them, and come in as a sort of undergrowth, an arrangement by which there would not be many years to wait before the ground would yield some return.—D.

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No. 966. SATURDAY, May 24, 1890. Vol. XXXVII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

THE MONTH OF MAY.

WOULD that it could be always May. That is a natural wish when we are enjoying such a delightful time as we have had so far in the spring of 1890. The air fragrant with Sweet Brier in one place, and with purple and white Lilac in another; neither so hot that you are oppressed with sultry heat, nor so chilly that you cannot thoroughly enjoy sitting out of doors without fear of catching cold; the perpetual music of the birds, from the noisy whistle of the nuthatch and the grating sound made by the different kinds of titmouse to the rich, clear notes of the black-cap and the full song of the thrush, which seems to be almost unceasing so long as there is daylight. The thrush begins with dawn of day and goes on after the lamps are lit and shutters are closed. To enjoy a garden you must appreciate everything in it and every part of it—the trees and shrubs, the old ivied wall, the dark shady nooks, where only Solomon's Seal and Bluebells and those beautiful white Harebells, Ferns, and a few other shade-loving plants will grow; the birds, and the bees, which hum so pleasantly in the warm summer air. All these things go to make up the thorough enjoyment of a garden. Just in front of the dining-room window I have a fine Siberian Crab tree, which this year has been loaded with its beautiful flowers. About 5 feet from the ground there is a hole in the trunk, and year by year for a long time past a pair of nuthatches have made their nest in this hole. They begin by polishing off the surface round the entrance, and then they may be seen darting in and out of it constantly. They are quaint, interesting birds. They fix their nuts, which they get from my Cob Nut trees close by, in the crevices of the bark of a *Pinus insignis*, which is a neighbour to the Crab tree, and then the bird hammers away with untiring energy till the nut is cracked. The bark of the *P. insignis* is decorated with half nutshells.

There is only one thing which at this season somewhat spoils the beauty of the garden. Daisies are really provoking by the way in which they insist on covering the fine level green of the lawn with a constant succession of flowers. There is only one day in the week in which we can enjoy the fresh green Grass, that is just after the machine has passed over it and for a few hours destroyed the Daisies. The next day there they are again as if nothing had happened, pertinaciously determined to show themselves, and so they go on for two months.

One of the charms of the outdoor garden in May is Lily of the Valley. I have had it since January, but forced Lilies are not like those grown out of doors; they are never

quite so sweet. My predecessor was a hunting "squarson," and rejoiced in two stables. One was enough for me, so I pulled down the other, and dug up the space for a small garden. Then came the question what to grow there. It is outside the kitchen garden and too close to the back way to the house for small fruits. It must be something not too ugly, not too tempting. I chose Asparagus and Lilies of the Valley in alternate lines, and a fringe of Globe Artichokes at the end nearest the general entrance. Few things are more beautiful in their mode of growth, in their large, deeply-cut leaves than Globe Artichokes, and they are excellent as a summer vegetable. The Asparagus and Lilies (which, of course, belong to the same tribe, *Asparagæ*) succeed remarkably well side by side, and in this, the fourth year since planting, I am reaping an abundant harvest of both. The Lilies will be forced next year, or some of them, and their stout heads and great strong spikes promise well for early work. Meanwhile I am going to see how far a row of Crosby's Early Sugar Maize will succeed in this rich and warm corner.

A GLOUCESTERSHIRE PARSON.

SIKKIM RHODODENDRONS AND LILIES.

TO THE EDITOR OF THE GARDEN.

SIR,—Mr. Ewbank's interesting note on Sikkim Rhododendrons (p. 451) leads me to say that a hybrid, of which one of the parents was a Sikkim Rhododendron, given me some years ago by Mr. Mangles to plant out in our Wisley Wood, has just bloomed for the first time; it is very beautiful, a rich rose-pink bell flower. We have had it for seven or eight years, and it was a good-sized plant when given. Mr. Mangles told me that he had it with others from a good hybridiser in Devonshire, but had not bloomed it. Acting on a hint from the Botanic Garden in Edinburgh, where a number of Sikkim Rhododendrons are planted so as to be protected by hardy varieties and bloom well, we have placed a large number of species under common Rhododendrons and find there they stand the winters perfectly, though when not so protected many were killed. I almost, however, fear that in Surrey the occasional sharp late spring frosts will, as in the case of *Camellias*, frequently destroy flower-buds of great promise, and that a rough canvas shelter will be necessary to secure a crop of blossoms.

Mr. Ewbank is so successful a plant cultivator, that I was naturally especially interested in what he says about Lilies and his bed with the concrete bottom, though I fear the conditions of his garden are so entirely different from those of ours that the results obtained would be different. I do not know, but presume that he waters his Lilies. At Oakwood no plants, unless recently moved, are watered; they are placed so that they can reach any dampness they require; this our moist subsoil makes easy. *L. speciosum*, *Hansoni*, *Browni*, *auratum*, and many others, in ordinary seasons, in light loam and full sun bloom as well as, in some seasons, even better, than the same species planted in shade and shelter with black vegetable soil added to the loam. Indeed, for some time past I have come to the conclusion that the way to the successful cultivation of most species of Lilies is to plant them so that the

roots shall be in damp soil and the bulbs moderately dry. So planted if the soil is moderately porous it does not matter much what it is otherwise. We have had for some years a small field of *L. auratum* in light loam in full sun; these have never been watered, and the young shoots of this year and the old stems of last show that they are quite happy.

G. F. WILSON.

ORCHIDS.

LÆLIA BOOTHIANA.

THIS is a plant not often met with even in these days of Orchid growing. It was named *Cattleya lobata* by Lindley nearly fifty years ago, and under this name it was figured in the *Gardeners' Chronicle*, although that figure was a great exaggeration of the lobing of both the petals and the lip, as seen in the flowers that appear now. The present name was given it by Professor Reichenbach, he dedicating it to the nurseryman who supplied him with material for describing it. I am now in receipt of two flowers of this species from "G. C.," Winchmore Hill; these, with a delightful fragrance of Almonds, are each 5 inches across, and my correspondent says he has five flowers on the spike. The sepals and petals are of a deep purplish-rose, the latter being much the broader, with waved edges; the lip is large and of the same colour as the petals, the front lobe much waved on the margin, rich deep amethyst-purple, with deeper veins, the throat much paler. In one form sent me, the front lobe is paler than the petals in the centre, but this is not visible in the other; they had been labelled 1 and 2, but the numbers were obliterated. "G. C." says it is a strong-growing plant, like *Lælia crispa* both in pseudo-bulbs and leaves, but the plant which he had marked No. 2 was a weaker-growing variety, the pseudo-bulbs and leaves both being narrower than those of No. 1. This description quite accords with some large plants which I used to have in the Kingston collection some thirty-five years ago. They were the picture of health and vigour, but, to my regret, I never could induce them to flower. I used to see a plant in a neighbouring collection that frequently flowered, and this was called the Manchester variety. The treatment of the plants was identical, and I am compelled to acknowledge that *Lælia Boothiana* is naturally a very shy-flowering variety. I should be much obliged to "G. C." if he could tell me something as to the locality in Brazil whence these plants came. He says they came to him from Rio de Janeiro, but this has only been the port of shipment, and I should be glad to verify the exact locality where it is found from an actual importer. It would appear to be of rare occurrence in Brazil, one locality only being given for it, and hence I should infer that the plant is shy-flowering naturally, and that in consequence very few seeds are produced, and hence the plant has not become widely spread. It grows freely and thrives well in very bright sunshine, only requiring shade during the hottest part of the day, and this simply to keep the sun from burning holes in the leaves, which sometimes will occur under glass. It is a great pity that it does not flower more freely, for the colour is charming and the fragrance most grateful. I must congratulate "G. C." on having in his collection two plants of a most desirable and beautiful character. These should be marked and every time they flower should be recorded. We may be able to work up from these plants and distribute a race of free-flower-

ing varieties, well deserving the attention of all Orchid growers.
W. H. GOWER.

CYPRIPEDIUM SPECTABILE.

MR. WOOD's statements with regard to this plant seem a little confusing. At p. 320 he says: "I believe that not only in the wild state, but under cultivation, this is absolutely a bog plant;" and again, "I never grew the plant well, as it only pushed stronger growths year after year when grown in an artificial bog, and when the boggy character of the soil ceased, owing to a stoppage in the water pipes, the plants failed to prosper." Clearly here we have Mr. Wood's dictum of how absolutely essential is the bog for this plant, and equally clear, too, is it that Mr. Wood at some period must have considered "water" an absolute necessity, or he never would have laid pipes down to convey it to his plants, and if we want further proof of how very essential is the water supply we have it in Mr. Wood's own words, viz., "when the boggy character of the soil ceased, the plants failed to prosper." Mr. Wood appears now (p. 438) to have forsaken the water supply through pipes, and to have adopted the more primitive method of catching what comes down a certain walk. Here I would like to ask Mr. Wood if this is how he would cater for what he has repeatedly stated to be an absolutely bog-loving plant, for I hesitate not to say that any plant so essentially bog-loving as this *Cypripedium* cannot get its desert under the meagre treatment advanced by Mr. Wood at p. 438. Mr. Wood also states that "Few of us have streams of water running through our gardens." Quite so; and so far as I am aware I have never hinted that such was needful; it is at the roots of these *Cypripediums* that the water is required, not merely running through the garden. There are, however, thousands of instances of gardens being provided with an adequate supply of water, and by affixing a hose to either stand-pipe or tap it would be simplicity itself to supply the requirements of this lovely plant to the full. I had no desire to alarm much less debar anyone from growing one of the most exquisite of hardy flowers by overstating its requirements, and I dealt thus fully with it to assist any who may prefer growing it to perfection. Mr. Wood admits it worthy of the care, but he says "it is not essential." For those who are satisfied by doing things by halves it is not essential, but for such as will attain perfection it is absolutely necessary. Given abundant water at all times, always keeping the bed well supplied from April to the end of September, with ample, though distant shade, and you will of a surety secure fine healthy plants and well flowered. Established clumps of these I have had under the conditions I have described grow fully 2 feet high, and invariably two flowers on each spike, not in ones or twos, but scores. I have frequently seen a few clusters of these when only half cared for, the leaves more yellowish than anything else, with the margins and tips brown; these are the sure evidences of half growing them, coupled with insufficient water supply. It may not by some be regarded as essential in the culture of Lilies to sink tubs for them to grow in, or to have 4 feet deep of soil between sandstone blocks for growing Hellebores; elaborate preparations these, but can those ordinarily grown compare with such as these? Certainly not. Therefore to those who would grow this chaste and lovely *Cypripedium* for its real worth, I would say, do it justice, for the results will be satisfying ever after. Remember, too, the cost of preparation is rarely other than primary.—E. J.

— I have succeeded very well with this hardy Orchid in the following manner: I took out the natural soil to a depth of about 18 inches, putting 4 inches of drainage at the bottom with some fibrous material on it so as to perfectly ensure a free passage for moisture. Slates were put round the sides, and the hole filled up to within 4 inches of the top with a compost of Orchid peat in lumps about the size of a walnut, with a little leaf soil and small pieces of brick rubble. About an inch of space was left for a surfacing of Moss after planting, which was done in March.

The position chosen was the north side of a building well sheltered from cold winds, but open to the morning sun, and not otherwise shaded. The advantage of this mode of planting is that any amount of water can be poured into the roots without danger of the soil getting sour, and I do not think that there is any prospect of inducing this Lady's Slipper to bloom well, unless it has an abundance of moisture when growing. The mulch of Moss, which under such treatment keeps green, helps to retain moisture, and keeps the compost from too acutely feeling the influence of heavy rains in winter. This plant grows, I believe, naturally in boggy places, but we cannot always accurately imitate natural conditions, and without some provision for the free passage of water from the roots, I doubt if this charming hardy flower could be made to remain in good health in this country. On raising the Moss I find that the new roots run along under it, looking white and strong, and unless new roots are made annually from the crown, the plants decline in vigour.—J. C. B.

SHORT NOTES.—ORCHIDS.

Cœlogyne Lowi, perhaps more correctly known as *C. asperata*, was a short time ago very fine at Burford Lodge. The plant was bearing several long spikes of its showy and handsome flowers, which are cream-coloured in the sepals and petals, the lip in addition being marked with yellowish brown. It is a free-growing plant, but it requires a great deal of heat and moisture.—W. H. G.

Catasetum Bungeirothi.—I was very pleased to see a plant of this doing well in Mr. Raphael's garden at Englefield Green. Mr. Swan showed me the dates on which the large ivory-white blooms were produced alternately with the smaller and less conspicuous ones which are recognised as the female flowers. I was not aware before that both forms were produced upon the same plant. Has any reader of THE GARDEN seen the two forms of flowers on the same spike?—W. H. G.

Treatment of Dendrobium capillipes.—This plant, as far as I can judge, seems to require less heat than most *Dendrobiums*. I treated it in the same way as *D. nobile*, viz., dried it off, and when the flower-buds showed themselves hung it up in the stove, with the result that the flowers when about half formed damped off. Thinking I had made a mistake in the treatment of it, I put it in the *Odontoglossum* house, where it is now making numerous fresh bulbs. I should be glad to know if any of your readers have had similar experience to mine with this plant.—W. C. ATKINSON.

Cypripedium Druryi.—This is a beautiful species which hitherto has not afforded much variety. The flowers are yellow, with a black band running through the centre of the sepals and petals. It is quite a departure in colour from nearly all the other known species, and, coming as it does from the Travancore Hills, it is a long way removed from any other known species of the genus. I am under the impression that careful research will reward some one for his trouble. The one thing which all growers object to in this plant is its shyness to bloom, but as I suppose all the plants at present in this country have come from the same stock, it will account for this. It is now flowering with Mr. May at Cheam Park.—W. H. G.

Thunia ionophlebia.—This plant is now very fine in Mr. Goodhart's garden at Langley Park, Beckenham; it grows something in the way of *T. Marshalli*, and the head of flowers is very large, the blooms individually measuring nearly 6 inches across. They are spreading, the sepals and petals being pure white; lip large, forming a long tube, with a spreading limb; this is white outside, with no markings, but within it is streaked with radiating lines of lilac, the centre being ornamented with fringed lines of yellow. The size of the individual blooms and the large head of flowers render this a very showy species. The plants to be blooming so early must have been started into growth early in the season, and if some were kept until a later date it would afford a long season of flowering.—W. H. G.

Lælia flammea.—This is just now a very conspicuous object in The Woodlands collection, Streatham;

it is a Veitchian hybrid between *L. cinnabarina* and *L. Pilcheri*, the latter itself a hybrid obtained by Mr. Dominy some years ago. The plant of *flammea* is somewhat in the way of *L. cinnabarina* in growth, but less robust; the scape is erect, bearing from six to twelve flowers, each about 4 inches across; sepals and petals spreading, nearly equal, tawny orange-yellow in front, suffused with reddish purple at the back; lip three-lobed, the side lobes tawny orange without, the interior middle lobe reddish purple and much fringed; this portion of the flower is nearly always curled over the edges, thus hiding the beauty of the flower, which if the lip did but expand would produce a beautiful effect. It requires the heat of the intermediate house.—W. H. G.

THE DELL, EGHAM.

THE outdoor gardens are just now very beautiful. The choice trees and shrubs dotted over the lawn are, I think, somewhat too thickly planted, and in another ten years will require careful thinning out. The *Rhododendrons* are just coming into bloom, every branch apparently being furnished with a bud, and Mr. Ballantyne assured me they were much finer this season than ever they have been; indeed it would seem impossible for them to be finer. There is to be here one of the finest rock gardens round London, for on one side behind the shrubberies a series of rocks and glens have recently been finished by Mr. Pulham. This, after the plants have become established, will, I hope, present an exquisite picture, whilst the trickling water will afford a nice change. The water tower is one of the most exquisitely finished pieces of workmanship which I have yet seen. It is not a pretentious structure, but a round tower of small proportions, with the apparent age of centuries upon it.

PLANT HOUSES.—The plants in the houses are also in the best of health. The *Dendrobiums* have just passed their best, but the *Cattleyas* are, and will be for some weeks, superb. Nearly all the *C. Trianae* are past, so, too, are the majority of the *C. Lawrenceana*, but quantities of *C. Mendeli* and *C. Mossiae* are opening their flowers. *Lælia purpurata* is also very fine. One plant I noticed here which is unique is *Lælia bella*. This is said to be the very finest of the Veitchian hybrids, and I hope Mr. Ballantyne will let me know if he has a plant flower, as it is one which I have never seen. *Oncidium*, *Odontoglossum*, *Masdevallias*, and, in fact, everything with the exception of the *Phalænopsis* are looking well. With the *Phalænopsis* there would appear to be some mystery, as they grow and root well enough, but in the autumn the leaves begin to get blotched and the sap begins to exude from the under side, leaving the plant with a margined border of yellow round the leaf, and giving the appearance of thrips; whereas no such insects appear to have visited them. This is the most perplexing state of affairs which I have seen, and it is one on which I am utterly unable to form an opinion, never having seen anything like it before. Can any of the readers of THE GARDEN account for this in any way, or has anyone experienced anything like this among *Phalænopsis*? The peculiarity is that the plants grow well, and not until after the leaves have become fully formed or nearly so, is there any sign of the fatal drawback. I may note here that Mr. Ballantyne grows almost all his Orchids associated with stove plants, of which many grand specimens exist, thus proving that the best collections can so be kept and maintained in perfect health. It was under the same treatment that I learnt to grow Orchids forty years ago, and under these conditions I imagine a much better atmosphere can be maintained than when Orchids are the sole occupants of a house.

Some people object to so grow their Orchids upon the plea of the excessive care necessary to keep down insect life, but I think there cannot be much felt in this respect at The Dell, as I am told that a moderate use of the *Thanatophore* keeps everything right in this respect, and certainly the whole collection appeared exceedingly clean and free from insect enemies.
W. H. G.

ORCHARD AND FRUIT GARDEN.

PEAR MARIE LOUISE D'UCCLE.

It is more than gratifying to be able to figure this dish of Pears, composed of fruit grown at Armagh, in the north of Ireland, for not only does it show that the sister island may compete favourably, but also that this particular variety has a fine constitution. Our very old friend Marie Louise, like Royal George Peach and Green Gage Plum, is a front row fruit, which may be approached, but certainly not surpassed; consequently, its offspring should be good. It is not, however, to my mind nearly so rich and buttery as the parent, but this is no solitary instance of a beautiful mother eclipsing her children. It is, nevertheless, very handsome, most excellent, and worthy of general cultivation. Marie Louise d'Uccle was raised by a M. Gambier of Uccle, a small village near Brussels, in 1840, was introduced into England some fifteen years later, and for the time has made more than average progress.

The fruit in some respects takes the character of its parent, is rather large, pyriform, and marked with pale cinnamon-coloured dots, so plentiful on Marie Louise gathered from bush or standard. Stalk an inch long, stout, incurved, and inserted on the end of the fruit by the side of a fleshy lip, a characteristic unfortunately not shown in the engraving. Eye large and open, with long leafy segments set in a deep depression. Flesh fine grained, buttery, and melting, but as grown here on a wall not so rich as that of the parent. As a counterpoise to this, the tree grows more freely on the Quince stock, making a very handsome pyramid, and being less free-flowering, is well adapted for extension training where flower thinning cannot be attempted. It is, moreover, very hardy, bearing freely and regularly on east walls, bushes, pyramids, and standards—so freely, indeed, that experts at the great conference held at Chiswick in 1883 very strongly recommended it for market. Dr. Ball says it is a Pear of the highest quality, ripe from the middle of October to the beginning of November, and Mr. Rivers in a lengthy description puts it down as large, melting and rich, hardy and excellent, succeeding on the Quince, and generally bearing when others less hardy do not. Good on a wall or as an espalier. As a standard on the Pear stock likely to be a useful market Pear; therefore good for the orchard. From these remarks and opinions, readers will gather that the quality of Marie Louise d'Uccle, although excellent, does not quite equal that of the parent, but being so hardy and free on the Quince or Pear, it may succeed where the

free-flowering Marie Louise fails or requires most careful culture and protection.

W. C.

COMPOSTS FOR VINE BORDERS.

(THOMSON ON THE VINE.)

As one who has written a good few chapters on the Vine in *THE GARDEN*, wherein certain practices, which I still believe to be correct are recommended, but which are now condemned as absurdities and "common mistakes" by no less an authority than Mr. Thomson, in his last edition on the Vine, just published, I feel bound to refer to the matter here, not alone for the above reason, but because I think the new departure taken by Mr. Thomson should not be allowed to pass by Grape growers without question.

I shall be greatly surprised, indeed, if Mr. Thomson's new chapter on "composts" does not come as a staggerer to those who have hitherto been asked to accept the contents of all his other nine editions as the incontestable

ing, readers and those who have hitherto pinned their faith to Mr. Thomson's Vine compost will be astonished to find the bones, horn shavings, and horse manure dropped out bodily without any explanation, and a paragraph inserted setting forth that "the reason why many Vines have failed to be fruitful in a few years after planting must be sought for in the *absurd* materials used in making up the borders," and among the materials condemned are the bones, proved to be correct in the other nine editions, but now described as "another not uncommon mistake," as "of little or no value," and as turning out of the soil thirty years after as whole as when put in and not a root near them. Horse droppings, which the late prize-taker, Mr. Henderson, of Cole Orton, told me he had used with uniform success for forty years, and which are "proved correct" in Mr. Thomson's former editions, at the rate of one cartload to ten of loam, are in the new edition classed among the absurd materials, and in his circulars as "very dangerous." Readers may please themselves which of the diametrically opposite versions of our author's proved experiences they believe, but he will have to write as many more editions as he has written before he will convince Grape growers of experience, including Barron, p. 32, that bones are different from what they used to be or what he now says they are, while it is certain the author of "The Grape Vine" has been the greatest sinner himself in committing the "mistakes" he describes, and that he has caused many others to sin also in the same way. The substitute he proposes for bones and horn shavings, &c., is half a hundredweight of his Vine, plant, and vegetable manure to every load of soil, and 3 lbs. to every square surface yard after the second year as a top-dressing. The latter I should not object to, but rather than apply the Vine and plant manure or any other concentrated fertiliser of which I did not know the nature by the ton to newly-formed deep Vine borders at the mere recommendation of the vendors, I would do without them for ever. Applying quick-acting manures, such as are now commonly sold, and all more or less alike, wholesale to Vine borders is next door to the carrion border, if not worse. And there is another consideration. All these modern quick-acting fertilisers are based upon an analysis of the constituents of plants, or ought to be, and it is now well known that hardly any two plants require the same food, or at least the same proportions; hence it follows that a manure to suit Vines, plants, and vegetables can only be approximately compounded, and may aptly be compared to a food mixture concocted to suit a dog and a sheep or a cat and a rabbit. For example, here are the proportions, omitting fractions, of the principal constituents required by the Vine, Pine, and Asparagus:—

Vine	34	7	6	35	19
Pine	19	0	6	21	0
Asparagus	6	34	3	4	18

The above include the main substances required by plants, and of which artificial manures, to be useful, must be mainly composed as well as balanced in the right proportions, and from which readers can draw their own conclusions. The above numbers represent respectively potash, soda, magnesia, lime, and phosphoric acid. "If," as an expert has written, "in the mixture there is more of one than is wanted, that surplus is wasted." Apply this maxim to the above. It is the realisation of these important facts which now influences farmers so much, and which has led, especially in Scotland, to farmers buying the separate ingredients and mixing their own fertilisers at home. In manures recommended for a variety



Pear Marie Louise d'Uccle grown on a wall. Engraved for *THE GARDEN* from photograph sent by Mr. J. McWalters, Armagh, Ireland.

experience of the author; nor will they relish being told that they have up till now been perpetrating "common" blunders of practice at anyone's bidding, or being expected to jump without hesitation at new practices that may be repudiated, like the others, as new editions appear and when too late. To all the editions of "The Grape Vine," up to the ninth, I believe, the preface to the first edition has been appended, and in that preface the author states that "all he recommends he has, in his own practice, proved to be correct, and can do it with confidence." Among the things proved to be correct are the materials recommended under the head of "Composts suitable for Vines," and which include "4 cwt. of broken bones, about 1 inch square," to every ten carts of soil, which compost the author guarantees on his experience, in addition to the assurance in the preface "will form a safe and fruitful Vine border," and the "experience" must extend over nearly 40 years, and corresponds with other people's as regards the bones. In the last edition, however, just published, under the same head-

of plants it is therefore sheer waste to apply such by the ton wholesale to any one subject that can only appropriate its own share of the elements of which it is composed. Beware of manures about which there is any mystery. One of the best known vendors to-day is an apothecary, pure and simple, who takes a pleasure annually in giving a list of the ingredients and their proportions of which his manures are composed to show his customers that it is in conformity with the dictum of the best authorities on the subject. Most of the garden artificial fertilisers are good and useful for top dressing, but from their very nature and composition they are not a substitute for crushed half-inch bones mixed with the dust which dissolve slowly and last as long as the border without waste; whereas artificial fertilisers, which are mainly composed of dissolved bones, decompose rapidly, and are practically lost, or become inert, or are washed out of the soil into the drains. Moreover, the experience of any single practitioner is of little value to growers generally, because the effect of any manure depends largely upon the nature of the soil to which it is applied, and the practice of recommending a given quantity of any manure under all sorts of conditions without regard to soil is a purely rule-of-thumb one now condemned by the most eminent chemists. In dissolved bones the excess of vitriol often used to quicken their action has lately attracted attention. It is cheap, and it is now more than suspected to be very injurious to some crops. The inexplicable occurrence of "finger and toe" in Turnips, for which artificial manures are strongly recommended, is, as well as several other diseases, attributed to the vitriol. Artificial manures are in their infancy yet, and should be cautiously applied, and only for short periods at a time in the form of simple dressings. In conclusion, I may add that I agree with the main principles laid down by Mr. Thomson in his earlier editions, and have added the three main editions to the garden library here as they came out, but the last is too much of the "jump-as-I-tell-you" style for me and others, and has extinguished confidence in the experience plea—in the compost question, at least. Vendors of manures may describe them as they please themselves, and gardeners may believe as much or as little as they like when using their mixtures, but when we are asked to repudiate past practices that have been proved in hundreds of instances, and to discard materials of which we know both the nature and the value in order to substitute something of which we know nothing but what the manufacturer chooses to tell us, while acknowledging mistakes that were once advocated with even greater confidence than the substitute, it is quite another matter, and, besides, is an innovation in horticultural teaching that cannot be too severely condemned. It is just the same as if some professor of medicine at a university, instead of teaching sound principles, was to start all his students off with two or three boxes of pills in their pockets for all sorts of diseases under all sorts of conditions. The faculty have, however, a method of dealing with teachers of that kind which prevents anything of the kind happening.

With regard to bones and horn shavings, it cannot be too much impressed upon both gardeners and farmers that their effect in permanently improving the quality of soils is established beyond all dispute, and for the Grape Vine there is probably no manure that can be applied so safely and with such certain effect as bones and horn shavings combined. Half-inch bones from the mill have always much dust and small amongst them, and when that is not suffi-

cient, more dust can easily be added to provide an immediate supply of plant food while the larger bones are decomposing. Sealed up in a lump of clay, a bone will keep a good while, but in an open pervious Vine border the lumps begin to decay almost immediately, and whole bones lying near the surface of the soil may be rubbed to fine powder between the fingers a year or two after being laid down. Horn shavings, according to analysts, supply the same elements as flesh and blood manures (carrion), but in a safe and slowly decomposing form. Hence, no doubt, why Vine growers recommend horn shavings so strongly—Barron particularly so, both for borders and for renovating old borders. It must not be forgotten in regard to carrion borders, so strongly recommended by Roberts years ago, that the carrion *did* for a while produce extraordinary vigour and great crops of Grapes. It was not the kind of food that did the mischief, but the wholesale way in which it was applied. There is no objection whatever to using carrion, provided it is mixed judiciously with the soil. An artificial manure consisting mainly of bones produces almost exactly the same condition of things as carrion does when added in excess to the soil, because they both consist of the same elements. The italics are mine.

J. S. W.

THE FRUIT PROSPECTS.

I AM not about to describe the condition of the fruit crops, because it is yet too early, and I have no doubt some who have previously taken a sanguine view of these prospects are now wishing they had waited. The fact is fruit germs have during the past week or ten days fallen terribly, so much so, in fact, that myriads of Pear and Plum trees have, so far as is discernible, nothing but leaves to comfort the growers, and scant comfort do those afford. I have never seen such a slaughter of the innocents in fruit gardens as has been evidenced this season. One of our most distinguished of Middlesex market growers said the other day that he liked to see the ground strewn with fruit germs; it was evidence that those left on the trees were doing well. Very likely it is so when any are left, but the difficulty I experience is in the finding. I am not going to prophesy about the prospects of Pears, Plums, or other stone fruits; it is too early, bad as things look. When the fruits left on the trees do swell we may see them in respectable plenty, but at present there is exceeding difficulty in finding any. As to Apples, it is too early to write at all, except to say that whilst bloom has been thin enough on some trees, there has been plenty on others; but all the same it has not been a rich-coloured, pleasing-looking bloom. It may prove fertile—I earnestly hope it may—but I have seen plenty of seasons when the bloom has borne a much brighter and stouter look than it has this year. However, we shall be wiser in a week or so for what is not set will have fallen. A pessimistic market circular is a serious document, and one recently issued respecting fruit prospects intimates that in view of the inevitable demand for jam-making and the comparative lightness of the crop, prices may be expected to rule high. Very good news for those who have fruit, but poor consolation to those who have none. If I am to judge by very local appearances, there will be plenty of Gooseberries and Currants, both black and red. Some bushes never looked better furnished. Still I hear of gardens in which there is little of either of these fruits, and where there are no bush fruits and little top fruit, the grower had better grub up his trees and bushes, and grow and sell Potatoes at £3 per ton. If we should get a fairly good Apple crop, for it can hardly be a generally good one in any case, much will be done to redeem the reputation of the year, whilst the one hardy fruit crop is worth all that comes from stone fruits and Pears conjointly. Apples are not of much value for jam-making, except as furnishing pulp in scarce seasons, but the best of Apple pulp is a poor substitute for the

genuine article at any time. No doubt we shall have a good Strawberry bloom, as we almost always do, whilst Currants are apparently profuse, and early Raspberries have not broken so strongly as usual, and promise to be unusually late. Still a few warm days bring along the bloom very fast, and the period of maturation of the fruit is, on the whole, short as compared with harder fruits. If our top or tree fruits were as certain croppers as bush fruits, we should rarely have cause to complain. It is no matter for surprise that bush fruits are much more largely grown than tree fruits; indeed, without the former hardy fruit culture would often be in poor case in this country where a really good top crop seems to be the product of about five years average. It is easy to plant and to water, but from other than human agency must come the increase.—A. D.

—In Scotland, after one of the mildest winters within the recollection of some of the oldest cultivators with whom I am acquainted, it was during the early part of March believed that all kinds of hardy fruits would flower so early that it was scarcely possible they could escape destruction. Cold north and easterly winds, however, setting in at such an opportune time speedily set our fears at rest, weeks passing without any apparent advancement being noticed in the opening of the blossoms (Apricots excepted). This sudden change removed the apprehensions entertained, and now the middle of May is reached we have promise of Cherries (which are very abundantly set), Plums of the hardier kinds (Victoria and Jefferson are set in great abundance), and Apples in the classes well known for their hardiness promise to be an abundant crop. Pears are not plentiful, except kinds which are very hardy and of little value. Apricots never promised better, but the long course of cold easterly winds has reduced them severely. Bush fruits are very abundant. It is worthy of remark that by far the best appearance of fruits is on trees and bushes which have been lifted and replanted or that had been severely root-pruned some years ago. Trees on elevated positions are in very promising condition, and in low-lying localities (from such as where I write) all trees should stand well above the ground-level. Well did our ancestors know this, as in most of the old orchards in the district it will be found that fruit trees have been planted on ridges, which allowed the rains to fall outwards to furrows which drained away the superabundant water. Flowering shrubs of all kinds are very heavily laden with bloom, even those which are cut in annually to keep them within the space allotted for them being full of flowers.—STIRLING-SHIRE.

Disbudding Peaches.—We hear a deal as to Peach tree management, and much caution is administered as to the thinning of buds, wood, and fruit, and management of roots. This is undoubtedly sound, judicious, and intelligibly given, but for many years I have been under the impression that too much labour is expended on the trees, considering the returns received from them. I also believe that much of the manipulation so skillfully practised might be avoided and be reduced to great simplicity, and thus the appearance of the trees generally be improved. By disbudding once for all as soon as the wood-buds are perceived the tree receives no check, and the flower-buds expand quite as well, and, I think, set better. Thinning the flower-buds is greatly in their favour. As to bud and fruit dropping, I think much of this is caused by the trees being too severely taxed, and liable to suffer exhaustion by extra stress put on them. The general system of allowing shoots to grow some length and then of thinning them off appears to me an unnatural practice. I leave at the outset a wood-bud to draw up nourishment to the bearing shoot and another to bear fruit next season. The latter is neatly tied alongside of its predecessor, and is stopped when at the exact length where it is to be cut back. The leader of the fruiting shoot is stopped at the fourth leaf and afterwards treated much as one would a shoot on a Vine. We are recommended to rub off all the buds except one on Vines as soon as they are formed.

Why should we not do so with Peaches? I am well supported in my opinions by one of the best known and successful cultivators in the kingdom, who says his best and strongest set of Peaches is on shoots which have no wood-buds except the leaders.—M. T.

Caterpillars on fruit trees.—At a late council meeting of the Royal Agricultural Society a lengthy report was read from Miss Ormerod on the imminent danger of the bloom of fruit trees being destroyed again this spring by the hordes of caterpillars now rapidly coming into existence owing to the singularly mild winter not having destroyed the winter moths that propagate them. Allusion was made to an experimental committee lately formed at Evesham, which had decided on recommending the use of arsenic poison in the form of Paris green or London purple. This thrown on the buds of the trees in spray had produced a good effect in America, and, according to Mr. Whitehead, if the Americans had not adopted poisonous solutions, they would have had no crops at all. Mr. Whitehead also stated that there were swarms of these caterpillars about fifteen or sixteen years ago, but that their ravages subsequently lessened, until during the past three or four seasons they had increased again. In reply to questions put by the Earl of Ravensworth and Mr. Hamond, he said he did not think there was the least danger of birds being killed by the application of poisonous solutions to fruit trees, but it would, of course, be necessary that live stock should be prevented from grazing underneath the trees to which they had been applied. He recommended that Paris green should be given to Apple trees in the proportion of 1 oz. to 20 gallons of water, and of 1 oz. to 8 or 10 gallons of water to Plum trees.

A new enemy to Gooseberries.—I fear I cannot comfort Mr. Iggulden in relation to his assumed new enemy to Gooseberries when I tell him that mine have suffered here from the same cause for several years. I have not many bushes, but they include both Lancashire Lad and Crown Bob, the favourite sorts in this district for market work. The bushes are some eight or nine years old, and, finding the soil strong, grew almost coarsely. Every spring, however, I found the "snuffs" or calyxes of the fruits disappear, and, of course, the fruits followed suit. During the past winter I found it needful to lift all the bushes and remove them farther back from the walk. They came up with good roots, but without much soil, as it was not of an adhesive nature. Still, not only have the bushes lived, but they have all broken into leaf well and fruited freely. I had not taken stock of the results until I read Mr. Iggulden's note, when I at once inspected the bushes, and found, to my surprise, that whilst there was a little evidence of the absence of the calyx and the decadence of the fruit, fully two-thirds had the calyxes well developed and the fruits were large and healthy. Now, I had attributed the previous defects in the fruits to the birds picking off the flowers from the fruit germs for the sake of insects or for food. The condition of the bulk of the fruits this year entirely disabuses me of that idea, and I rather come to the conclusion that the loss of the flowers was due to imperfect fertilisation, or from imperfect formation in the bud stage, through the roots being in unsuitable soil. If the results of the transplanting of my rather old bushes do not point to that conclusion, then I am at a loss to tell why so admirable a result should have followed from lifting and replanting.—A. D.

I see (p. 429) Mr. W. Iggulden draws your attention to "a new Gooseberry enemy" that eats away, before being fully developed, the vital organs. I enclose four leaves as specimens of the manner the foliage is affected by another Gooseberry enemy in numberless instances around here. I cannot say this is new, but a gardener here tells me that during the last quarter of a century he has never seen the attack so bad. The young fruit beginning to develop is similarly affected. Evidently it is fungoid growth, as under the magnifying-glass it shows no sign of insect life, but, like all fungi, it spreads rapidly and firmly takes pos-

session of leaf and berry, so as to immediately arrest sap circulation, and probably to ruin the chances of a crop. Would you kindly say what this Gooseberry enemy is, and the remedy, or if there is none, the best precaution against future attacks?—W. J. MURPHY, *Chonmel*.

* * The fungus on Gooseberry leaves is *Æcidium grossulariæ*. It is in some seasons very abundant, at other times somewhat rare.—W. G. S.

NECTARINES CRACKING.

I ENCLOSE some fruits of Lord Napier Nectarine which are badly cracked. The thing is new to me, and I would be glad to know the cause. The tree, growing on a front trellis, is in excellent health, and was root-pruned last autumn. About ten days ago I thinned and disbudded, and also pulled off a quantity of surplus fruit. Would a too vigorous flow of sap combined with dull weather be the cause, and perhaps a little too much syringing? I am not forcing the fruit at all, as it is not required till the middle of August. The Nectarines on the back wall are not cracking, but the trees are not so vigorous. The tree has abundance of fruit on it, so I can well spare the few that are cracking, but I am anxious to know the cause.—J. R.

* * In answer to the above, the Nectarines the size of Walnuts are of a good colour and were just commencing the formation of their stones, a fair proof that the tree is in good condition. The thinning and disbudding may have produced a slight check, which would predispose them to cracking, but the real cause is an excessive supply of moisture in the close atmosphere or more likely direct from the syringe, especially if the weather has been cold and unfavourable to free ventilation. Root-watering, too, immediately before or after thinning and disbudding might induce a flush of sap, or watering and syringing combined may have produced the mischief. A sure and certain preventive remedy consists in a discontinuance of the direct use of the syringe for a time, certainly during dull weather when the house cannot have plenty of air, and you may be less free with the damping can at night, but avoid the other extreme, otherwise your tree may be attacked by red spider. The race of superb new Nectarines raised by the late Mr. Rivers, of Sawbridgeworth, including Lord Napier, the variety in question, have a very rich and intense flavour derived from the Stanwick or Syrian, so proverbial for cracking that it is now seldom met with in cultivation. The cross with the English Nectarines has, however, so completely modified this defect that Lord Napier is as safe as an Elrue, always provided the syringe is judiciously used and a stagnant atmosphere is avoided by liberal ventilation. Here we grow Lord Napier, Albert Victor, and Stanwick Elrue side by side in a bright, lofty house, where they would crack and become rusty if regularly moistened, but by withholding the syringe from the time the fruits commence the last swelling they ripen perfectly, and the scabby appearance so often met with in the tender-skinned Napier is avoided. In addition to the cracks, one or two fruits now before me show large brown patches the size of a shilling, a convincing proof that the cuticle has been destroyed by direct syringing in a close house when the sun was shining upon it.—W. COLEMAN.

Melons in bad condition.—What is the cause of my Melons going like enclosed? They were perfectly healthy in a manure frame till ten days ago, when they were taken into a three-quarter-span Melon house. The roots are perfectly healthy. I have also had two other batches go off, and have had to replant twice, and in some cases three times; the young leaves do not always go off first, but if they do not go off they stand still a long time. I may add that some plants received from a friend also went off. Some I have planted out in pits are doing well. I do not damp the house down with manure water.—A. B.

* * The Melon plant and two or three leaves referred to in letter have been injured by confinement in an impure atmosphere, but in the absence

of details as to internal management, it is quite impossible for a stranger to define the cause with any degree of certainty. The leaves have all the appearance of having been excessively fumigated with bad tobacco paper, of having been kept too close in an atmosphere overcharged with ammonia from a manure bed or rank linings, of having been poisoned by the ingress of smoke or uncondensed carbon from a faulty flue, or from the pipes or woodwork having been painted with some deleterious materials. The cause or causes, in fact, may be so numerous, that it would be quite unsafe for an absent expert to express a decided opinion. One thing, however, is quite certain; their unhealthy and dying condition is due to some local cause, as fellow plants in other structures are healthy and growing satisfactorily. Examine every part of the house, the bed, and the water used for syringing purposes, and failing in the attempt to find a cause, make a complete clearance, cleanse the structure, and start afresh with new materials. If fermenting material is used for producing bottom-heat, pay particular attention to its working and preparation, as it is by no means improbable that some injurious gases in the existing bed may be causing the mischief. Turn out young healthy plants in a sweet bottom-heat of 80°, shade for a day or two, then give them full sun, avoid wetting their leaves, but damp the bed and walls with pure tepid water, give a chink of air at 70°, run up to 80° with an increase, close in time to touch 90°, and pay particular attention to night ventilation.—W. COLEMAN.

RADIATION.

"RADIATION," remarks a modern writer on horticultural matters, "is one of the greatest enemies of vegetation. Radiation takes place with great effect in March, April, and May, when the days are hot and the nights cloudless and cold. The heat taken in by the plants by day radiates or goes forth by night, when the temperature is often only 4° or 5° above freezing point. Thus the plant loses the day heat, amounting to some degrees, when the night is clear, owing to the absence of clouds, which are not only the anti-radiators of the world, but are also radiators of heat towards the earth." Recently day and night temperatures have been very low, accompanied by easterly and northerly winds and frosty nights, and though the temperature has been more uniform than when the sun shines out brightly by day, we have yet had warm days and very cold nights, filling the minds of hardy fruit cultivators with grave apprehension as to the effect on the fruit crops. We are informed that the greatest radiation takes place when the sky is clear and the wind is north or north-east, and that the harm to vegetation by April frosts is in consequence of the frost that follows excessive radiation when the sky is cloudless and the air keen.

It is to lessen the injurious effects of this radiation that gardeners cover up their wall fruit trees. Some use a small mesh net, which admits insects and light and air to the blossoms, and leave it on day and night. This is found in practice the best way to secure a crop. It is certain that many things of a tender character need protection both in winter and spring to prevent as far as possible their giving off the heat received by day; hence it is that trees on a south wall are in greater danger in winter and spring than on a north one. Fruit blossoms on a north wall often escape without protection when the unprotected on a south wall are destroyed. One fruit grower remarks, "The espalier Apple blossoms in my garden often suffer from their early appearance when the high standards in the orchard close by escape, because they have little day heat to give out when the night comes on; in a word, they come out when the danger is over, or being fully exposed take in less heat by day." The inference to be drawn from the foregoing is the necessity of covering south and south-west Peach walls in spring, and especially those planted with Peaches.

When at Gunnersbury Park Gardens a short time ago I noticed that Mr. G. Reynolds had covered his westerly Peach walls with netting of a three-quarter-inch or so mesh, two thicknesses of it being em-

ployed, and this was kept down night and day. There was ample space for the admission of light and air, and also of insects, and Mr. Reynolds said that this was the best covering he could employ. He gets good crops of fruit, the wall being lofty and planted with standard trees, but as there was no necessity for the covering to come much below half way down the wall, plenty of light was admitted from beneath.

R. D.

ROSE GARDEN.

YELLOW ROSES.

AMONG the various colours now found in Roses it is questionable whether any are more popular than yellow. Those of a pinkish shade, such as La France and Queen of Queens, generally have plenty of admirers, but with the majority of Rose lovers, and ladies especially, I have always found blooms that possess a yellow tint, no matter in what form or to what extent, to be the most appreciated. To corroborate this, we need no other evidence than that of the *Maréchal Niel*. This is undoubtedly the finest yellow Rose, so far as shape is concerned at any rate, in existence, and wherever seen at its best it never fails to call forth admiration. Too frequently, however, the colour of this charming Rose is deficient; in other words, it is paler than it should be. At the recent Daffodil conference, held in the gardens of the Royal Horticultural Society at Chiswick, some beautifully-grown examples were exhibited, the blooms being massive in form and perfect in shape, but the colour might have been a tinge deeper. Whilst scrutinising these, I overheard a bystander ask his companion, presumably a rosarian, how the colour could be made deeper. "By shading," was the reply. Now the question is, Will shading produce a deeper yellow in *Maréchal Niel* Roses? It may, and it may not; but so far as my experience is concerned I must say that it will not. At one time and another I have grown and cut some thousands of blooms of *Maréchal Niel* Rose both indoors and out, and have invariably noticed that the best coloured samples were procured from the most exposed positions. Take well-formed blooms from a tree growing on a south wall in the open air, for instance, fully exposed to the summer's sun. Are these deficient in colour? By no means, for compared with the majority of those grown under glass, the colour is far more intense. This being the case—and I think few rosarians who have seen good outdoor blooms will say otherwise—how is it possible for shading to deepen the colour of those grown indoors?

The Tea-scented kinds are richest in the various shades of yellow. Next to the *Maréchal Niel*, referred to above, the well known *Gloire de Dijon*, may be taken as a popular type. Much has been said and written in favour of this Rose, but it is worthy of it. As everybody interested in Roses knows, it is a vigorous grower, and one of the best yellow kinds extant for general purposes. The flowers may be described as a buff-yellow, shaded with salmon and orange in some cases. Madame Falcot is a beautiful Rose with fine saffron-yellow blooms, suitable for pot culture or outdoors. The best coloured flowers of this I ever saw were cut from a tree growing on a wood fence in the south of England. They were remarkably large and of a very rich colour. *Narcisse* is another good variety with fine-shaped blooms of a pale yellow colour, and the same may be said of *Devoniensis*. The last named may not in a strict sense be entitled to a place in this list, since it is more frequently of a creamy colour, although the centre of the blooms is sometimes buff-yellow. Another variety with pale yellow flowers may be found in the *Enfant de Lyon*. The blooms of this are large and of good form, and it should be more frequently seen in collections. *Belle Lyonnaise*, although sometimes tinted with salmon, has a beautiful canary-yellow ground, and so has *Canary*, a variety now seldom seen. *Comtesse de Brossard* is a vigorous growing kind with bright yellow flowers of good form, but it is by no means so extensively grown as it should be. Another beautiful variety is *Elise Sauvage*, with globular pale yellow blooms, but its

one drawback is its delicate constitution. For producing abundance of lemon-coloured flowers *Mme. Ducher* is, perhaps, as good as any variety in cultivation. The flowers are large and of good form, and the growth of the plant vigorous. *Mme. Margottin* is another vigorous grower, and produces flowers of a beautiful citron-yellow colour, and the same may be said in regard to *Mlle. Cecile Berthod*, which is a very free bloomer. *Mme. Levet*, although tinted, is generally accepted as a yellow Rose, and so is *Mme. Trifle*. Both are strong growers, and given good positions will flower freely. According to my experience, however, *Louise de Savoie* is one of the best yellow Tea-scented Roses, although it is somewhat sparsely grown. The flowers are pale yellow and very sweet-scented, and the plant is, as a rule, a vigorous grower. There are many more Roses of the Tea-scented section that may be described as yellow, and worthy of a place in every garden, such, for instance, as *Mme. Emilie Dupuy*, of which an excellent plate was given in *THE GARDEN* of May 10. *Monsieur Furtado*, *Amazona*, and others. Then, again, *Boule d'Or* has fine golden yellow blooms, but it is unsuitable for outdoor culture, unless in exceptionally favoured spots.

A few good yellows may also be found among the *Noisette* Roses, one of the best of these being *Celine Forestier*. As is generally well known, this is a vigorous grower, comparatively hardy, and well adapted for walls or pillars. The flowers are large and well formed, and of a pale yellow colour with deep centre. If given a place under glass, *Isabella Gray*, a variety now seldom seen, will produce deep yellow flowers in abundance. It is a vigorous grower and of a climbing habit. *Cloth of Gold*, too, although introduced nearly fifty years ago, is another good kind seldom seen. The outer petals of the flower are cream, but the centre is a rich yellow. In growth the plant is moderate and requires but little pruning, or else a very poor crop of flowers will be the result. *Rêve d'Or* is a vigorous grower, and produces deep yellow flowers, while for blooms of a pale yellow there is no better variety than *Lamarque*. This kind will grow and flower freely on a south wall. *Lamarque Jaune* has golden-yellow flowers, but it is not often seen. *Solfaterre* should be grown in every garden where a suitable position is forthcoming. It does well on a south wall, and will produce abundance of pale yellow flowers. *Mme. Caroline Kuster*, again, is a very free-flowering and most beautiful variety. The blooms are pale yellow with deep centres, and, being large and full, are generally seen on the exhibition table. Somewhat similar in colour, but smaller in size, is *Mme. Schultz*, a variety seldom described in catalogues. *Jane Hardy*, too, is somewhat seldom seen, although a variety of good merit, with golden-yellow flowers; and the same with *Le Pactole*, which has cream blooms with yellow centres.

The Austrian Briers may also be included in this selection. There are many varieties of them, but for the most part the colour of them is yellow, although in some instances a reddish hue is discernible. *Harrisoni* is no doubt as good a variety as any, and is worthy of more attention than hitherto has been given it. The flowers are of medium size, but double and rich golden-yellow in colour. It is a very free bloomer, but rather moderate in growth, and should therefore be carefully pruned. *Williams' Double Yellow*, too, is an abundant bloomer, and the same character may be given *Persian Yellow*. None of the Austrian Briers require much pruning, as the bulk of the flowers are produced near to the tips of the shoots, and therefore to cut them in closely would remove all chances of a crop of bloom. They are perfectly hardy, but require to be grown in rather a dry soil.

The Banksian Roses, fully described in *THE GARDEN* of May 10, also produce yellow flowers, and, together with the foregoing, are worthy of universal attention.

C. L.

SHORT NOTES.—ROSES.

Rosa gracilis.—I think it may interest some of your numerous readers to hear that on Saturday, the 10th inst., I gathered a fully-opened bloom of the

old Boursault *Rosa gracilis* from a very old plant growing against the south wall of this house. Since then several more flowers have opened, and to-day there are over a dozen blooms on the same branch. The flowers are perfectly developed, though somewhat paler in colour than is usually the case. I have had some little experience as regards Roses, but I cannot recollect a single instance of such early blooming. —R. DE BLOUAY, *Wimbledon*.

Rose Marechal Niel.—What a glorious Rose this is, and what quantities of flowers it yields! A plant which nearly covers an old conservatory in Mr. Jacob's garden at Cheam Park has been flowering for months. At the time of my visit it had about 500 flowers upon it in various stages, and had every appearance of continuing to flower for a very long time. The plant is in the open border, and I do not think it receives any more sustenance than is given to the outside plants on the same border.—G.

FLOWER GARDEN.

THE MOUTAN OR TREE PÆONY.

THERE are few more beautiful objects when in flower than well-grown examples of these hardy Moutan Pæonies. There are both double and single-flowered varieties; but, generally speaking, those with double blossoms are the most effective, although there is a greater depth of colour in the flowers of the single kinds. In habit and manner of growth both are about equal, and one can only wonder why Tree Pæonies are not oftener met with than they are. The selection of the best spot in the garden for a Tree Pæony is a matter of the greatest importance. It must have an open spot away from the shade of trees, but sheltered from north and east winds, which prevail generally when the plant is making its growth. The latter should be retarded as much as possible, and if in a warm position the Pæony will require attention, otherwise a sharp frost will destroy both growth and bloom. It is often the practice to protect the plants by a movable glass light or a temporary framework covered with muslin or some other material until all the danger of frost is over. Pæonies look best on a lawn not far away from a shrubbery or a group of some sort. Being deciduous, it is important that the Tree varieties should be backed up by Evergreens for the sake of the winter effect. It may be well to state that Moutan Pæonies are not fast-growing subjects. They are admirable plants isolated on Grass or in mixed borders, and their blossoms are wonderfully showy when cut and used in floral decorations if not wanted to last more than one day. For forcing in pots nothing in the way of hardy plants can excel them, provided fair-sized specimens can be had for the purpose. The varieties are now numerous, and of many beautiful shades of colour. The annexed illustration well shows a fine specimen of a white variety in flower in the grounds of Abbotsleigh, near Bristol, and we are indebted to Mrs. Abbott, the owner of the place in question, for the following interesting notes respecting it:—

The white Moutan Pæony, of which I send you a photograph, is 8 feet in height and 12 yards in circumference, and during a period of a quarter of a century it has never failed to produce annually several hundred blooms. Last year the reckoned

number was 275 large, perfect flowers. Some years ago I accidentally found out how to treat this magnificent plant, so as always to ensure, notwithstanding east winds and nipping frosts, a crop of fine blooms. The Moutan Tree Peony is of such a guileless and trusting nature, that in mild springs it is no uncommon thing to see the hard, button-like buds, after they have risen some 6 inches above the tender, young red leaves, suddenly cut down by a night's hard frost, or the still more fatal bitter east wind. Then the poor little buds appear to have dislocated necks, and there is no hope of recovery. Such premature growth means inevitable destruction. The only possible remedy is a severe one; the knife must then be freely used and all the shrivelled shoots cut back at once to the dormant buds. I can speak from experience that this treatment will effectually secure a second crop of blooms

or to grow in semi-wild parts of the garden, for which purpose these *Doronicums* are well adapted, as they not only look natural in such positions, but they can take care of themselves. All the sorts are easily propagated, as they admit of ready increase by division, which may be effected at any time during the winter, or, better still, just as growth commences.—S. D.

WILD FLOWERS IN KENT.

AT perhaps no other time of the year are the Kentish downs and commons of greater interest to the lover of our native wild flowers than during the early weeks of May. The Herb Paris (*P. quadrifolia*) always reminds me when seen in quantity of the American wood Lily (*Trillium*), but, of course, the flowers are not so showy, though quaint

Lathræa has a curious habit of springing up in dense masses, a dozen great flower-stems being sent up so closely together that the soil for 2 feet square is quite upheaved. It bears lifting well. Another pretty wild plant that grows in some quantity in Kent is the pink wood Sorrel (*Oxalis Acetosella purpurea*). It is quite distinct from the typical white, and is, moreover, I have noticed, quite constant under cultivation, so that I consider it a treasure when planted on a stump in the alpine garden.

Whoever has been privileged to see a woodland patched with the native Lily of the Valley will agree with me in saying that the flowers, though not so big, are of a purer white, and have far more grace than those that have undergone the coddling system of forcing.

Two woods here are remarkable for the breadths



A good specimen of a Tree Peony.

just as fine as the first would have been, only developing a month later.

Doronicums.—Although these are considered by some as coarse, they are free-growing plants, and of much value on account of their earliness and the great show they make on a border, the best among them being *D. plantagineum excelsum*, which has big yellow Sunflower-like blooms, that are produced at the ends and top joints of each shoot. It is so hardy that cold weather does not appear to retard or injure the blossoms, which last in full beauty a very long time, as they are self-protecting by closing and opening each night and morn. The next in point of merit to the one above named are *D. austriacum* and *D. caucasicum*, which are of neat, close habit, and good for cutting from

and curious in their construction. It is a pretty plant that I have no difficulty in dealing with if its two requisites, shade and stiff loam, are supplied. The roots run a great length, sending up here and there stout flowering stems. In company with the Herb Paris I noticed quantities of the large-flowered *Cephalanthera*, which, however, usually delights to grow where chalk is abundant, but in the same deep shade and surroundings. The early purple *Orchis* (*O. mascula*) is beautifully in flower, and the rich leaf-markings seem to be all the brighter when the plant is found on chalk. *Lathræa squamaria* (Toothwort) is flowering with unusual freedom at present, a bank that I saw last week being literally carpeted with the flowers which are of nearly every shade, pinky-blue, snow-white, dirty green and yellow. The

of the Lily of the Valley that they contain, and a pretty sight they make. The Guelder Rose (*Viburnum Opulus*) is just bursting into flower. It evidently relishes a warm, chalky bank, where no cold winds can hurt its early buds. Violets, white and blue, cover yards of the woodlands in not a few places. The former is wonderfully luxuriant in certain soils, and is handsome when seen in quantity. *Cardamine pratensis* fl.-pl. (the double Cuckoo Flower) would seem to be on the increase, for one meets it every here and there throughout the country. A good patch of it in the garden border is pretty and attractive. *Saxifraga granulata* occurs in broad patches on the lawn at Holwood, and when in full flower is a plant of great beauty. Occasionally, but rarely, I have noticed the double-flowered form in a wild state. The

Anemones are nearly over, their place being well filled by the Bluebell, which, however, in this district occasionally appears in white patches—a nice contrast to the typical plant. Wild Strawberries are very abundant, as one would only expect from the amount of reclaimed Strawberry land on almost every fair-sized estate. It is quite amazing how soon, when left to itself, the Paxton Strawberry will revert to the commonest wild type.

A. D. WEBSTER.

THE AURICULA.

WE sometimes hear the old florists remark about the popularity of the Auricula fifty years ago or more, and doubtless they can look back with pleasure to the time when they cultivated the fine varieties in commerce at that time. Up to the time the National Auricula and Primula Society was established for the southern counties, about fifteen years ago, the Auricula was scarcely known in the neighbourhood of London. Spasmodic efforts were made occasionally to get up a little interest in the culture of the old florists' flowers, the Auricula included, but the effort seemed to be much like flogging a dead horse—little or nothing came of it. There has been a good deal of discouragement in the progress of the work, but much to encourage also; and now that the entire Primula family has been included in the work of the society the list of members has very much increased, and the annual exhibitions have been made more attractive to the public. The society has not, in thus extending its efforts over a wider range, departed in any way from the spirit of the early florists, as the show Auricula still holds the highest position in the exhibition schedule, and receives the greatest encouragement from the society. When the society was first established we had to grow and exhibit old varieties that had been in cultivation for a quarter of a century or more, except in the case of a few varieties of moderate merit raised in the north of England and in Scotland. Near London, Mr. Charles Turner, of Slough, still continues to raise a few seedlings and to cultivate a collection. Now amateur growers have taken to the Auricula in considerable numbers, and they probably cultivate the plant better than it was ever grown before. They pursue a more rational system of culture and have better varieties to deal with. I would remark here that the raising of seedling Auriculas is a very slow process, slow at least in regard to producing good varieties. I carefully hybridise the very best varieties, and am thankful if I get one really good variety in every five hundred seedlings raised. The green-edged section seems to be the most difficult to improve further. The noble variety Rev. F. D. Horner (Simonite) has taken the highest position in the south; it won "premium" at the National last year, and again this. Next to it we must place Prince of Greens (Trail), which was awarded "premium" at the Royal Aquarium exhibition. It has also held this honourable position at some of the National shows.

Monarch, (Horner), not yet in commerce must be included in the best six; it has a beautiful green edge, but sometimes develops a little roughness on the margin, and is not so smooth in the white as one would wish. James Hannaford (Simonite) also promises well; it is a distinct green edge with a deep violet-purple body colour. It won first prize in the green-edged class at Manchester. Colonel Taylor (Leigh), raised sixty years ago, has been very fine this year, and was awarded several good prizes. None other of the old varieties are worth growing in this class unless we include Lancashire Hero, which is sometimes green. Some of Mr. Horner's flowers are of great merit, but they are not yet ready to send out.

In grey-edged varieties, George Lightbody (Headley) is still in a high position. Mabel (Douglas) is not quite so high in character, as it was when first exhibited. Marmion (Douglas) was also well shown, and is a distinct good grey-edged variety. Lancashire Hero (Lancashire) is also a good grey. William Brockbank (Mellor) when first exhibited promised well, but it has the bad habit of reflexing, and is useless for exhibition. Mr. Horner has some superb varieties, notably Greyhound, which will go

to the top of the class when they are sent out. In white-edged varieties, Maggie (Horner) promises to be the best in the class. Conservative (Douglas) was shown well by Mr. Sanders, who won first and second with it in the class for white-edged varieties. Acme (Reid) is always to be depended upon; it is a beautiful variety. Mrs. Dodwell (Woodhead), though rough sometimes, was very good in Mr. Henwood's collection. George Rudd (Woodhead) is also thought highly of by Mr. Henwood. Miranda (Horner) and Snowdrift, by the same raiser, won prizes in the seedling classes and promise well, for Mr. Horner's flowers were not quite forward enough this season. In selfs, Heroine (Horner) may fitly head the list; it is the best dark variety. Black Bess (Woodhead) was issued in a modest way without any fuss, but it is the best dark self after Heroine. Mrs. Potts (Barlow) has taken the highest place as the best violet self. Its fault is that the stem is too long, but it may be the parent of a variety with a better habit. Duke of Albany (Douglas) is the darkest self in commerce, but it has a weak flower-stem and the petals are notched, a fault that the florists do not care to overlook. Sapphire (Horner) is much esteemed by those who are not too critical. It has a pale eye, but the colour is very beautiful, and is of the bluest tint of any Auricula. The older selfs are falling hopelessly into the rear. I grow a number of Pizarro (Campbell), but it is seldom good enough to win, and yet it headed the list as the best self about fifteen years ago. Mr. Horner has some beautiful new varieties in selfs, both dark and violet colour, which will certainly revolutionise the class in a few years.

I need not add anything further, except a few seasonable remarks on culture. After the last few years' experience I urge the importance of getting the stock repotted during the present month, and in doing this let me recommend the use of very simple potting material. I was answering a query last night in which an amateur did much damage to his stock of plants by using artificial manure. I do not say that the use of the manure in moderation would have done harm to the plants, but I am not sure that it would have done any good. I think I am right in saying that Mr. Horner does not use any "artificial." I am sure that none are used by me, and I have been fairly successful during the last fifteen years. I have just mixed up our potting soil. It is composed of four parts loam, one leaf-mould, one decayed manure; some sand and pounded charcoal is also used to keep the material open. The plants have become slightly infested with green fly. This has been removed by brushing it off. Any of the woolly aphids which infests the roots is also dislodged. I find it has not been noticed by many growers that woolly aphids (Trama auriculæ) at certain seasons leaves the roots and runs rampant over the leaves, the stages on which the plants are placed, and it also crowds on to the glass roof. The plants when repotted are placed in frames on the north side of a wall or fence. The small offsets have all been repotted, those I mean that were taken off in the autumn. These with care very soon grow into nice flowering plants. There is also great interest in watching the development of seedlings, and it is well to grow on the young plants rapidly, that is, the stock raised from seeds last autumn and in the spring of the present year. Some good growers plant their stock in the open ground, where the young plants speedily become flowering specimens.

J. DOUGLAS.

The Lyre Flower (*Dicentra spectabilis*).—A few big clumps of the Lyre Flower blooming beautifully beneath an overhanging tree exhibit natural grace and beauty such as few other hardy plants can show. There is grace about the foliage, the natural curve of the stems, and the drooping yet singularly contrasting heart-shaped flowers. Rarely are these plants seen in full beauty when grown in pots under glass. The flowers, too, then, especially if produced in heat, are pale and colourless. Here outdoors, even with the rain beating down almost in torrents, the flowers show up in richness of hue, which marks them in the distance as being

effective in colouring. There is excellent reason in growing *Dicentras* under trees, because they do not suffer from late frosts should these prevail. My plants are in a somewhat north-easterly position, but because there are the branches of a large Oak tree over them suffer nothing. As they bloom thus naturally in the comparatively intermediate season between spring and summer they are all the more valuable. Were it desired to use racemes of flowers for vase decoration they may be spared, for cutting does but promote back growth and still further and later flowering. Few fleshy roots divide more readily and more naturally than do those of this *Dicentra*. Every portion of root has its crown, and with but little trouble one big crown may be divided into a dozen. The chief charm of the plant is seen when in robust growth, for in strong soil this will rise to a height of 3 feet and be 3 feet through. Although an herbaceous plant, the foliage endures over a long season, breaking up early. It is a very good plan to afford the crowns the benefit of a flower-pot or other protection at night when frost prevails. The foliage and stems suffer less when they have become well developed.—A. D.

DISPOSING OF SPRING-FLOWERING PLANTS.

THE time of year being at hand for removing spring-flowering plants from the beds in the flower garden, and the manuring and digging of the same for the reception of the summer-flowering plants, a word or two as to the disposition of such plants as Wallflowers, Violets, Primroses, Forget-me-nots, and such like spring-blooming subjects may, therefore, prove useful to those who heretofore were in the habit of consigning them to the rubbish-heap. Instead of doing this I would strongly recommend that all such plants, when taken up to make room for the summer occupants of the beds and borders, should be transferred in masses in close proximity to carriage drives, through the home woods and frequented spots, where should they fail to attract the eye, their fragrance will arrest attention. Thus planted in nooks and corners alongside park and shrubby walks, bright and pleasant surprises will be ensured for another year. Informal patches of bloom met with here and there in quite unexpected places are very telling, and tend to give variety as well as charm to the surroundings. There are scores of objectionable and semi-objectionable pits, ravines, and natural depressions and recesses in steep and sloping banks within view of drives and walks on most estates which, with the exercise of a little forethought and trouble, could be easily converted into really interesting and beautiful places of resort. The judicious distribution of a few dozen logs and butts of trees with the roots upwards, Fir poles or trees with the branches cut off at irregular distances from the main stem in some unused gravel pits or bare ravines, and a little mould scattered amongst them to fill the interstices, and then planted with a variety of hardy Fern, Periwinkle, Ivy, Clematis, Honeysuckle (the last-named three for trailing round and ultimately depending from the previously bare poles), and such like plants would produce an effect little thought of, and would amply repay the trouble and labour involved in the work. Formality and stiffness should be avoided in putting the logs, roots, &c., in position, the object being to give a natural appearance to the whole.

Longford Castle.

H. W. WARD.

Pinks.—As we are promised a special show of Pinks during the summer it will be very interesting to see these favourite flowers once more as they used to be presented in earlier days. But it will be a mistake should the promoters of this Pink exhibition jump to the conclusion that it is only the laced or florists' varieties which are worthy of cultivation. The taste for these forms has, perhaps, become lessened; indeed in thousands of gardens a laced Pink is never seen. But could we see shown numerous varieties of good, hardy, free-blooming bunching Pinks in several diverse self hues of colour, then a new era for the Pink might open from the proposed exhibition. There can be no doubt whatever that, pretty in their way as laced Pinks may be, they are still of comparatively

weak constitution. Indeed, the same may be said of some other fine varieties not laced, as Mrs. Sinkins, Lord Lyons, Derby Day, and others will not thrive as the commoner varieties will. We want a free-blooming race which has the constitution of the common fringed white, the Pink of the million, and also of Anne Boleyn, still one of our very best coloured Pinks. Doubtless, all Pinks suffer somewhat from being planted in stiff cold soil. I found that such was the case here, and when the plants were removed into a soil which is about one-third road grit and vegetable refuse they did well; indeed such laced varieties as Mrs. Dark and others have done well, not a point having suffered all through the winter. But for the production of bunching Pinks of diverse hues I am looking for something useful from a batch of seedlings of Anne Boleyn, and from other hardy forms which will bloom freely presently. It would hardly be possible to render our gardens greater service than to furnish them with plenty of free-blooming hardy double Pinks, whilst for providing cut flowers they would be invaluable.—A. D.

Single white hardy Primulas.—These are becoming common in many gardens now. I do not know who originated them, but I obtained my stock from a packet of seeds a dozen or more years ago. There were many other shades of colour in the packet besides white, all of which were very beautiful. These beautiful hybrid forms of the common Primrose are more precocious than the type. They generally begin flowering in autumn, and in mild winters flowers may be gathered from November till the April following. This precocious habit does not appear to have any effect upon the crop of flowers at the usual season in March and April. These hybrid Primroses are very beautiful when potted up from the greenhouse. I once sent up a collection in the month of February in small pots for decorating the dinner table in town, and they were very much admired. When grown under glass the colour of the flowers is much fresher and brighter than when exposed to the weather. Without being heavily scented when grown in quantity, there is an exceedingly pleasant fragrance emitted.—E. H.

Canary Creeper self sown.—What a wonderful difference is apparent in the constitution of a plant that has been raised by artificial warmth and grown on for a time in a warm house and another that takes its chance out of doors. We are compelled to raise annually in pots a number of the old Canary Creeper for the summer furnishing of pans and boxes, and the plants always to some extent resent the hardening off process, suffering alike from the slightest frost or from cold winds. This same old favourite, however, if self-sown in the open ground, will bear with impunity almost any weather, although I was not aware until this season that it would successfully resist several degrees of frost. We have two raised beds round old tree stumps that were summer-planted some four years with Canary Creeper, and finding after the first season that seedlings appeared in abundance the following spring, I have from that time annually thinned the said seedlings and allowed them to furnish the beds, which they do more effectually and even more expeditiously than plants raised under glass. Doubtless owing to the exceptionally mild weather during the early part of the present year, the seedlings made their appearance this season considerably earlier than usual, and, in fact, before they were noticed had experienced 3°, 5°, and 7° of frost. They are in no way affected by this spell of cold, not a leaf having been injured.—E. BURRELL.

Yellow-flowered plants.—There is such a wealth of yellow spring-blooming plants that it is easy to have masses of this telling colour early in the year in gardens. Such things as masses of Polyanthus, Alyssum saxatile, tufted Pansies, and the dwarf golden Wallflowers give through April and May wonderful rich yellow hues. For summer work, however, I found last and preceding summers no plant to excel for the production over a long period of specially effective masses of yellow Venidium fugax and dwarf French Marigolds.

The Venidium, which is easily raised from seed, is a wonderful plant for the production of flowers, growing close to the ground, spreading out over the surface and forming big clumps some 18 inches to 20 inches across. If space be allowed, the plants produce immense quantities of large single flowers, not unlike those of Gazania splendens, but sometimes even larger. By keeping the decayed flowers gathered, the plants will bloom all through the summer and produce, without exception, the finest body of yellow to be found in flowers. The plants if raised in frames transplant readily, and they should have ample room in the open ground, as the broader the plants become the longer do they endure. That it is a free seeding plant should commend it to many amateur gardeners, as it is hardy and so easily produced from a spring sowing. The dwarf French Marigold, aurea floribunda, is a little more tender, but it is wonderfully free. The plants are in height about 14 inches, and become from 15 inches to 18 inches broad, being literally covered with medium-sized, handsome double flowers. The general shade is rather deeper than is the yellow of the Venidium. As the Marigold is tender, seed is best raised in a house or frame. The plants when hardened by a week's exposure outdoors transplant freely. It is but needful to have a reserve, so that singles may be later replaced by doubles. Where it is possible to have the plants so early that they shall show bloom before putting out, it will be possible then to discard singles and have doubles only.—A. D.

BORDER AURICULAS.

VERY pretty as are Auriculas in the sunlight, they are just now hanging their large heads of bloom, and wear a dreary aspect in the heavy falling rain. Of course, all spring flowers have to take their chance of weather, but Auriculas seem to feel the effects of the heavy rain more adversely than do many other spring flowers. Only very robust hardy kinds are at all fitted for outdoor culture, but those which are robust certainly will thrive and endure as long as almost any of the perennial type of hardy plants we have. I find them to be here almost impervious to heat or frost, sunshine or snow, thriving alike in loose soil and in clay, enduring several years; in fact, no hardy evergreen plant could be more satisfactory. Only fairly fine weather is needed whilst in bloom and then all is well. How pretty border Auriculas are when grown as pot plants the large and varied collection staged by the Messrs. Sutton and Sons, of Reading, at the late Royal Aquarium show fully displayed. Not only were the plants well bloomed and grown, but they were in great variety, no two being just alike, and all from seed. That Auriculas in bloom are as pleasing outdoors is certain, but then the weather is not always favourable for the flowers, whilst in a cool house or frame, sheltered from heavy rains or biting winds, they are lovely. I do not see for one moment why Auriculas of the hardy alpine strains should not be grown by scores in pots in gardens as well as were the Messrs. Sutton's plants, or as admirably outdoors as they look here, where the plants have leaves not unlike those of young Cabbages, and produce large heads of bloom.

Probably the slow growth of Auriculas in the seedling stage militates against their wider culture. Not all persons have the patience needful to wait for a couple of years to allow the plants to become fully developed. We live at such express speed, that plants have to be forced along to suit our requirements. Thus it happens that things which come to maturity and bloom in a couple of months find more favour than do those which need so many years to become mature. Auricula seed is somewhat erratic in germinating. I find that if the pans are left untouched, the later growth will be sometimes several months behind the earliest, and yet all the seed may have been sown at the same time and place and sown all at once. When such is the case the wisest course is to very carefully lift the early seedlings from the soil, and to dibble them out into other pans, leaving the rest to come along as they may. That the best average growth is got from seed sown as

soon as ripe is certain, and if the seedlings be left in the pans until the spring they will be large enough to be moved direct into the open ground during April or May. In such a case a very good bloom is obtained the next spring, whilst a fine head is secured the following year. It is well in such cases to mark plants which showed good qualities the first season, and pot them up the following winter. They will then flower early and finely in a greenhouse. A score or two of such plants on the stages not only give elements of beauty that other flowers do not furnish, but they emit a delicious perfume, for that of the Auricula is usually sweet without being unpleasantly strong. A. D.

NOTES ON HARDY PLANTS.

Orobis vernus albus pl.—In April and May this dwarf and slender variety is loaded with durable double white flowers slightly touched with a rose or blush tint. I could not too highly praise this plant as a spring flower, and I do not recall a single fault that it has ever shown with me. It is never an untidy plant, but I believe it is better grown in light soil and where it will be screened from midday sunshine. At any rate, my plants are so placed.

Narcissus Johnstoni.—This is flowering here with two flowers on a stalk.

Petrocallis pyrenaica is one of the most charming alpine to be seen out of doors at this season. The soft green cushions are almost covered with a pleasing crowd of delicate lilac flowers. It is also known as Draba pyrenaica, but it is distinct from all the true Drabas, if one may so term them in relation to this plant. I believe many fail to keep it going; indeed, I have heard some say that they cannot get it to do at all. That was my experience until I used natural limestone, and plenty of it. Another good help, after you have got healthy stock, will be to divide and replant a little deeper every summer. This is essential, here at any rate, in order to have vigorous and compact tufts.

Podophyllums.—The two best-known species, peltatum and Emodi, are as distinct as possible, but at no time more so than the present, when their umbrella-like leaves have just got well out of the soil. The stronger growing peltatum has quite green leaves and is taller than Emodi, which has leather-brown dappled foliage. I have heard it said that both are hard to grow, or rather to establish, but I do not know why. They certainly enjoy a light and deep soil. When established, they grow most vigorously; the underground stems of peltatum run like the Colt's-foot. The roots, if made into a decoction with hot water, cooled, then diluted and applied as a spray, are good, or rather bad, for green fly. The liquid is harmless and colourless.

Spiraea arguta (Zabel), being now in full flower, is the loveliest thing one could imagine as a dwarf slender shrub. Its place, I think, should be the rockery, and pretty well up, for it not only enjoys the better drainage of such a position, but its wiry arching branches that droop 2 feet are seen to advantage so placed. I hardly know how to describe its habit. I cannot do justice to its beauties. Its little flowers are of snowy whiteness, and are densely compacted all along the nearly invisible slender twigs, and there are some few small, pale, apple-green, lanceolate leaves intermingling. The habit is that of Berberis stenophylla, only on a small scale, and the flowers appear on the upper instead of the lower side of the twigs. Those who know the thin and dark-coloured growths of the Muhlenbeckias might imagine them densely beset with small white flowers, and they would form some idea of the uses and habit of this pretty shrub. In winter and spring the twigs resemble matted horsehair, they are so thin. I see my specimen has been here three and a half years; it is now 1½ feet high only, though the branches are twice that length, but completely arched. All the time the plant has been fully exposed, without the shelter of even a wall, so it is evidently quite hardy.

Cardamine asarifolia.—Many things are praised which do not deserve it so much as this humble Crucifer. If given a moist and sheltered

spot it is practically evergreen; its flowers are pure white and freely produced in April and May. Another good feature, and no mean one, to my mind, is its strong Lilac-like perfume. The terracotta-coloured anthers are large, and give the spikes of blossom a somewhat dressy effect. As flowers for picking, you have practically the white Arabis with red centres and a perfume as just stated.

Euphorbia pilosa.—I have before spoken about this herbaceous species. It is, without exception, the most beautiful and effective bit of yellow in the garden at present. The colour is mainly in the bracts, and during the long period of flowering it extends all the way down the plant, fading off at the bottom leaves. A point of culture, however, should not be overlooked. Results like the above can only be had on a dryish position and fully exposed to sunshine. My plant, which gets the sun the whole day, is growing on a steep bank of stony stuff facing due south.

Cydonia Maulei.—Do you want a richly coloured and appropriate hardy subject for vases that will come in for spring months and stand well in exposed positions? If so, grow a few specimens of this in pots, but entirely in the open air, and they will be ready to take their intended places covered with a wealth of large blossoms all along the twigs by the middle of April, when you cannot very well find many things that will stand the rains and late frosts. The flowers, of a salmon-scarlet, are about as large as a florin. I find the little bushes flower freely in 6-inch pots at a stature of 1½ feet. My plants have been plunged in ashes and fully exposed for a year, so that they are well established. If placed in a corner to make their growth, they cannot be satisfactory with spindly and unripe wood.

Camassia Browni.—It is one thing for a plant to be beautiful and useful, but another affair as to whether it ever finds a place in our gardens. As yet this is a new variety, but surely it will soon be heard more of. Three-year-old plants raised from seed are now in flower; they are nearly 2 feet high. The flowers are over 2 inches across, and somewhat distantly arranged on the strong stout scapes. The colour is mauve or grey silvery blue, and the young seed-pods are not so conspicuous at the early stage of flowering as in the case of those of *C. esculenta*, and compared with that species the habit of the plant is bold and upright and perfectly hardy.—J. Wood, Woodville, Kirkstall.

Anemone sylvestris.—A long experience in growing this plant here in quantity in a hungry and poor (chalk) soil, and this without any pains, enables me to join issue with Mr. John Wood upon his statement in *THE GARDEN*, May 10 (p. 438), that it wants a rich and heavy one. I will take it from him that it grows well in the latter. This is likely enough, for I have never known or heard that it was in the least particular. But I find it such valuable "furniture" here (I should indeed place it among the best dozen plants for the chalk) that I should be sorry if any of the many who have to grow it on the chalk, as I do, should be led by following Mr. Wood's generally valuable opinion to discard or reject the plant. My plantings probably contain thousands of strong crowns, and bloom and increase freely. There would be no better associate for *Anemone fulgens* and *Anemone apennina* than the fine *Windflower* in question did their blooming seasons more closely synchronise. As it is, it must be planted by their side for successional rather than contemporaneous flowering.

Cypripediums.—By the side of *Calypso borealis*, which has just flowered here, we have *Cypripedium pubescens*, *C. parviflorum*, *C. candidum*, and *C. arietinum*, all in nice flower and all grown without heat. I have never before seen the three last. The first (*Cypripedium pubescens*) I find most reliable and of the easiest culture. It is growing well and perennially, even among the alpine, in a loamy soil with chalk bottom in full sun. These are not conditions in which one would have expected it to succeed so perfectly. Its daily shower bath in summer is doubtless the explanation of the success.

Eritrichium nanum is nicely in bloom on the rockery here, but I have never yet carried a plant

through the winter without glass protection, and even so, I cannot get the same plant to live two years. I know no insuperable barrier to success with this plant, and should appreciate the prescription from anyone who has kept the plant for long. Mr. Potter tells me that thus far it beats even Messrs. Backhouse to keep.

Iris cristata is blooming here, as with so many others; but it has in previous years commonly bloomed here in July, and never so early as this season. My bed of *Iris susiana* has already put up fifteen buds, some of which are already showing colour and should be out this week.

Primula rosea.—If this is the normal month (even in Ireland) for the blooming of Mr. Smith's new variety splendens, described in *THE GARDEN*, May 10 (p. 447), its late-blooming quality will prove a most valuable one, probably, indeed, its most valuable quality, because it is not easy to conceive any great improvement as regards depth of colour and size of flower upon such strains of this plant as are now extant—say, Sir William Bowman's at Joldwyns. I commonly find it difficult to have the plant in bloom in May, when its colour would be most valuable, and I fancy my own specimen was about the only one at the Primula show at the Drill Hall a fortnight since. The plant is so lovely and valuable that to lengthen its normal flowering season would be well worth while, and might probably be by no means difficult. The same observations might be made of two other invaluable Primulas, *nivalis* (of gardens) and *marginata*. Shade with northern or eastern exposure might achieve the result.—H. SELFE LEONARD, *Hitherbury, Guildford*.

SHORT NOTES.—FLOWER.

Wallflower Golden King. This is a variety with large flowers of the richest golden yellow—an intense shade, very telling in the borders in the Cambridge Botanic Gardens. It was raised, we believe, by E. Benary.

Iris missouriensis.—This beautiful Iris is in full bloom in the Cambridge Botanic Gardens, where it makes spreading masses. The flowers are pale blue, produced in a cluster of two or three, and are gracefully borne on a rather tall stem. It was introduced from the Rocky Mountains in 1880.

Spiraea astilboides.—I note the remarks of "W. H. G." respecting this fine variety. I have seen it frequently this season forced, for which purpose it is admirably adapted, and it has, without doubt, a brilliant future in store. It is equally useful on the hardy herbaceous border. I have plants that have been thus grown for three years. When first turned out they were small, but have now attained to considerable dimensions with a large increase in the quantity of spikes. It is also very distinct in foliage when compared with the well-known kinds *S. palmata* and *S. japonica*, to both of which it is a fit and worthy companion.—T. H.

A pretty bed during spring.—A circular bed, which has lately been very beautiful, is planted as follows: An outer band of golden Balm, next to this was a band of Ajuga reptans, which, owing to its being planted in poor soil, is intensely dark in colour; within this and forming the chief portion of the bed is a mass of the white Pansy Purity, and in the centre a strong-growing purple variety, raised considerably above the other plants in the bed. The raising of such plants entails little labour and next to no expense. The arrangement referred to formed part of the general bedding last year.—T. C. H.

White Primroses.—Permit me to thank Miss Jekyll for so readily responding to my question concerning the possibility of obtaining a free-flowering white Primrose suitable for massing. Doubtless all those who obtain a plant of the kind she has will appreciate her generosity in so kindly undertaking to send one to each of the thirty earliest applicants. I might also inform "A. D." that a white Primrose was not to me the novelty he assumes it to be; because, both in gardens, as well as in the woods, I have occasionally met with them, but I had not seen, heard, nor read of one being grown in sufficient quantity for massing, such as the variety *lilacina* is massed at Betteshanger.—A. H.

Tufted Pansies.—Among the many kinds which I have had for trial and for the purpose of aiding the summer display of flowers, none have equalled Bullion, a bright and very dwarf yellow.

For about fourteen months past a batch of plants has been in flower, and at present is a sheet of yellow. We give very simple treatment to our Pansies. On a border, early in October, some sand and fresh soil, well mixed, are spread on the surface, and short healthy cuttings are dibbled in firmly. Pea trainers (which are simply slender wire hurdles) are placed over the cuttings a few inches above them, and fixed by short stakes. When the weather is severe, mats are thrown over the trainers to prevent the frost from throwing out the cuttings. The losses are very few; the plants put out on well-dug ground, enriched with rotten manure, early in April, keep on flowering till the end of the season. *Calceolarias* and *Pentstemons* are also treated in this simple way, and we do not lose one in five hundred. They are planted out early in April, and the hardy treatment which they have received is conducive to success.—J. C. H.

GARDEN FLORA.

PLATE 754.

SINGLE CHRYSANTHEMUMS.*

IN this age of single flowers, when things that were cast aside by our grandfathers as rubbish are grown in the choicest gardens, we have to welcome the creation of a distinct section of Chrysanthemums inexpressibly charming, and that pleases those who can find no beauty in the more formal incurved, pompon, and reflexed varieties. This race of single flowers is a modern creation; it was about 1883, we believe, that they appeared on the exhibition stage, only to be decried as weedy, without character, and so forth, a true criticism no doubt, as at that time we had no such lovely flowers as are now to be found. In *THE GARDEN* of July 7, 1883, there is a note on single varieties in which the writer, Mr. N. Davis, of Camberwell, mentioned that for some time he had been endeavouring to bring them into fashion. Single Chrysanthemums had, however, in their early days a hard fight to win popularity, and one thing that brought them forward was the offering of prizes for them by the Borough of Hackney Chrysanthemum Society now developed into the National Chrysanthemum Society. This was direct encouragement which others followed, and thus by slow degrees the flower, the object of so many sharp and unjust criticisms, has made for itself an established class. It was not long before hybridists commenced their labours. Mr. Burbidge, of the Trinity College Gardens, Dublin, raised a flower of a rich magenta colour, and one also of a soft rosy-pink; then came Mr. H. Cannell, whom we have to thank more than any other nurseryman for persistently bringing forward these dainty gems. His varieties were a vast improvement on many of the American importations, which were coarse flowers wanting in that delicacy and refinement characteristic of the newer acquisitions. The plate represents two of the finest types in cultivation, viz., *Jane* and *Yellow Jane*; the first was raised in 1886, and the other in 1887. The variety "*Jane*" has the advantage over the other in being of a far better habit, the yellow variety growing very tall and slender, but both kinds have the same characteristic spreading florets. All who love graceful informal flowers should have these for room and vase decoration in late autumn and winter. *Jane* is pure white, a large graceful flower, the florets long, spreading, and like a dainty fringe that gives beauty to any arrangement of blossoms. This variety has done more to bring the race forward than any other, and in its

* Drawn for *THE GARDEN* by H. G. Moon in Messrs. Cannell's nursery, November 25, 1889. Lithographed and printed by Guillaume Severeys.



CHRYSANTHEMUM 'JANE' AND ITS YELLOW VARIETY

yellow counterpart (a rich deep colour as deep as the yellow Buttercup of the meadows) we have also a flower that should be much grown; it possesses the same characteristic elegance of the other. So much has been written on the cultivation of the single Chrysanthemum, that it is unnecessary to touch upon it here. Those who wish for advice in this matter should turn to *THE GARDEN* of May 25, 1889, where they will find full information; but we may note the value of the flowers in January and February when often there is great scarcity in gardens. They fill a void, and if the flowers are cut from the points, the growths that start from below will bloom, keeping up a most desirable succession. It is not necessary to disbud at all, but when flowers of more than usual width are wanted, of course this is necessary. At the Chrysanthemum conference last autumn a charming display of single varieties was made by Mr. Molyneux, one half of the flowers cut from stopped plants and the others from those permitted to grow at will. The difference was manifest, as by judicious stopping, a broader and finer flower was obtained.

The uses of the single varieties are many. We have few more beautiful flowers for decoration, and ladies hold them in special esteem by reason of that delightful gracefulness so marked in the long-petalled forms. There is more than one type. We have the fringed flowers, others thinner and with fluted florets, and, again, neat, small, Daisy-like blooms, or those with smooth, evenly-placed petals. Thus there is ample selection for all. It is unfortunate that a class is not provided at every horticultural show for the single Chrysanthemum. There may be few entries at first, or possibly none at all, but the section is yet in its infancy—a modern creation that each season will bring more before the flower-loving public. The large exhibit of these at the November show of the National Chrysanthemum Society by Messrs. H. Cannell and Sons showed their richness and beauty when on the exhibition stage; but we want the delicate expression of each flower, impossible when several are jammed into a big bunch. Set up as the pompons are would show off their many charming features, and prizes might be offered for vases, table decorations, &c., in which only the graceful single flowers were used.

A good selection of varieties would include the following in addition to the two figured: Admiral Sir T. Symonds, a lovely variety, has the same characteristic elegance; its flowers are almost semi-double, quite 2 inches across, and of the richest yellow colour. In the collection grown last year in the R.H.S.'s garden at Chiswick this variety was conspicuously beautiful, some of the plants, which were only slightly stopped, bearing six and seven flowers on a shoot, a cloud of rich bloom. It is this kind of plant that makes the finest picture in the Chrysanthemum way, as its extreme elegance and freedom charm everyone.

The above are indispensable, and of the many other kinds we should select America, blush; M. A. le Mout, amaranth-crimson; David Windsor, chestnut-red, very rich colour; Lady Churchill, deep brick-red, shaded with yellow; Souvenir de Londres, rich crimson; Gus. Harris, a very dwarf type, the flowers small and rose-lilac in colour; Pure Gold, rich golden yellow; Lady Burke, also yellow of an intense shade, a small neatly-shaped flower; Miss Gordon, pink, the florets drooping—it is similar to Jane, but not so refined; Miss Rose, a dwarf, late-blooming kind of a rose colour; White Perfection, white; Crushed Strawberry; Oriflamme, reddish brown; Mary Anderson, a smooth handsome

variety, pure white, but taking on a pinkish tint with age; and Mrs. Langtry, pink.

In writing of the variety Jane, Mr. Molyneux says:—

This recommends itself to every lover of flowers. Even after the first and main batches of bloom have been cut from the plants numerous side branches will push out from the main stems, each one forming at the point neat clusters of flowers, which are extremely useful for cutting during the months of January and February. The habit of growth is strong, being thoroughly well clothed with foliage which considerably enhances its beauty as a pot plant. Where trained plants of Chrysanthemums meet with favour, Jane is no mean object when well cultivated, and carrying from fifty to 100 fully developed blossoms. Its yellow sport is destined to occupy a high position where yellow flowers are in request.

KITCHEN GARDEN.

FAULTY PLANTING.

THERE is a right and a wrong way in the performance of all kinds of work, more especially in putting out plants, and in very many instances the latter is followed by inexperienced amateurs as well as careless or indolent labourers. Far more depends upon doing the work of planting at the right time and in a proper manner than at first sight appears. We may easily err in transplanting before the plants are capable, so to speak, of taking care of themselves, or even of rallying from the check given, while, on the other hand, if it is too long delayed, all may be spoilt in the seed-bed, boxes, or frames, as the case may be. Puny plants put out on rough ground are liable to be either eaten up by slugs, or else drawn into the ground by worms, no amount of soot and lime, or substitutes for the same, being capable of preserving them in showery weather. Nor do quite small plants take readily to much exposed quarters, and on account of this and other reasons, just given, it is advisable to either sow the seeds much more thinly than is usually done, or else to first prick out the young plants and otherwise prepare them for their final quarters. When Broccoli, Brussels Sprouts, Borecole, Cauliflowers, Savoys, and such like are raised thickly, they must not be neglected for a few days even, as at this time of the year they grow rapidly, and all will therefore soon become leggy and weakly. To put out such is simply to invite failure, none but sturdy plants being likely to be either very hardy or profitable. When therefore the plants are about 3 inches high and properly hardened off, if need be, rather more than the requisite number should be carefully drawn from the beds or boxes in which they were raised and be pricked out about 4 inches apart each way in an open border, the soil of which is or has been made fine and light. Having been watered in and a close watch kept for slugs, these plants soon recover from the check, and are ready for their final quarters when they touch each other all round. We invariably prick out the greater portion of our early Broccoli, Brussels Sprouts, maincrop and autumn Cauliflowers, but the successional and late Broccoli, Borecole, Chou de Burghley, and Savoys, being sown late in the open ground and given good room from the first, do not need any special preparation. Where, however, any of the kinds named are now growing very thickly in the seed beds, many of these also ought to be pricked out and taken good care of till they are large enough to be transplanted to their final quarters.

Garden labourers and the inexperienced generally are very fond of the dibber, frequently

using this when the trowel ought to be substituted. It should be understood that the former handy tool is suitable only for putting out any plants drawn direct from the seed bed, the trowel being the proper thing for moving those previously pricked out. If the latter are drawn from the ground and replanted with a dibber, they do not again take readily to their fresh quarters, the hard stems apparently being unable to form fresh roots. Pricked-out plants, then, ought to be carefully lifted and transplanted with a good ball of soil about the roots, and thus treated, they do not, as a rule, experience a very severe check. No attempt should be made to either draw or lift plants when the ground is in a hard dry state. Directly, or say the next day, after a good soaking rain, is the best time to move plants, but when they are in a somewhat crowded state, or when they ought really to be in their final quarters, it may be advisable not to wait for rain, the better plan being to give the beds a thorough soaking with water a few hours previous to moving the plants. The soil being thoroughly moistened admits of the plants in the seed beds being drawn without breaking all the tender young roots, while the soil about the roots of those pricked out will hold together, especially if pressed in the hand when lifted with a trowel.

Nor is it wise to attempt planting on hard lumpy ground. Better by far to take advantage of a soaking rain, whenever it falls after this date, to well break down all lumpy ground, this not only preventing a rapid loss of the moisture, but also admitting of its being readily planted in quite dry weather. Where slugs are very troublesome, and they are very numerous this season, it is most satisfactory in the end to do much of the planting in dry or hot weather. This may necessitate the more frequent application of water, but, on the other hand, the slugs will be much less destructive. When the plants are raised thinly on comparatively poor open ground they frequently present a stunted appearance and are blue in colour, but these are by far the best for dibbling out where they are to become fully developed. In this respect the market gardeners have a decided advantage, as their sturdy plants can be moved well in all weathers. They flag but little in the brightest sunshine, and the slugs make less impression on them than is the case with the more succulent plants generally put out in private gardens.

Failing to fix the plants properly is, perhaps, the blunder most often made, this being attended by most unfortunate results. As a boy, I well remember seeing large numbers of early Cauliflower plants in handlights refusing to grow, the colour of the leaves soon changing from a healthy green to a sickly glaucous hue. I learnt afterwards that nearly all of them had been "hung" by the thoughtless labourers entrusted with the work. When plants are put out with a dibber, and the holes closed about the collar or neck only, the roots are most probably swinging clear of the soil below, and although choking does not actually take place the result is a slow death. The roots ought in all cases to touch the bottom of the hole made by the dibber, and the point of the latter should also be thrust well down to the sides so as to press the soil against them rather than the stems. Fix the roots, and the plants will most probably grow; leave them in a loose state, and many of them will fail.

Even those plants moved with a ball of soil about the roots should be well fixed, the fresh soil being rammed about them with the handle of the trowel. Firmness of the root run, in addition to giving a good and sure start, is

also desirable for the purpose of promoting a subsequent sturdy growth. Not unfrequently the ground becomes loose, both frosts and drought having this effect upon it. Already this season we have found it necessary to go over breadths of Cauliflower and other plants in order to firmly refix them, and they will repay for the trouble taken. Watering in naturally serves to fix the soil about the roots somewhat, but on cold soils it is possible to be too free with the watering-pot, and in any case I prefer and advise others to do the work properly in the first instance. W. IGGULDEN.

DISEASES OF TOMATOES.

I HAVE read with much interest "J. L.'s" article upon Tomato cultivation in Sussex (page 411). I have visited several of the large establishments on the south coast, and so far as regards climate (a most important factor in the work), the Worthing growers possess advantages over those living north of London. But even in that favoured locality diseases, fungoid and others, have to be contended with. The way in which the black fungus attacks the plants is very singular. A plant may appear perfectly healthy one day, and the next morning be stricken as if with an electric current. Pinching off the leaves, or in extreme cases cutting off the top of the plant altogether, is for the time being an effective check, the new growth starting away as fresh and green as if nothing was wrong. But what one is anxious about is to get at the cause. Cutting off the leaves or top of a plant to save it from the effects of disease is, after all, not a satisfactory condition of things. I have not had much trouble with disease, as I have hitherto been dealing with new houses and fresh soil, but I am anxious about the future. Last year out of about a thousand plants not more than one per cent. were affected, and after trying one or two experiments with the pinching and lopping process, I came to the conclusion it was better where so few plants were affected to stamp out the disease by entire removal, as it is a very easy matter to fill up a vacant space by training a shoot from an adjoining plant. There is no loss of crop in this way, and it is only carrying out a law of Nature of permitting the fittest to survive. There is, I suppose, such a thing in plants as inherited disease, and those who save and sell seeds of Tomatoes cannot be too particular in the selection of the seed-bearing plants. Tomatoes luxuriate in sunshine and fresh air, and the best antidote to disease is a warm, genial, buoyant atmosphere. There is another disease which sometimes attacks Tomatoes under glass that is even more puzzling than the black fungus. It is known among growers by the not very satisfactory term of the "droops" or "falls." All the leaves of a plant droop or fall and the plant ultimately withers and dies without any apparent cause. There does not appear to be anything contagious in this disease, and the only conclusion that at present can be drawn is that it is constitutional. This disease is not very destructive in well-managed houses, but so far as I know there is no remedy but taking out the plants and substituting others, or training a branch from an adjoining plant to fill the vacancy. I am coming round to the opinion that the system of pinching the plants into one stem is not the best possible to adopt, either as regards the health of the plants or their fertility; and this year I am giving them more room and shall take two or more stems from the strongest plants at any rate. Repressing vigour by so much pinching seems unnatural, and in my opinion encourages disease. In breaking up new land for Tomato growing I have been a good deal bothered with wireworms. They do not do much harm to old plants, but are troublesome when the plants are first set out. The best treatment I find is a dressing of salt and soot, and whenever water is required a mixture of salt and soot is dissolved in the water; this acts beneficially in two ways; it banishes the wireworms and encourages growth without unduly stimulating the plants. I always take a crop of French Beans from the Tomato beds, and these are cleared off

before the Tomatoes require the room. The profits of Tomato culture are not what they were a few years ago, and any crop that can be taken without injury and that will help to pay expenses is worth the little extra labour which it involves. Of course, this system of double cropping may be carried to excess, but when proper attention is given I do not find any injury done to the Tomatoes. Tomatoes are ever largely in demand all over the country, and though the southern growers have an advantage in climate, the expense of carriage tells heavily against them in supplying the large northern and midland markets; so that I think, as regards culture under glass, there are openings in the neighbourhood of most of our large towns for moderate-sized Tomato-growing establishments. In the eastern counties many large places for their culture are springing up, and in the near future competition in the business will doubtless be intensely keen among the home growers without counting foreign competition, which is sure to have its influence upon prices. It is true the imported Tomato as a rule in point of flavour is an inferior article, but the low-priced Tomato always sells, and tends to keep down the price of the well-grown product. To make large profits, one wants to be in the van of any new enterprise. Cucumber growers years ago made fortunes, but the profits now are small. The same thing has happened with Grapes and Tomatoes, but the consumer benefits, and I do not know that this is a subject for regret, especially to the man with philanthropical views whose maxim is the greatest good to the largest number. E. H.

SHORT NOTES.—KITCHEN.

A good Cucumber. Cucumber Allan's Favourite, said to be a cross between Telegraph and Blue Gown, is doing well with us and promises to become a thoroughly reliable variety, suitable alike for private use, for exhibition, and for the market grower. It possesses a more robust constitution than the old and very popular Telegraph. The fruits, which are freely produced attain a good size, and are somewhat longer than those of Telegraph, while the form, colour, and quality are in every way satisfactory. W. IGGULDEN.

Thinning early Potato shoots.—There is a great temptation to have early Potatoes, even though one "tempts Nature," as "A. D." puts it (p. 418), about the beginning of June. I would have thought early Potatoes might generally be safely coming through the ground the first week in April in the south of England; but it surprises me that so able and discriminating an observer thinks it unsafe to have them through the ground at this date, the first week in May. My early kidneys, even those burned back a month since, are now 6 inches out of the soil. I admit there is always some risk; but in the south of Ireland Potatoes are generally safe from frost in April and May—not, however, always. Stalks cut back are now branching into six or eight stems, and I would advise anyone having them so affected to thin out to the strongest, as I am doing.—W. J. MURPHY, *Clonmel*.

Tomatoes.—My experience of Horsford's Prelude, as to its early flowering, setting, and the smallness of its fruit, quite agrees with that of "A. D." I have found it the best Tomato for early forcing, and when it can be had ripe at the end of April and early in May for use in private establishments its smallness is overlooked. The fruit is of a good shape, nice colour, and a fair flavour, therefore the variety will, no doubt, be widely grown for early work. Prelude should be grown for early work followed by any other well-known kind as a succession crop. We have Perfection and Prelude planted alternately in one forcing house, and Prelude and Hackwood Park in another, but in future I intend to devote the earliest house to Prelude and to well thin the fruit. We are getting nice fruit from Prelude sown in January, and though small they are appreciated, and set without artificial fertilisation. This latter is a great point in their favour, as they can be grown in many houses devoted to other plants, and will give little trouble. As is well known, many of the other kinds require a lot of time and patience to

secure an early crop. I should strongly advise those requiring a few early fruits to plant this variety. Amateurs with limited means to grow Tomatoes will find Prelude most useful, as it takes up but little room and is a sure fruiter. This variety will help to lessen the consignments of foreign Tomatoes, as we can keep up our supplies till the end of the year without difficulty. If Prelude is sown early or, what is perhaps better, secured from good cuttings, there will not remain a long time for foreign growers to supply Tomatoes.—GEO. WYTHES, *Syon Gardens*.

WEEDS AS NUISANCES.

A SIMILAR instance to that mentioned by "A. D." occurred to me some years ago. A neighbour allowed a piece of ground separated from my garden by a low hedge to remain uncultivated all through the summer. The result was, of course, a mass of rank weeds, among which Poppies and Sow Thistles were predominant. The hedge being so low there was no hindrance to the passage of the Thistle seeds, and I could plainly see that I should be well stocked with this troublesome weed, which, owing to its long fleshy root, hoeing will not destroy for some years. I therefore took the law into my hands, and with a fag hook cut off the Thistles down to the ground, and thus saved myself years of trouble. The occupier of the ground did not live near it, and I never knew whether he discovered my handiwork, of which, however, he could have scarcely complained. It is not everyone who could save themselves from annoyance in this way, and had I asked permission to cut off the weeds and been refused, it appears that I should have no remedy, although at the time I thought otherwise. Those who allow weeds to grow and seed in close contiguity to other people's gardens have truly much to answer for, and the same may be said where land is allowed to become very foul at the close of a tenancy. The moral perceptions of people who act in this way are certainly not very acute. I read the case which forms the text of "A. D.'s" remarks, and I must say that I was surprised at the decision given. There is legal remedy against damage or annoyance from fowls, pigeons, and other domestic animals, but it seems that a man may, if so minded, wilfully fill the gardens of his neighbours with weeds without fear of unpleasant consequences. J. C.

Byfleet.

HOEING.

THIS ought not to be delayed till the weeds are nearly fully grown, but, on the contrary, the work should be carried out as much as possible when the weeds are quite small. If the whole of the surface of the ground between any kind of crops be lightly stirred with the hoe, not only will the weeds showing plainly be destroyed, but many only just pushing through will also be similarly treated. Frequently stirring the surface of the ground with flat hoes is also one of the best preventives of slugs, as it greatly checks their breeding. There is yet another important advantage attending this comparatively light work. Many soils, especially where clay abounds in large or small quantities, are apt to bind badly in wet weather, and this is followed by cracking in dry hot weather. Keeping the surface loosened with a hoe prevents the rapid loss of moisture by evaporation and the consequent cracking, and also admits the warm moist air to the roots of plants—a form of food they greatly appreciate. It will thus be seen that the more often the hoeing is repeated the better it will be for the crops; in fact it is advisable to use the Dutch hoe three or four times early in the season rather than delay this operation till the weeds have gained a strong foothold, and when merely hoeing them up will not be sufficient to destroy them. Anyone inexperienced in the use of the hoe and gardening matters generally must not go recklessly to work wherever an apparently blank space is to be seen, or he may cut up quite small seedling vegetables or flowers. By this time, however, Onions, Parsnips, early Pectoot and Carrots, Peas, Beans, and Spinach would in many instances be sufficiently advanced not to be mistaken for weeds, and between

the rows of these there ought to be good scope for hoeing. Naturally, it will be most effective if performed while the sun is shining brightly on the ground, but this, as a rule, is rather too trying for the amateur, and on the whole his services may well be turned to good account either in the mornings or evenings of hot days, and any time during dull weather. Then there are the fruit quarters and other positions that pay for timely attention, and the more robust amateur may here find better play for his zeal in the use of either a Dutch hoe or if need be a somewhat heavier tool. Some of the most troublesome weeds, including Couch Grass, Convolvulus, and Buttercups, may be kept down and eventually destroyed by the hoe only. The ground being frequently hoed over, the young shoots are cut off each time, and if the top-growth is thus effectually stopped, the roots must also collapse in due course.

W. IGGULDEN.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

CABBAGE.—Seldom have the breadths of early Cabbage been so even and good in quality as they are and have been this spring. At no other time of the year are they so much appreciated as now, and for this reason, and also for the sake of securing a second crop quickly, it is advisable to cut the hearts freely, or before they become very hard and less tender. In cutting, leave as many outer leaves as possible on the old stalks, and thus favoured, fresh shoots will form much more quickly than is the case when the old leaves are recklessly stripped off. We never find it necessary to raise plants in the spring for the purpose of affording a long succession of young hearts, but in all cases where this practice is adopted the plants ought to be early got out on richly-manured, but not lumpy ground, and well fixed. Where slugs abound freely, dust over the young plants with soot and lime while yet the dew is on them, though perhaps collecting and destroying these pests are the simplest methods of getting rid of them.

LIQUID MANURE FOR CABBAGE.—No other crops more quickly or thoroughly exhaust the ground of much of its fertility, and if quick growth is desired this will be best assured by applying some kind of liquid manure freely. Especially is it desirable that some such assistance be given when the plants are to remain on the ground till next spring. We have tried the plan of early clearing the ground of Cabbage (the autumn and winter supply being maintained with the aid of spring and early summer-raised plants) against the older system of leaving the old stumps on the ground, and have always found that the latter are the most surely productive, nothing but an exceptionally severe frost injuring the hearts and greens, as the case may be. On poor ground, however, they are liable to fail, and this is another reason why they ought to be liberally supplied with liquid manure now and on all other favourable occasions. Soot, guano, or any kind of special manure, freely distributed among the plants and stirred into the surface just prior to a soaking rain, acts most beneficially; but, on the whole, nothing surpasses either sewage water or the drainage from a mixed farmyard. This can be most readily and safely applied in furrows midway between the rows of plants, drawing the soil up to the stems benefiting rather than injuring the latter. Showery weather is the best time to give the plants liquid manure.

CAULIFLOWERS.—On the whole, the weather has been favourable to the growth of these, and in all probability a good supply of hearts will in many instances be available by the time the latest Broccoli is finished. Their progress will be materially hastened and the size of the hearts considerably enlarged if liquid manure of some kind is applied to the roots much as just advised in the case of Cabbage. Driblets, in dry weather especially, are simply thrown away. The plants ought to have a thorough soaking, extra strong manure being freely diluted with soft or softened water. The plants, to afford successional mid-season and

autumn supplies, whether raised in the autumn or spring, should be early got out on freely manured, well pulverised ground, good room being allowed the Autumn Giant and other strong-growing forms. We rarely devote a piece of ground especially to autumn Cauliflowers, but put them out between the rows of early Potatoes soon after the latter are moulded up. The rows of Potatoes are 3 feet apart and a distance of 2 feet divides the Cauliflowers in the row.

SEAKALE.—Instances are only too frequently met with where the Seakale is allowed to flower freely, the beds presenting quite a showy appearance towards the end of May. If a few ounces of seed are required, then by all means permit a few plants to flower early and strongly, but not many gardeners now-a-days think of sowing seed, and in any case it is most unwise to nearly ruin a breadth of strong plants for the sake of procuring what few seeds are needed. Flower heads before they are much advanced in growth are often much appreciated as a vegetable, but whether cooked or not they ought to be early cut hard back to the old stems. Flower heads prevent rather than assist in the formation of good crowns, and their early removal is soon followed by the requisite strong leafy growths. Nor ought too many of the latter to be allowed to develop numerous small growths, leaving a similar number of small crowns, and it is the largest well-blanced growths that are most appreciated. Three to four shoots may be left on the strong old stems and one or two on the smaller or recently planted roots. Small pieces of roots newly put out have this season become very loose in the ground and we have found it necessary to refix them. A close look out for slugs has also to be kept.

RHUBARB.—Much that has been advanced concerning the flowering of Seakale also applies to Rhubarb. Everything seems to be flowering very freely this season, Rhubarb being no exception to the rule. The flower heads must be kept cut back well down to their starting point, or otherwise the clumps will be of little service next season. Newly planted crowns ought never to be drawn from during the first season, and not very severely in the next. Clumps to be forced next season should also be similarly favoured. Rhubarb can stand and well repay for almost any amount of manure, either in a liquid or solid state, and young plantations especially may well receive a liberal surface mulching of strawy litter or manure.

THE ROOT CROPS.—Onions, Parsnips, and Turnips have come up well and are growing freely; Beet, Salsafy, Scorzonera, and Chicory sown later are also germinating satisfactorily, but Carrots have fared badly, slugs having cleared them off wholesale. Fresh sowings of the latter ought to be made directly it is seen partial or complete failures are probable, and blanks in the rows of Onions, Parsnips, Beet may be made good by transplanting in showery weather. It is somewhat early for this to be done, very small plants being liable to collapse when moved in hot weather. As soon as the rows of plants are well defined, the spaces between them should be lightly, yet thoroughly stirred with the Dutch hoe, this both destroying weeds large and small, and also favouring the rapid growth of the crops of vegetables. Once a week is not too often to use the hoe between growing crops. Soot is one of the safest and best fertilisers that can be sown amongst the root crops generally, this being done prior to surface-hoeing the ground, and, preferably, in showery weather.

W. I.

PLANT HOUSES.

HYDRANGEAS.—Where large heads of bloom and small plants are wanted, the way to have them is to strike shoots from plants that are grown out-of-doors after the flower beds are set in autumn. Some of the market growers have a quantity of specimens growing in the open ground to furnish cuttings for this purpose. The cuttings should have a brisk bottom heat, whilst their tops must be kept quite cool, as if confined in a hot, close atmosphere it often causes the buds to start whilst the roots are forming, which, as a matter of course,

renders the plants useless. In many gardens there is not the means for striking cuttings in the manner named; consequently it becomes necessary to strike them in spring. Plants that have been forced will furnish nice shoots. They should be put singly into small pots half filled with a mixture of loam and sand, with sand alone on the top. They will root quickly in an ordinary cutting frame or in a confined atmosphere anywhere with a temperature of 75°. When well established they will need moving into 5-inch pots; after which they will do in a cold pit or frame until the roots have got hold of the soil, when they should be stood in a sunny position with the pots plunged in coal ashes.

CANNAS.—Apart from the effective character of the foliage of these plants, they are worth growing for their flowers. The flowers of new varieties that have been raised in recent years are far superior to those of the kinds that were in existence in times past. Where there is a large conservatory or greenhouse to fill, Cannas are very useful. Plants consisting of from one to three shoots look better than specimens that are larger. Large masses that were divided in spring and put into pots no larger than necessary to hold them should now have a shift. Pots from 8 inches to 10 inches in diameter will be large enough. Loam, made rich by the addition of rotten manure and a sprinkling of sand, answers for them. Give plenty of light and no more shade than is found necessary to prevent the leaves being scorched. Syringe overhead daily to keep down insects, and after the pots get moderately filled with roots, manure water should be given once or twice a week.

BRUGMANSIAS.—Large specimens that have their roots confined in pots or tubs require assistance with manure water, or with surface dressings of concentrated manure. Brugmansias will bear whatever stimulant is used being applied stronger than it would be safe to give to plants that are more delicate. Young thriving examples of Brugmansia that are growing so fast that more pot room will be necessary should at once have a shift. To plants of this nature larger shifts may be given than would do for things of a less robust character. Examples that are now in 10-inch or 12-inch pots may be moved to others that are 18 inches or 20 inches in diameter. These may seem to be larger than it is necessary to use, but the roots will soon occupy the whole of the soil thus put within their reach, and it is well to get the specimens up quickly to the full size they are intended to attain. Plants that have been raised from seed sown early in the spring should not be allowed to want room. If confined in small pots, both the roots and the tops become stunted in a way that interferes with their progress in time to come. Cuttings may yet be struck. They are best put singly into pots large enough to hold them. These should be half-filled with light material composed of loam, sand, and a little rotten manure, sifted; fill up with sand alone. Kept close, moist, and shaded in an ordinary stove temperature, they will root in a few weeks, after which they may be moved into 6-inch pots.

GENISTAS.—Young plants struck twelve months since and that are intended to flower next winter, if not already potted, should now be moved to the pots that they are to be grown in during the summer, and in which they are to bloom. Unless they have made more than ordinary progress, 6-inch or 7-inch pots will be large enough. Loam, with some rotten manure and sand, is the soil they require. After potting, stand them for two or three weeks in a pit or frame, where, by closing the lights early in the afternoon, both root and top-growth will be encouraged; afterwards, the plants will be better out of doors. If stopping has been duly attended to, nothing further in this way will be needed; neither is it advisable to stop the shoots after this. Old plants that have flowered during the winter and spring, and that have since been cut back, will have made sufficient growth to require potting. As much of the old soil should be got away as can be done without disturbing the roots to an extent that would check the growth. Pots two sizes larger than those they have been in

should be given. After the shift keep them indoors for two or three weeks, then plunge them in ashes out of doors where they will be fully exposed to the sun. Genistas should be syringed daily until the autumn, as without this they usually suffer from the attacks of red spider.

ACACIAS.—Plants of *A. armata* and *A. Drummondii* that were cut in after they had done flowering will now have made sufficient progress to require shifting. All the Acacias are free rooters, and where they are intended to get large, they must have pots proportionate in size. Soil such as advised for the Genistas will answer for Acacias. After potting give greenhouse treatment for a few weeks, so as to push on the growth; then turn them out of doors where they will be fully exposed to the sun. Acacias that are not to be potted this season should have manure water once a week during the time the young wood is in course of formation. Without assistance of this kind the growth is apt to be weak.

STOVE.—POINSETTIAS.—It will soon be time to start old plants that have been kept dry since the flowering was over. If the plants were not headed down when dried off, the tops should be removed now. They are best headed back moderately low, so that when sufficient cuttings are secured, the old plants can be grown on, and if well managed and confined to single stems they will produce very fine heads. The shoots of Poinsettias are so sappy, that if severed at a joint in the way that answers with most things, many refuse to strike. But if they are taken off with a heel when they are 5 inches or 6 inches long, there will be few that will fail to root. The cuttings are best put singly into pots. Keep them as close as necessary to prevent the leaves flagging, but the atmosphere should not be too moist, or it will cause the leaves to decay. They strike best in a brisk heat, and must be closely shaded from the sun. When sufficient cuttings are obtained, the old specimens should be turned out of the pots and have most of the soil removed. Give pots 2 inches or 3 inches larger than those they have been in before, using turfy loam well enriched with rotten manure passed through a fine sieve. Add sand enough to keep the whole moderately light. Poinsettias should be stood close to the glass from the time the cuttings are struck until the end of the growing season, lowering the pots to prevent the tops touching the roof of the pit or house they occupy. Treated in this way, the plants will be much shorter-jointed than if less light reaches them, and they will be proportionately stronger and capable of producing finer heads.

T. B.

FRUITS UNDER GLASS.

EARLY ORCHARD HOUSE.—When the feeding of precocious varieties is discontinued, the pots should be well covered up with some light non-conducting material that will prevent the balls from drying out and at the same time hold moisture from the syringe. Pure tepid water, as a matter of course, must be abundantly administered to the roots, and soft water free from lime may be used for bathing the foliage on fine mornings and again when the house is closed for two or three hours in the afternoon, but once the fruit becomes transparent more buoyant air and less moisture will be essential to good flavour. The trees about this time, too, should be carefully examined, and if there a curled leaf is found the house must be fumigated without delay, otherwise they will suffer before the last of the crop is gathered. Early morning when quite dry is the best time to gather the fruit if for home use, when the aroma is strong and the flesh near the stalk is softening, whilst for packing and travelling it must be detached a few days earlier. All the trees should be looked over every morning, when fruits ready may be detached with a pair of Grape scissors and placed upon small squares of silver paper in flat padded boxes or baskets for conveyance to the fruit room. When they reach the store room they should remain untouched by the hand, as the slightest pressure produces a bruise not only unsightly, but detrimental to the flavour. As early trees are cleared they may

be removed to a cooler house, where they can be copiously syringed and regularly watered until the first batch is ready for potting.

THE GENERAL HOUSE, containing a miscellaneous collection of trees, may be well syringed soon after 6 a.m., and gradually ventilated as the temperature begins to rise, until by noon there is a free circulation of air with the mercury indicating 70° to 80°. Reducing will be commenced about 3.30 on fine days and completed about 4.30 with the afternoon bath, the trees prior to this having been copiously watered with warm diluted liquid. This watering will keep them right through the night, but from this time forward not through the day; therefore, drought being fatal, they must be carefully looked over when dry from the morning syringing, a period at which water may be thrown about pretty freely. Pay particular attention to pinching, always commencing upon the strongest shoots near the summits of the trees, and thin the fruit to about the number they are intended to carry to maturity, as, other matters being right, there is little danger of dropping after stoning. Mulch and top-dress well as often as these materials lose their virtue, or get washed off the tops of the pots, and damp down the floors several times a day, as trees in pots are entirely dependent upon the daily food and vapour given to them. Under this treatment, spider cannot put in an appearance, but fly may, when fumigation with tobacco is the cheapest and best antidote.

FIGS in early houses will now be ripening fast, and the colour and flavour will be good or bad as light brisk heat and fresh air are admitted or withheld from the structure. The second crop, too, will be swelling fast, a stage which will necessitate more liquid than is good for fruit which is ripening. The roots, nevertheless, must be kept moist, whilst the foliage must be kept clean, two difficulties which may be got over by picking in pretty close twice a week, feeding and copiously syringing immediately afterwards. Keep the trees clear of weak spray and pinch any gross shoots, but leave intact those of minor growth, as these will ripen their points and give the first crop of fruit next season. Pot trees may be induced to give a third crop, but two are quite sufficient, especially where other houses are regulated for a succession.

Trees growing in restricted borders and trained over trellises will now require good mulching and plenty of water, also abundant syringing to swell the fruit and keep down scale and spider. If the first is present, rub it off before it extends from the old to the young wood, whence it soon reaches the leaves and fruit, and gives no end of trouble. Good winter dressing should have killed every insect, but this having been imperfectly performed, the old wood may be painted with methylated spirits, and frequent syringing with weak clarified soot water will prevent it from spreading. There are two modes of managing the shoots of trained trees. The late Mr. Wildsmith always pinched the shoots precisely as he pinched those of pot trees, and no one had better crops of fruit. Others cut away all barren and bare branches in the winter to make room for the young growths, which they lay in full length, and from these they obtain a succession well into the autumn, when all intermediate figlets are rubbed off, as nothing larger than a small Pea will pass the winter and swell to maturity the following season.

Trees in late houses should not be allowed to carry more than one crop, and this should be a good one. Extension training here is the best and most profitable mode, as shoots a foot or more in length will carry numerous fruits in various stages. These we thin freely, but unless fire-heat is applied we do not reckon upon taking fruit from shoots of the current season. A number of fruits near the base of each young shoot would ripen, but the produce the following year would be proportionately light; we therefore rub them off, when others, backward enough to stand, are formed before the leaves fall in the autumn.

STRAWBERRIES.—As the season of forced fruit will soon be drawing to a close, all houses should now

be cleared of old plants and cleansed, the shelves with soap and water, the walls with sulphur and quicklime. The plants, moreover, if not really wanted, instead of standing about in some out-of-the-way corner, should be conveyed to the refuse fire, when the pots may be washed and put away. This stitch in time will not put an end to pot fruit, but quite the reverse will be the fact, for all plants worth keeping will be thoroughly overhauled, syringed, and fed, and placed together in light airy pits or frames where, relieved from the influence of strong, dry fire-heat, the foliage will remain clean, and they will give good fruit. Pot Strawberries, indeed, in May and the first part of June, are more useful to the family than in any other month, but the plants have a bad reputation, and for this reason they should be kept by themselves. Where suitable pits are provided for large and late batches, and the plants are fixed in the autumn, where they are to remain until they have ripened their crop, these just now will be in various stages from setting to swelling their fruit. The plants having rooted into the bed will be very productive, but the trusses must be well thinned and supported by small sticks to keep the fruit nearly on a level with the leaves. Damp being the greatest enemy, dry fire heat at times may be advantageous, but the weather being fine, the best of fruit may be carried to maturity by early closing with sun heat on bright afternoons. Beyond this shutting up for two or three hours, there should be no attempt at forcing; therefore the lights must be tilted through the night and thrown off entirely on mild gleamy days. The best Strawberry for this work is Sir J. Paxton, as it is not easily affected by damp, whilst President, at all times subject to mildew, is possibly the worst. Queens also do well when the atmosphere can be kept buoyant by the aid of a flow and return pipe.

MELONS now approaching ripeness must be kept moderately dry above and below the surface of the soil, and there must be no diminution in the supply of bottom-heat, as it is to a falling off in this element that a flat, insipid flavour is due. Another important factor is a constant circulation of dry warm air, abundant on bright days and moderate through the night. Some Melons ripen and are fit for cutting much earlier than others, but none should be cut until the aroma is strong, the colour perfect, and the stalks begin to crack. Plants swelling off crops must be moderately fed with warm, clear liquid supplied to the insides of the pots, also to the evaporating pans and the surface of the bed in which they are plunged. Morning syringing should not be indulged in, as the foliage is apt to scald, but the plants may be well bathed with soft water when the pit is closed on bright days.

CUCUMBERS.—The most important points are plenty of good liquid, copious syringing with pure and clear soot water, very early closing with sun heat, light cropping, and frequent manipulation, the best preventive of confusion and waste of force. If old plants show a tendency to spider, this troublesome pest may be checked by repeated syringing late in the evening with warm water tinged with soft soap. A few of the worst leaves at short intervals also may be cut away, but this should not be carried to excess, as Cucumbers never do much good after they have received a check. W. C.

Useful contrivances.—We have now in use a number of protectors formed by nailing securely four boards to form a square, which is covered with wire netting, bird-proof in size. These protectors average from 3 feet to 6 feet square, and 9 inches to 1 foot in depth. For Radishes, Carrots, small salads, and vegetable seeds of every kind they are well suited. Lettuce, Cauliflower, Stocks, Calceolarias, and a host of things have stood the winter well under these simple and inexpensive protectors with mats over them when necessary. They last many years, though in constant use. Looking over subjects, including vegetables and the bedding plants wintered under these wire frames, I find they have done better than those under hand-lights and glass plant protectors. Some are made

of wire entirely, which answers this purpose well, but are more expensive.—C. H.

TREES AND SHRUBS.

HONEYSUCKLES.

THE common Honeysuckle of the hedgerow and wood creates many pretty pictures in English gardens. It covers the tree stump, arch, and pillar with its twining growth, smothers the humble doorway of the cottage, or scrambles in at the latticed window, filling the air with the sweetest of scents. There are other Honeysuckles than the common one, and other ways of growing them than nailed to walls, or stiffly trained with shreds and ties. Few more beautiful pictures could be made than by planting one or other of the Honeysuckles at the foot of an arch, and permitting the plant to grow unmolested over the wood or wirework, which

varieties, flexuosa, characterised by purplish stems and hairy leaves, and *L. japonica*, also known as *Halleana*, which is of elegant growth, and very free blooming, the white flowers appearing in July and August. Then we have *L. flava* and the vigorous growing trumpet Honeysuckles, *L. sempervirens* and the variety minor. These are two beautiful kinds for a cold house, and the freest to bloom is minor, which with the type will succeed well out of doors in a light soil and warm situation. They are not so hardy as *caprifolium* and the other forms. A class of Honeysuckles is that known as the bush, of which *Standishi* and *fragrantissima* are well-known varieties. They are not climbers strictly, but we frequently see them planted against walls, as in the Royal Gardens, Kew, where they flower in mid-winter, scenting the air around with a sweet fragrance. *L. flexuosa aureo-reticulata* is conspicuous for its richly coloured foliage, netted with gold, but

pleasing objects in the kept grounds. *Pavia alba* is a white-flowering dwarf variety often grown under the name of *macrostachya*. This does well here under the shade of trees, but it bears smaller blooms than in a more open position. It is a desirable variety and worth a place in a collection of deciduous trees, being a free bloomer, bearing a large spike, and requiring an open piece of ground to allow its spreading roots plenty of space. *P. rubra* is also a dwarf variety with red flowers, and should find a place, being very effective when in bloom. *P. californica* and *P. flava* should be planted singly on lawns as specimens. We have some very fine trees of these varieties, some of them, now from 50 feet to 60 feet high, having been the first introduced into this country from North America.—GEO. WYTHES, *Syon House*.

DECIDUOUS TREES AND SHRUBS FOR SMALL GARDENS.

AT p. 444 I gave a list of Conifers suitable for planting in gardens of limited extent, and these alone if tastefully arranged would produce a most charming effect, but in order to make the combination of form and colour quite perfect, these should be backed or faced with a few deciduous trees. The choice of these at the present time is almost endless, but space being limited, the selection must be confined to species and varieties which may be kept within bounds by the use of the knife, or, better still, which do not attain a large size.

Taken alphabetically or for their adaptability, the Japanese Maples—

ACER PALMATUM and its numerous coloured varieties, are the most beautiful and interesting additions to English gardens, as they are as hardy as Oaks, perfect in form and leaf, and present every shade of colour from purple-crimson to a soft refreshing green. They are slow growers, and starting from short, clean stems they form full, round, graceful heads. They are not at all fastidious as to soil, for here they grow in stiff calcareous loam and in a deserted limestone quarry, where the root run is composed principally of loose stones. Naturally they do best and put on their fullest and richest dress in a well drained, thoroughly moist generous soil, whilst that which suits them worst is a poor compost liable to become hot and dry. The root space they really require is not, however, very great; therefore the planter who must provide new compost need not do more than he would for a Peach or a Pear tree. Then if the situation be hot and dry he may mulch, or, for appearance sake, partly cover the surface with rough stones.

The varieties being so numerous, very few planters, I suppose, would think of planting a complete set, yet had I the opportunity and space I would not leave one out. Then as to arrangement, the numerous sizes, shades, and shapes fit them for forming most perfect groups without foreign aid; they are, however, so chaste and telling upon lawns, in shrubberies, the flower garden, or the conservatory, in single specimens or masses, that it is almost impossible for anyone to plant them in the wrong place. *A. palmatum* (polymorphum), the normal form, is possibly the strongest, certainly the fastest grower, perfect in globular form, and when seen, as it may be here, from 10 feet to 16 feet through the head, a faint idea may be formed of the autumnal effect when its now soft yellowish green many-lobed leaves die off a vivid crimson, rivalling the finest *Nyssa* or *Liquidambar*. This is specially adapted for forming a background to any of the others which develop their many-formed leaves of a bright claret-crimson, dark purple, pale yellow with rose-coloured footstalks and nerves, and soft greens of every shade; also for planting on the margins of shrubberies, where in front of sombre Conifers and shrubs it fairly holds its own. Of coloured varieties, vivid crimson in the spring, less bright through the hot weather, and again most brilliant in the autumn, I can specially recommend *A. p. atrosanguineum*, *A. p. atropurpureum*, *A. p. septemlobum elegans purpureum*—a



An arch covered with Honeysuckle.

it quickly hides. Just train out the growth to prevent it becoming entangled, but allow the shoots to spread about in their own charming and graceful way. A pillar of Honeysuckles is of rich beauty, and may be made by putting in strong stakes, each from 8 feet to 12 feet high, but they must be strong to support the dense growth. Honeysuckles might also be planted on dead tree stems, as we frequently see Roses, which clamber over them, making a cloud of colour in the garden in the summer. It is in such happy ways that we obtain the beauty of the *Loniceras*, and not when simply trained to walls. The illustration that accompanies this note shows the delightful picture that may be made by planting Honeysuckles over an arch; the luxuriant growth, dangling shoots, and profuse display of the small yellowish flowers are brought out in their fulness. There is no stiffness in growing the Honeysuckle, as portrayed in the engraving. We have, besides the wild kind, the pretty Dutch and late Dutch

we do not care for such plants in the garden while there are so many finer types. A rare kind, but very elegant in growth, is *L. acuminata*, which comes from the Himalayas, and bears purple flowers in July.

The Pavias.—These are often classed in nurserymen's catalogues among the Horse Chestnuts, but they are very distinct in the growth, especially the dwarf bush varieties. Pavias are useful trees and shrubs for the decoration of the pleasure ground, where variety is required. Some of the large-growing kinds, such as *Pavia californica* and *P. flava*, resemble the Horse Chestnut somewhat in the foliage, but the trees are rather more bush-shaped or spreading. Pavias do well in any soil and are not particular as to position. The fruit or capsules are distinct from those of the Chestnut, having no prickles. The dwarf varieties of *Pavia* are very useful for many places where the Chestnut would be too large and too dense; therefore, a few bushes mixed with other shrubs are very desirable as they are very attractive when in bloom, and form

terrible name for so grand a tree, as being the best for producing a thrilling effect. *A. p. aureum*, too, is very good, and the same may be said of *A. p. cratagifolium*, *A. p. ampelopsifolium*, *A. p. linearilobium*, and *A. p. rufinerve*, whilst the lacinated varieties are superb for front rows, the centres of flower beds, for pots and vases, and training against walls.

AMPELOPSIS JAPONICA.—This plant should be extensively grown for the beautiful effect produced by its large leaves, which are of a bright orange-red, including many shades according to their full or partial exposure to sun and light. When planted out in the open it makes a stout self-supporting bush, but, like all the family, tries to become a creeper when placed against a wall.

RHUS COTINUS (the Venetian Sumach), *R. glabra*, *R. glabra laciniata*, and *R. typhina* (the Stag-horn Sumach); the last near water produces a wreath of colour in the autumn, and does not become too large if cut down annually. Of the first there is a good and bad variety. The good one is worthy of the goddess when in flower, and again in the autumn when the crimson comes into the leaves, but the pale, colourless, inferior variety is not worth a place; therefore the trade should discontinue its propagation.

PTELEA TRIFOLIATA (the Shubby Trefoil), a native of Florida, makes a very handsome and uncommon tree. It grows 10 feet or a little more when left alone, but for small gardens it should be kept to a single stem and moderately pruned. It then forms a neat spherical head, well clothed with leaves, which die off a clear rich yellow. The flowers, which are white, are produced in June and July, and the capsules or keys with flattened wings somewhat resembling those of the Elm add to the beauty of the tree.

VIBURNUM PLICATUM, a native of Japan and very hardy, is one of the best dwarfish flowering shrubs grown. The flowers, ivory white and of great substance in the pip, are produced in large bunches or long wreaths, according to the growth of the shoot. They last a long time in perfection, their waxy substance giving them the advantage over the old and well-known Snowball so easily dashed by rain. Plants from layers make a one-sided sort of growth, but they can be trained to single stems, and when so managed this Snowball makes a telling specimen on the lawn. The leaves are heavily corded and die off a warm brown, sometimes red. This is superior to the old Snowball for forcing.

DECIDUOUS MAGNOLIAS are a host in themselves, but space being limited strong growers cannot have a place. *M. glauca*, *M. purpurea*, and *M. stellata* are suitable sorts. *M. Lenné*, too, I believe, would not become too large. *Hydrangea paniculata grandiflora* must not be omitted, and all the *Spiræas* are good, but some of them being loose, lanky growers they should be kept in form with the knife, and occasionally cut over to the ground. *S. Lindleyana* makes a noble bed when cut down every year. *S. grandiflora* (*Exochorda*) is not a pretty grower, but its pure white flowers well repay all the trouble devoted to the maintenance of moderate size and good shape. Here, having an abundance of room, I allow it to go, although it submits well to the knife.

THE SNOWY MESPILUS (*Amelanchier Botryapium*) is one of our prettiest and brightest early flowering trees, and yet it is not half enough planted in pleasure grounds. It takes up but little room, and flowers freely under slight shade from other trees.

CHERRIES, too, are very beautiful. *Cerasus fl.-pl. japonica*, with flowers the size of a five-shilling piece, is a slow grower and is grand. *C. Mahaleb*, too, is slow, and *C. Padus* (the Bird Cherry), if possible, should have a place.

PYRUS ORIENTALIS and *P. SALICIFOLIA* have narrow silvery leaves, and although they attain a good height, they may be kept within bounds as to width. The white Beam and Service section are too large, but some grand subjects may be found amongst Crabs, both for their flowers and fruit; therefore, in addition to the preceding, *Pyrus prunifolia*, Siberian,

P. sinensis, *P. spectabilis*, *P. Michauxi*, and John Downie should be planted.

THORNS.—Distinct species and varieties of these to plant acres may be found, but having very little room we must be content with a few. The double white, the single and double pink, Paul's double red, coccinea plena must be planted before the smallest English garden can be complete. The Cockspur (*C. Crusgalli*) and all its varieties are good. *C. Douglassi* and *C. Macnabiana* are grand, especially in the autumn, and should be introduced wherever there is room.

SOPHORA JAPONICA PENDULA makes a charming weeping tree. If worked on a tall stem and umbrella-trained, it forms a grateful retreat from the sun, which cannot be too hot for its wood and leaves, as it winters best when thoroughly ripened.

W. COLEMAN.

Canadian Cherry (*Cerasus pumila*).—This little Bird Cherry, which is a native of North America, cannot, of course, compare with the larger members of the genus, yet it is an extremely free-flowering shrub, and one not particular in its requirements. It forms a low, bushy, somewhat upright-growing specimen, about 2 feet high, and its slender twigs are thickly wreathed with pure white Cherry-like blossoms. According to Loudon, it is a native of swampy districts and low grounds in Pennsylvania and Virginia, but such conditions are by no means absolutely necessary to its welfare, as it will also flourish even in light sandy soils. There are several of these dwarf Cherries, all of which are natives of America, and as their nomenclature seems to be rather confused, it is very probable that some of them are but forms of one species.—T.

Azalea rhombica.—It is somewhat singular that this beautiful early spring-flowering shrub should be so little known, for it is the first of all the Azaleas to bloom, and what is more, it is quite distinct from any of the others that follow later on. In colour the blooms are somewhat like those of the nearly allied *Rhodora canadensis*, which is a native of a considerable tract of country in North America, and may be regarded as the harbinger of the Azalea season. It is very much like an Azalea, and is by some included in that genus. *A. rhombica* is, however, much finer than its western relative, for it is more free blooming, the flowers also being larger and of a brighter purple colour, but it is about a fortnight later, which is in some respects an advantage, as the *Rhodora* is often injured by spring frosts. *A. rhombica* is a native of Japan, where on the island of Nippon it inhabits mountain forests. Singularly enough, while *A. rhombica* is so little noticed, another species, *A. Vaseyi*, has had far more attention directed towards it, though it is less ornamental than most of the hardy hybrid Azaleas.—T.

Cherry Plum for hedges.—In THE GARDEN for May 10 (p. 450) "S." alludes to the above, and comes to the conclusion that it is not equal to Quick, nor is it, if a short, thick, close-set hedge is required. The Cherry Plum is, however, an indispensable hedge plant, and if anyone wants a hedge of any height from 6 feet to 20 feet let him plant Cherry Plum and Quick in the proportion of one to two. The Quick will give density and an impenetrable thickness from the ground and for 4 feet or 5 feet upwards, whilst above this the Cherry Plum may be relied upon to make a hedge impenetrable to man or beast, and a wind-break, too, of no ordinary value. I know of one such hedge in which the main stems of the Cherry Plum would girth nearly 18 inches, but their nakedness is hidden by a free, bushy growth of Quick, which perfect the screen, whilst these strong stems give an amount of strength not found in the best hedge made of Quick alone. The Cherry Plum grows with extraordinary rapidity, making on some soils annual shoots of from 6 feet to 10 feet in length. Although for hedge-making these would have to be shortened, still it is obvious that a good hedge might be run up rapidly without injury to its density, especially if the site had been previously well prepared by deep digging. I fear

we do not generally appreciate the value of good hedges, especially in wind-swept districts. The prevailing rule everywhere is to cut down or grub up hedges and leave an open undivided waste of country, or else substitute an iron fence or strained barbed wire, one being black and hideous, the other not so visible, but far more dangerous. Probably some day there will be a reaction in favour of hedges for dividing lines.—A. H.

THE COMMON LAUREL IN GARDENS.

IF the united voices of Mr. Tallack and "West Dorset" raised in protest of the abuse or far too extended use of the Laurel in gardens were to have any effect in the future planting arrangements of those who are responsible for or carry them out, our gardens would certainly greatly gain in interest and variety of tree and shrub life. This superabundance of Laurel is most noticeable in large gardens, and it may have been that at the time these great breadths were planted there was a lack of variety to choose from and the prices of things deterred their extensive planting. Now, however, all this is changed. There is no lack of variety and quantity can be had combined with cheapness; therefore one is surprised at the pertinacity with which planters cling to the Laurel as the most suitable evergreen shrub for almost all purposes. The huge breadths of Laurel in suburban nurseries, the quantities sold at the autumn sales, and the prices realised all point to the extreme popularity of a shrub which is extensively planted in suburban gardens. A more unsuitable subject for a suburban garden could hardly be chosen, for here of all places it has the least possible chance of developing in size and attaining to that condition when it displays some degree of beauty, as it must be clipped in order to keep it within bounds. The Laurel can only be called beautiful when a fine suitably placed specimen that has been permitted to grow at will is seen. In most cases, however, the Laurel is seen under the very opposite conditions, planted where it has to be annually cut back. Apart from the great amount of useless labour expended upon this practice, as "West Dorset" so ably points out, there is a worse view, and that is the browned and miserable aspect these cut Laurels wear throughout the early months of the year, even when we have had a winter of scarcely ordinary severity. I fear much of the abuse of this shrub arises through copying a bad example set by the method and way in which larger gardens have been planted and the subjects used. The prevailing practice, custom, or style of a large garden is often reproduced on a diminished scale in smaller and even cottagers' gardens. As an example, I know of a place that might be called a wood of Laurel, and in passing through the village near by I noticed between twenty and thirty cottages which either had a Laurel hedge or else a cut-back bush in the front garden. This village is on an exposed hill several hundred feet above the sea level, and almost every spring the cutting winds of March sear every leaf upon these cottage Laurels.

It is to be hoped that many more like "West Dorset" will see their way clear to destroy quantities of this shrub, especially where it has to be cut back, as in this condition it occupies ground that hosts of other things would more fittingly ornament and give no trouble, but annually refresh the eye with free growth and fresh and fragrant blossoms.

A. H.

The Judas Tree (*Cercis siliquastrum*).—This is now flowering most profusely with me, and being so distinct from anything else, it is at once noticed and invariably admired, both for the colour of the flowers and the singular way in which the shoots and old wood even are studded with its almost numberless blossoms. The tree in question was formerly treated as a wall plant only and annually pruned, in all probability more for appearance sake than anything else. When I took charge here I found it in this condition, with the result that but very few flowers indeed were even seen, the pruning no doubt having a tendency towards producing too strong a young growth each season.

It was not possible to allow it to extend outwards from the wall (east aspect), so it was granted full liberty to grow in a natural manner at the corner facing south, where it is fully exposed to the sun, with the result that the wood always ripens well, and now every spring is a mass of flower upon these extended growths. This is another instance that once more proves the fallacy of allowing the knife to be so freely used upon our hardy flowering trees, shrubs, semi-climbing and climbing plants without due regard to their especial requirements. The tree, although an old one, has plenty of vigour left in it yet; indeed, from my own experience, I believe it to be one that will live and bloom freely for many years when treated in a sensible manner. I remember in one instance a very fine specimen standing upon a lawn in an old Sussex garden. I could not form an idea how old it was, but it had so far extended itself that props were required for the safety of its outer branches. Every spring it used to be a grand sight when in flower just before the advent of its foliage. It is without doubt the most cultivated of any of the family, yet it is not seen nearly so often as it deserves to be. I consider it is not in any way fastidious as to the soil; ours in a light soil resting on gravel does quite as well as the other one above, which was in heavy loam with clay subsoil. *Cercis canadensis*, the Canadian species, although introduced into this country early in the last century, has not made the same headway, so far as I have observed. *C. chinensis*, the Chinese variety, is a more recent introduction.—J. H.

EARLY-FLOWERING WALL PLANTS.

ONCE again, in common with the scarlet Anemone, the *Doronicum*, and the early Daffodils, many tenants of our old walls have set frost and biting winds at defiance, and given us a wealth of bloom. This early flowering of many climbers is one great attraction to creeper-clad walls, for it is very pleasant to turn from dormant vegetation to the wealth of flowers furnished, for instance, by the *Cydonias* and *Forsythias*. The old *Chimonanthus* is the earliest of all flowering wall plants. It has had for once a prolonged flowering season; the majority of the blooms have lasted their full time and have not come to a premature end through the severity of the weather. When the flower of this old favourite is thus preserved the *Cydonias* follow close on its heels, and in the different shades of scarlet, white, and flesh colour light up the walls for some weeks. I think the old scarlet is a trifle the earliest, but both the lighter varieties are with us stronger in growth than the type, and certainly last longer in flower. These *Quinces* delight in a good loamy soil, and under such conditions will quickly furnish a wall. They can be propagated in early autumn by layers, which should be allowed to remain a season before they are severed from the parent plant. Almost contemporary with the *Quinces* are the *Forsythias*. *Suspensa* is, perhaps, the freest variety; it is seen at its best on a subsoil of sandy gravel, as under these circumstances the annual growth would appear to be restricted and the wealth of flower proportionately increased. This climber can be propagated by layers or cuttings; it roots readily and can be quickly grown into nice plants. A graceful and early free-flowering wall plant is the Plum-leaved *Spiræa* (*S. prunifolia* fl.-pl.). If allowed to have its own way a little in the matter of growth the long bloom spikes will have a very pleasing appearance, and they are very effective in the furnishing of tall vases. The Judas Tree flowers rather early in the season, and adds to the charm of the wall with its peculiar shade of colour. This is among the oldest of our exotic trees, having been introduced so far back as 1596, and from the frequency of its occurrence on old walls it would seem to have been a favourite with the planters of from fifty to one hundred years ago. A useful plant for a recess or corner of a wall that is comparatively early is *Berberis Darwini*, handsome alike in flower and foliage. *Weigela rosea* will be in flower early in May on a south wall; it is seen at its best if after clothing the required space of wall

it is allowed to grow out and assume a bush or half pyramidal form. The few above-named climbers are not in themselves more attractive than summer-flowering wall plants, but coming in as they do at a time when outdoor flowers are comparatively scarce, they are proportionately appreciated.

Claremont.

E. BURRELL.

SHORT NOTES.—TREES AND SHRUBS.

***Pyrus spectabilis*.**—This, I observe, is very fine in various places just now. It is called the Chinese Apple, and large specimens of it point to the fact that a former generation of gardeners could appreciate flowering shrubs. It is a beautiful plant; the variety *pectabilis rosea-plena* is another lovely thing, of a rich deep pink. G.

***Spiræa lævigata*.** This kind when out of bloom might easily be mistaken for a *Daphne*, so different is it from any of the others. It forms a stout-growing, somewhat spreading shrub, clothed with oblong-shaped leaves, which are smooth, slightly glaucous, and of a much firmer texture than in the other *Spiræas*. The flowers are borne in terminal panicles and are white tinged with pink, but not particularly showy. Suckers from this species are very sparingly produced, which is another feature in which it differs from most of the *Spiræas*. It is a native of Siberia, and has been known in this country for more than a century. T.

The Spanish Furze (*Genista hispanica*).—Among shrubs that will succeed fairly well even in smoky districts must be mentioned this *Genista*, which is one of the showiest of dwarf shrubs that bloom during the month of May. Like the common Furze, it is useless to expect it to thrive where heavily shaded or choked up by other plants, but it is seen at its best when crowning a knoll on a sloping bank, or in some similar position fully exposed to the sun, provided always the soil is not too dry. Its usual habit is to form a dense bright green mass of narrow leaves and spines, but at this time of the year the foliage is almost hidden by the wealth of golden blossoms. For the sunny parts of rockwork the Spanish Furze is very useful, and it is also valuable as an edging to the larger *Leguminosæ*, many of which are at home under just the same conditions. It can be easily increased by cuttings, or sometimes an established plant can be divided into several well-rooted portions. If cuttings of the current season's shoots are taken early in the autumn and inserted in sandy soil in a close frame they will root during the following spring, if not before that time.—H. P.

***Stuartia pentagyna* and *virginica*.**—These are beautiful hardy shrubs not often seen, but worthy of extended cultivation. They are not vigorous growers and require a sheltered position, especially in a young state. They require a sunny position facing south, and must be protected from the north and east, if possible, so as to get their wood well ripened. Our trees are protected from the north by a mass of other hardy plants and shrubs, and flower profusely every year. When planted singly they give a better effect, as when crowded, much of their beauty is lost. Our plants are each from 10 feet to 15 feet high, and from the size they have attained, they must have been planted many years ago. They are growing in a sandy loam, and during a warm summer they make a free growth. Many of these shrubs and flowering hardy plants are often neglected, and their places occupied with common, and in many cases worthless, objects that require yearly pruning, and take more time than many of the choicer kinds. In the case of *Stuartias*, a little pruning out of the weak wood about once in two years, so as to admit air and sun, is all that is necessary. If the soil is light, a good mulching of decayed manure with occasional waterings during dry weather is of great assistance to the new growth.—G. WYTHES, *Syon House*.

THE pleasure which we sometimes receive from the American gardening papers is sometimes interrupted by sad stuff, of which the following is a sample:

"BUFFALO.—On his way to Detroit the genial secretary of the National Society laid over a few hours in this city. Half-a-dozen of the Buffalo boys were ready to receive him, and he was soon engaged in a game of ten pins in the same alley where such illustrious lights

as Messrs. Norton, May, 'Papa Gontier Anderson,' 'Cypripedium Manda,' 'Hybrid Perpetual Roehrs' and others have played." No doubt the man who writes this sort of literature thinks it very fine. The world may be coming to his point of view; but we would like to make a perhaps useless protest, and say that this sort of filling is no credit to any kind of journalism.

STOVE AND GREENHOUSE.

IXIAS.

IN most gardens where a greenhouse has to be kept gay at all seasons, the principal plants in bloom now will be *Pelargoniums* of the various sections, *Fuchsias*, and a few other common things. Prettier than these are the different forms of *Ixia* which are now in full flower, while they are of very easy culture. Great quantities of dry bulbs are disposed of during the autumn and winter months, being imported with the Tulips, Hyacinths, and other things that are sent here in such quantity. The *Ixias* are largely grown in the Channel Islands, where they do well, and many of the imported bulbs come from that source. In beginning their culture for the embellishment of the greenhouse, the better way is to commence with the bulbs in the autumn. They should be potted as soon as received in a compost of sandy loam, lightened by a little leaf-mould, and some thoroughly decayed manure may with advantage be added. About eight or ten bulbs in a 5-inch pot form good little clumps of a convenient size, but if larger masses are required, the pots can, of course, be increased in size and the bulbs in number. In any case the bulbs should when potted be about an inch below the surface of the soil. A frame or shelf in the greenhouse is a very suitable place for them during the winter, during which time very little water will be needed, just enough in fact to enable the roots to push into the new soil. As stagnant moisture is very injurious to *Ixias*, the pots must be thoroughly well drained before the bulbs are potted. They must not in the winter be stood under stages in some out-of-the-way place till they begin to grow, as is often done in the case of many bulbs, but should throughout the whole time get as much sunlight as possible. As growth commences, this is even more necessary, otherwise the leaves and flower-stems will run up thin and weak, and much of the beauty of the plant be lost. From early spring onward till they flower, the treatment given to *Pelargoniums* will suit the *Ixias* perfectly, as they delight in plenty of air whenever possible at that season. After flowering, the pots should be removed to a frame and kept supplied with water till the leaves show signs of decay, when it must be gradually withheld, and after the whole of the foliage has died down the bulbs may be rested a little while and then turned out and repotted as before. Care must be taken that they are not dried off directly after flowering, as if the bulbs are not allowed time to mature, the future display of bloom will be small. In favoured localities the *Ixias* may be grown and flowered outside, but they cannot as a rule be depended upon to the same extent as those grown in pots. A narrow border in front of a greenhouse or stove is a good spot for them when in the open air, but in planting them, if the soil is not naturally sandy a liberal amount must be mixed with it; indeed, it is a good plan to almost embed the bulbs in pure silver sand. Under these conditions they need to be planted much deeper than when in pots; therefore, the upper part of the bulb should be about 4 inches below the soil. If the weather is very severe the border will need a little protection, and the

effect of this will probably be that the young leaves will in many cases make their appearance before the sharp cutting winds of early spring are over. When this happens some covering must be given them, but the more it can be dispensed with the better. A great advantage possessed by those that flower in the greenhouse over the outdoor ones is that they are protected from wet weather and strong winds when in flower, and consequently the blossoms are often much purer in colour than those which expand in the open ground. The flowers of the *Ixia*, too, are very heavy when wet, and the stems being tall and thin they often touch the ground, and are consequently frequently splashed during heavy rains. There are a great many varieties of *Ixia*. All are very beautiful, but besides these many dealers sell mixed bulbs, probably seedlings, at a much lower rate, and consequently where price is a consideration these will be preferred, as when the bulbs are in good condition each one may be depended upon to flower, and when mixed in this informal manner the effect is to some more pleasing than if each variety is grown separately. H. P.

AGAPANTHUSES IN TUBS.

THESE are so magnificent when grown in tubs that it might be well to remove a false impression likely to be conveyed by "A Gloucestershire Parson's" interesting communication upon p. 127 of THE GARDEN for May 10. An *Agapanthus* in a half paraffin cask is not the unwieldy thing that might be imagined. Before the tub is filled, we screw to it two flat pieces of iron having a projecting hook, one on each side of the tub, and two men with two stout stakes of a thickness that admits of their being firmly grasped can carry the tub to any part of the garden. Nor does the *Agapanthus* need a greenhouse for winter storage, as any light shed will suffice; while it will stand 10° of frost without suffering any injury. The reason I have so strongly advocated tubs is that the *Agapanthus*, being such a free-rooting subject, is apt to burst its pot, especially when the plant is a large one. Large pots are very expensive, but tubs are cheap, and instead of the pot-bursting habit of the *Agapanthus* tending to hinder its cultivation, it would be much better to have recourse to tubs and enjoy the beauty of such plants as I have sometimes seen bearing between thirty and forty spikes of flower. It may interest "A Gloucestershire Parson" to know that the two finest tubs of *Agapanthus* I have seen were purchased from an amateur whose only assistance was his "factotum." These were bearing the number of flower-spikes above mentioned, and had been in the tubs eleven years.

The *Agapanthus* is such a fine flower and is seen to such advantage through late summer and autumn that it ought where possible to be grown, and there are few gardens that have not a corner where a plant might stand and prove a fitting and noble ornament. A schoolmaster in a Sussex village makes a noble show with this flower in pots standing in his little front garden, and if I remember rightly, he has no glass convenience for winter storage. From all that "A Gloucestershire Parson" has told us, we gather that he has a very interesting, if small garden, and if he will adopt the tub culture of *Agapanthus*, he may add another pleasing feature that will not entail much labour, and I take it that is the great desideratum in small places. A. H.

Cyrtoceras multiflorum.—This free-flowering stove plant is by some authorities included under the genus *Hoya*, and besides this it is also known by the name of *Cyrtoceras reflexum*. It is of a twining habit of growth, yet it may be often grown and flowered successfully in small pots. The individual flowers of this are creamy white, tipped with yellow, and of a peculiar silky character inside. They are borne in large, partially drooping umbels, as in some of the *Hoyas*. Like several

members of that genus, too, an open compost is very essential to its well-doing, for in close, stagnant soils it will not thrive. This is a comparatively old plant in gardens, having been introduced from Borneo in 1838. It is easily increased by cuttings of the young growing shoots.—H. P.

HYDRANGEAS FOR MARKET.

VERY fine specimens of the common *Hydrangea*, with heads of bloom quite out of proportion to the size of the plants and the pots in which they are grown, are now being brought into Covent Garden. Some growers succeed in imparting to a portion of their stock the really fine blue tint that the common *Hydrangea* takes on under certain conditions. Although as long as I can remember these big-bloomed *Hydrangeas* have been one of the most noteworthy features of Covent Garden Market, the practice of thus cultivating them has never been generally taken up in private gardens, where, indeed, this plant is much more rarely seen than some years ago, when the chance of blooming plants was more restricted. I feel sure, however, that anyone seeing the fine specimens brought into the London market in the spring would appreciate their value for conservatory decoration at that time of year, the more especially as they are not only remarkably effective, but quite distinct from other things brought on to bloom early under glass.

The production of big heads of bloom involves annual propagation, and the cuttings must be of the strongest nature possible. A practice with some market growers is to have a number of stock plants planted out in the open ground, which naturally make more robust growth than plants kept in pots. The best cuttings are the points of shoots that are not quite strong enough to bloom and that consequently have a sound, well-ripened terminal bud. These, taken off with a fair amount of wood as soon as it begins to harden, strike readily in a cold frame, and if potted off as soon as rooted will become well established by winter. At the beginning of the year they go into 6-inch pots in a rich compost of good loam with a liberal addition of rotten manure. Placed in light span-roofed houses near the glass they can be brought along, gently at first, but with stronger heat as the season advances and the sun gains in power. The whole energy of the plant is concentrated on the one shoot, that naturally pushes up with great strength and which is helped with plentiful supplies of liquid manure as soon as the roots begin to work round the pot, or, indeed, from the time the flower bud appears. Heat, moisture and abundance of good food with a concentration of force on the one flower bud have the same effect on the *Hydrangea* as on *Chrysanthemums* grown on the big bloom system. It is only in this way that such enormous heads of bloom can be produced. All the *Hydrangeas* grown for market are not, however, treated in this way. Thousands are cultivated in the manner commonly practised, but they, of course, do not make the price that big-flowered plants do. Whoever wishes to make *Hydrangeas* pay well should grow them in the above mentioned manner, and get them into market as early as possible, for they are but little in demand when summer sets in. For several years past the less known, but very beautiful, *H. paniculata grandiflora* has been a great favourite in the London markets. This is a wonderfully effective plant as cultivated in market gardens, plants in 6-inch pots bearing three or four heads of finely developed blooms. It is not grown on the big bloom system, but in the form of bushy little specimens. In the case of this kind the cuttings are struck in the summer and get a season's growth, becoming well established in their blooming pots before going into heat. With a suitable temperature this *Hydrangea* can be had in good condition at the present time. With the pots so full of roots and when growing freely it requires a large amount of water and frequent supplies of liquid manure, otherwise the blooms come too small to display their true character. Well grown plants will make about 18s. per dozen, and this *Hydrangea* may be grown more thickly than the generality of market plants. The white *Dr. Hogg*

is also grown to a limited extent. In the case of the last mentioned kinds cuttings may be put in during the spring months if it is desired to quickly work up a stock of them. Plants that are being pushed along for early bloom will generally produce growths that will not be strong enough to yield bloom. These will root in a brisk temperature, and grown along freely will be sufficiently strong to bloom well the following year, although the best specimens are furnished by cuttings struck in August of the preceding year. In all cases very firm potting with the employment of good loam of a rather holding nature is imperative to secure the best results. J. C. B.

PROPAGATION OF IPOMÆA HORSFALLIÆ.

AFTER the remarks of "Scepticus," expressing his incapacity to believe in the rooting of *Combretum purpureum* and the above plant, it appeared useless to say more for his benefit, and unnecessary for others, because the evidence of "T. B." was amply sufficient in a class of plants so peculiarly his own. But "T. B." returns to the subject, and as in my communication, never having put in cuttings, I expressed surprise if this *Ipomœa* could not be struck, I may now be permitted to say that it has been struck by my foreman, and that it presented no difficulty whatever. It may be struck quite as easily as the majority of stove plants—more easily than a great many—and this, indeed, was to be expected from analogy, and from the fact that suitable cuttings could easily be got by proper means. I had only one specimen which was just coming into flower, but Messrs. James Veitch and Sons were so good as to oblige me with a small plant. It happened to have a growth worth trying. This was cut off and made into three cuttings. Each one, I believe, made a plant; two rooted at once, but the third was slow, as might be expected from the difference between the tip and the base of a shoot. Others were put in as they came by my foreman, Mr. Harrow, who photographed the *Combretum*, an engraving of which appeared in THE GARDEN lately. These rooted as easily as could be wished. There is no difficulty whatever in the rooting of either of these two plants; it is merely the knowledge how to proceed, which in this case involves a method that should be known to every propagator. I believe "Scepticus" wished to know what failures there might be if the *Combretum* had been struck, and, no doubt, he would be surprised to learn that 100 per cent. may be made into plants. Mr. Harrow put in three cuttings and three established plants were the result, and as they were cuttings taken without preparation, I think it likely that, if a plant were set aside for propagating from and the cuttings put in at the proper season, there would be no difficulty whatever. It is impossible that anyone who goes the right way to work can meet with difficulty. R. IRWIN LYNCH.

Botanic Garden, Cambridge.

SHORT NOTES.—STOVE AND GREENHOUSE

Trachycarpus Griffithi.—This, which is now becoming more common, is recommended in a young state for table decoration. It appears to be a fan-leaved Palm of considerable beauty, and is, I believe, the same plant a large specimen of which I saw some years ago in the gardens of the Duke of Devonshire at Chatsworth. I believe it was imported by Gilson from the Himalayan region. Be that as it may, the plant here alluded to comes from the Himalayas, forms a tall and elegant species, and deserves universal commendation.

Ruellia formosa.—Like several other members of the genus, this *Ruellia* is a native of Brazil, and an ornamental stove plant of easy culture. When the branches are terminated by the bright scarlet flowers, each peculiarly curved and about 1½ inches in length, the plant is very showy, but the blossoms soon drop, though a succession is kept up for a considerable time. There is a second species, *R. rosea*, a good deal resembling it, except that the flowers are of a bright rosy pink colour, with just a suspicion of magenta, so that it forms a very pleasing companion to the preceding. Both can be struck readily from cuttings of the young grow-

ing shoots at almost any season of the year, and they only require the treatment accorded the general run of stove plants. During the summer they will do well in an intermediate house, and throughout the growing season the plants must be regularly syringed, otherwise red spider is apt to affect the foliage.—H.P.

CHRYSANTHEMUMS.

CUTTING DOWN CHRYSANTHEMUMS.

FAR be it from me to unduly exult over a comparative universal recognition of the merits of the cutting-down system, but it is only natural I should feel some degree of pride when I find that those who were opposed to, or could not agree with cutting down, now begin to see there is merit in it, and that the more it is practised the greater the success of the cultivator. Although I have given every publicity to my system of dwarfing and grouping, every year I get numerous inquiries from the trade, gentlemen's gardeners, and amateurs. I have answered many letters privately, but it is a matter of impossibility to answer all, and a few remarks in *THE GARDEN* on the most important points to be observed may reach many inquirers. By practical experience I have proved and shown what can be done by the cutting-down system, both for exhibition and home decoration, and the following are the most essential points.

The plants should now be well established in 4-inch or 6-inch pots and standing out-of-doors in a good open position. For cutting down in any district in the neighbourhood or south of London the following dates would suit. On Friday, May 30, or Saturday, May 31, I should cut down the latest varieties to within 2 inches, 4 inches, or 6 inches of the ground; about the following Tuesday I should cut down another batch; again on the following Saturday another still earlier batch; and on the following Wednesday or Thursday I should finish up with the earliest batch. That would bring us on to June 11 and 12, which would be right within a day or two, but no more license than that should be given. The first batch to be operated on would include Princess Teck and the various sports from that variety, Boule d'Or, W. G. Drover, Pelican, Meg Merrilies, Ralph Brocklebank, Thunberg, Mr. D. B. Chapman, Grandiflorum, Duchess of Albany, Gloriosum, &c. The next batch should include Princess of Wales and the various sports from that excellent variety, Jardin des Plantes, John Salter, Barbara, Mr. Brunlees, Baronne de Prailly, Japonaise, Mr. H. Cannell, Mrs. J. Wright, Mrs. Cannell, Belle Paule, &c. The third batch should include the Queen section, Mme. C. Audiguier, Edwin Molyneux, Mme. Laing, Florence Percy, Mme. Bertier Rendatier, Mons. John Laing, C. Orchard, Criterion, Lady Hardinge, Jeanne d'Arc, Venus, Refulgence, &c. The last batch should include the Rundle type, Beverley, Mr. Bunn, Prince Alfred, Lord Wolseley, Mme. Lacroix, Elaine, Mons. W. Holmes, Mons. H. Jacotot, La Triomphante, Bouquet Fait, Wm. Robinson, and others of the early flowering section.

After the plants had been cut down I should not put them under cover of any kind, as that would tend to weaken the young breaks; the more exposure the better; syringe and water as they require it. As they break, thin out the shoots, leaving three, four, or five of the strongest. Repot into the flowering pots when the breaks are 2 inches or 3 inches long, and feed with liquid manure as soon as the roots are fairly established in the new soil. Eight-inch, 9-inch, or 10-inch pots can be used, according to the variety and strength of the plant. Horn shavings or half-inch bones should be used with the broken crocks as drainage. The soil, in a good friable condition, neither too wet nor too dry, should be pressed very firmly around the ball. Keep well exposed as before, and stake and tie out the young growths after they are well established. Secure the first flower-bud that shows on the point by thinning out all side offshoots, leaving only the centre bud. This

should show about the first or second week in August; by that time the strength of the manure water can be increased, and it should be applied at every watering if the plants are strong and the pots full of roots, as they should be by that date.

C. ORCHARD.

SOCIETIES AND EXHIBITIONS.

ROYAL AQUARIUM.

THIS show was distinctive, a happy exception to the usual run of exhibitions, in which we have principally stove and greenhouse plants in sets of six, eight, and twelve. There were specimen Azaleas, but the exhibition was chiefly of hardy flowers, tufted Pansies, and groups for effect. If other compilers of schedules would take a hint from the Aquarium show of Wednesday and Thursday last and offer more prizes for bold masses of hardy herbaceous plants, our exhibitions would be more interesting, less stereotyped, and teach those who visit them that there are other plants in the world than big Ericas, Azaleas, and Orchids.

The great class for hardy plants consisted of a group of cut flowers and foliage set out for effect, and a charming arrangement was that of Mr. T. S. Ware, Tottenham, who had not only a group of exceptional interest as regards the things shown, but they were elegantly arranged in wavy masses of one flower, with here and there the graceful spikes of the Siberian Iris peering up to break the surface. Irises were shown in quantity and rich variety, and a ring of the scarlet *Ixia crateroides* gave a rich glow of colour. There were also *Cypripedium arietinum*, a pretty little gem, the lip or pouch spotted with crimson; the single lemon-yellow *Pæonia Witmanniana*, the Japanese Primrose (*Primula japonica*) in variety, the pale lilac *Camassia Cusicki*, the white variety of the Bird's-foot Violet (*Viola pedata alba*), *Tulipa Didieri*, and a variety of the Lily of the Valley called *Convallaria ovata aureo-marginata*, the leaves margined with rich yellow, and very strong; the white form of *Anemone palmata* and Tree Pæonies. Messrs. Paul and Son, Cheshunt, were second, and the most striking flowers in their stand were the bunches of *Geum minimum*, which massed together are of remarkable brilliancy; there were also the several varieties of Lilac, *Pæonia peregrina*, Japanese Maples, and Poppies. The collection from Messrs. Barr and Son also contained several interesting things, amongst them the softly coloured Iris Korolkowi, illustrated by a coloured plate in *THE GARDEN*, Nov. 7, 1885, the Jacobæan Lily (*Amaryllis formosissima*), the white *Anemone palmata*, tufted Pansies, *Gladiolus Franki*, pale lemon-yellow; and double Pyrethrums. There were several classes for tufted Pansies, or Violas, as they were formerly called. Twelve splendid bunches were put up by Messrs. Paul and Son, representing such varieties as Skylark and Sovereign, rich masses of deep and delicate bloom. Then there was a similar class for Pansies, in which Mr. Hooper took the first prize. Prizes were also offered for pots of both tufted and show varieties. Messrs. Paul and Son were first for tufted kinds of fine colour, as Mrs. Grey, True Blue, Trentham Purple, Sovereign and Bluebell, Mr. F. Hooper gaining the first place with fancy varieties, which, like the fancy Auriculas, have very little of the beauty of the self flowers; the colours are mixed and spoilt by contrast. Another interesting class was for a group of flowering and foliage plants, and again there was a good competition. The best arrangement came from Messrs. J. Laing and Sons, Forest Hill, in which there were Caladiums, double and single tuberous Begonias, *Cattleya Mendeli*, the rich blue *Leschenaultia biloba* major, all well arranged. The single Begonia Prince Albert Victor is worth a note for the breadth and richness of the orange-scarlet flower. Mr. Henry James, Castle Nursery, Norwood, who was second, also had a group of great beauty, and was first for a collection of Ferns.

There were, of course, the usual run of other classes, and perhaps the finest feature was the

Caladiums from Messrs. J. Laing and Sons, who were first for nine specimens; the finest varieties were *Mitridate*, *L'Automne*, the old *candidum*, and *Souvenir de Mme. Bernard*. Mr. Henry James had the finest eight specimen Azaleas, and in both classes for Pelargoniums the first prize went to Mr. C. Turner, who, however, was the only competitor. After the hardy flowers the most welcome feature was the Gloxinias, shown in quantity and excellent variety. Mr. C. Nunn was first for twelve, and Mr. J. Lambert, gardener to Mr. H. W. Segelcke, Herne Hill, for six, while for the prizes offered by Messrs. Sutton and Sons for six plants, Mr. C. Nunn was first. As fine as the Gloxinias were the herbaceous Calceolarias, and there was good competition, Mr. T. Mursell, gardener to Mrs. Burton, Tower House, Streatham, being first in the class for twelve plants, but the best six came from Mr. Henry Guyett, Elmstead Gardens, Streatham. The plants were dwarf, full of bloom, and the flowers of rich and varied colouring. We have seldom seen Calceolarias finer than during this season.

The bouquets were not remarkable, and one or two arrangements of flowers were positively ugly. Those from Messrs. Perkins and Sons, Coventry, were the finest, but in the usual lumpy style in vogue. There were several miscellaneous exhibits, but fewer than usual. It was not a show made up by trade growers alone. Messrs. Wm. Paul and Son, Waltham Cross, had a splendid group of Roses, comprising twelve boxes of cut flowers and thirty pot specimens. St. George, a rich crimson Hybrid Perpetual variety; W. Warden, shining rose-salmon; Ulrich Brunner, Mrs. John Laing, lovely rose-coloured flower; Baroness Rothschild, Capt. Christy, and Crimson Queen, rich crimson, were amongst the finest. Mr. F. Hooper, Bath, had four boxes of the Pink Her Majesty, a fine pure white flower, very beautiful; and blooms of *Clematis* Duchess of Edinburgh, a white, semi-double full flower, came from Mr. Moon, gardener to the Misses Arkwright, Harlow. Mr. W. Morle, Regent's Street, had a miscellaneous collection of plants. Messrs. Ryder and Son, Sale, Manchester, exhibited a large collection of Pansies, one of the finest of which in colour was the rich golden George Rudd; the plants were stuck in pots—not a good way to show the beauty of the Pansy. Mr. R. Dean exhibited the rich rose-purple *Aubrietia violacea*, double Stocks and a number of other fine hardy things, especially tufted Pansies.

A prize list is given in our advertising columns.

BRITISH FRUIT GROWERS' ASSOCIATION.

A MEETING of the above association was held at the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, S.W., on Thursday, May 15. Mr. T. F. Rivers in the chair. The special object of the meeting was to consider the scheme for the fruit report which had been prepared by the sub-committee appointed for that purpose on May 1.

The scheme submitted and adopted unanimously is as follows:—

The introductory chapters will deal with climate and soils in relation to fruit culture, land tenure, rent, rates and tithes, hardy fruit culture, fruit culture under glass, fruit preservation, stocks, insects, fungi, diseases and remedies. The report will include summaries of the chief counties in Great Britain and Ireland in reference to fruit culture, with descriptions of orchards and fruit farms, also of market gardens and private gardens where fruit culture is a special feature. The details will comprise extent of land occupied, situation, soil, and subsoil, age and character of trees, varieties, stocks, and methods of culture.

Sections will also be devoted to markets, dealing with supplies, salesmen's charges, packing, and cost of carriage; to expenses, returns, and profits, and to the prospects of fruit culture, pointing out the land and districts best suited for fruit culture, the best systems, and the varieties recommended.

Arrangements are being made to collect the information required through the committee, the local secretaries, and the members of the association, but assistance of any kind will be gladly welcomed.

Some discussion arose concerning the use of

Paris green and London purple as insecticides, and the general opinion was that they were dangerous compounds, needing much care in their application. The chairman gave, as the result of an analysis of samples of the two substances, that Paris green was an arsenite of copper CuHAsO_3 or cupric arsenite, also known as Scheele's green. The basis of London purple is carbonate of lime, coloured with an arsenical aniline compound. It was stated that the old application for caterpillars, quassia, was still found more directly effective, used at the rate of 2 ozs. to 4 ozs. to the gallon of water, with similar quantities of soft soap.

NAMING ORCHIDS.

THE council of the Royal Horticultural Society have adopted the following rules for the naming of Orchids for garden purposes:—

Sec. I.—Genera, Species, well-marked Varieties, and Natural Hybrids.

1. The names of natural genera, species, and well-marked varieties, as well as of presumed wild hybrids, shall be written so as to accord with botanical language and usage, and to conform with the laws of botanical nomenclature (*Lois de la Nomenclature Botanique*) as adopted at the International Botanical Congress at Paris in 1867.

2. Exhibitors showing, for the first time, a plant under a Latin name shall be required to furnish the name of the botanist who has described the plant.

Sec. II.—Artificial Hybrids between Genera

3. Every bigneron shall receive a generic name in Latin formed by combining the names of the parent genera, and a specific name also in Latin, the sign of hybridity \times being always added.

Sec. III.—Artificial Hybrids between Species.

4. Hybrids between species raised artificially shall be named in Latin, with the addition of the word *hybridus*, or of the sign of hybridity, \times . (See par. 1.)

Sec. IV.—Artificial Crosses between Varieties.

5. Crosses between varieties raised artificially shall receive suitable vernacular names.

Sec. V.—General Recommendations.

6. The Orchid committee shall decline to recognise any unauthorised name, or any name that is deemed unsuitable, or is not applied in conformity with the preceding rules.

7. A name once authoritatively adopted shall not be altered.

8. An award shall be made to any plant that is considered by the committee worthy of such distinction, even though it be unnamed, or not named in accordance with the preceding regulations, provided that, within a reasonable time, to be determined by the committee, a proper name be given. Any award made under these circumstances shall be suspended until the plant has been properly named.

9. The operation of these rules shall be prospective, not retrospective.

10. The council wishes to impress upon Orchid growers the desirability of obtaining drawings or photographs of all new and certificated Orchids, and of depositing such drawings in the library of the society for reference.

11. The council also desires to remind cultivators of the great importance of preserving specimens for future reference and comparison, and suggests that, wherever practicable, specimens should be sent for this purpose to the Director of the Royal Gardens, Kew.

The National Co-operative Flower Show

has again been arranged to be held at the Crystal Palace. The date fixed is Saturday, August 16. Last year the show attained colossal dimensions, filling the great nave of the Crystal Palace from end to end. The number of exhibits was over 4000, and visitors exceeded 32,000. This year the Agricultural and Horticultural Association of London contributes nearly £200 in prizes, and the Crystal Palace Company £150. It is expected that special prizes will also be offered by numerous London and provincial co-operative societies, as was done last year. The schedule just issued is a 52-page pamphlet. It embraces offers of 825 money prizes, besides silver and bronze medals, and, for the first time, a champion gold medal. One new feature is the division of exhibitors into geographical districts. For the more important prizes the country is mapped out into five districts, so that exhibitors from the north will not have to

compete against the south, the west, the midlands, &c., or *vice versa*. The secretary is Mr. Edward Owen Greening, of 3, Agar Street, Strand, London, W.C., from whom schedules can be obtained free of charge.

GARDENERS' ORPHAN FETE.

THE fete in the Flower Market, Covent Garden, in aid of the Gardeners' Orphan Fund has become an established event. It was instituted three years ago, and the third was held on Wednesday evening last, when the market presented the same brilliant scene as on former occasions. It was opened at the early hour of a quarter past seven by the Lord and Lady Mayoress, and those present then could walk through the rich avenues of flowers, arranged tier above tier, and frequently displaying an exquisite taste in combinations of colours, without the slightest discomfort. At no time in the evening was there any unseemly crushing, and the affair passed off pleasantly and successfully, a credit to those responsible for its management. All who have not seen the Flower Market in its fullest dress, as it is presented in the early hours of the morning, several times a week, should visit this fete another year if it is held. It is a picture of flowers different to the stereotyped exhibitions, and represents a large industry, that the increasing love for flowers gives greater zest to each year. The arrangements of the many stands showed more taste and a truer sense of the delicate combinations of colour than last season.

Plants were, of course, massed together in rich blocks of scarlet, pink, and so forth; that is necessary if effect is wanted. The limited space of each stand cripples the desire to create designs less formal, but in several of the exhibits, if we may so call them, there were delightful bits of colour contrast. All were good in their way. One cannot compare French Pelargoniums with tufted Pansies, and as each grower has his own special plant, it is impossible to make comparisons. The Pansy of both show and tufted varieties is as popular as almost any hardy flower, if we may judge from the splendid flowers to be seen here and there; then we had the lovely pyramidal Rockfoil (*Saxifraga pyramidalis*), which, however, strange to record, was scarce. Last year it was one of the leading flowers; this year it was conspicuous for its rarity. Hydrangeas, French and fancy Pelargoniums, white Lilies, Marguerites, Heliotropes, and Lilies of the Valley were amongst the leading plants, and breaks of Ferns and foliage plants between rich banks of bright colour gave delightful relief and freshness. One of the prettiest stands was Mr. Wermig's, who had used the graceful *Gypsophila elegans rosea*, a soft rosy-coloured flower, as a veil over squares of Forget-me-nots, Globe Flowers, Sweet Peas, perennial Centaurea, and dark blue tufted Pansies. Then we had a lovely assortment of Orchid flowers in delicate and rich colours in Mr. G. Monro's stand, and a choice group of Ferns from Mr. May, of Edmonton, including many newer kinds that will in future make standard market plants. The chief thing of interest in Mr. Hill's stand was a large mass of cut flowers of tufted Pansy Countess of Kintore, and in that from Mr. W. Plimley pink and blue Hydrangeas, a charming combination of delicate hues. In one stand was a large break of the old Carnation Miss Joliffe, and the great feature of another was the single Petunias, the flowers, however, of the usual size, big things that we do not want in gardens. The double yellow *Tropæolum* created a rich mass of colour, and a welcome change was the tall arrangement of Palms from Mr. Drost, a bold free use of plants that broke the flatness of one of the avenues. Messrs. Williams and Son, Finchley, had magnificent Hydrangeas, and Messrs. Bannister and Son a large block of Fuchsias, a plant that seems to be again returning to favour. A tasteful stand of cut flowers, principally of Lilies of the Valley, was Messrs. Hawkins and Bennett's, the Victoria variety of *Convallaria* showing up well against the dense mass of Pelargoniums that crowned the group. Lilies of the Valley also came from Mr. Poupart, besides a variety of tufted Pansies and Globe Flowers. One of the finest shows was made by

Fuchsias and Pelargoniums, but prettier than these were small plants of *Erica coccinea* minor and a white variety from Messrs. Gregory and Evans. The Dracenas and other foliage plants from Mr. Bause need no description, nor do the Pelargoniums and other plants from Mr. Ladds, nor the Lilies from Mr. Beckwith. It is impossible to note every flower, nor is it necessary, but those who wish to see a bright scene should visit such a fete as this, and benefit a fund which deserves the strongest support from not only gardeners, but all who are in a position to assist with their money children left fatherless. We hope that it has benefited substantially by the fete on Wednesday.

The winter moth.—The Evesham experimental committee, which has been organised to carry out the laudable object of testing the effect of various insecticides on fruit trees, and holding frequent conferences for discussion and reporting proceedings, appear to be very active in the endeavour to preserve the plantations of Worcestershire from the attacks of numerous swarms of insects which appear to be making their appearance generally on Gooseberry bushes. A visit was lately paid to Mr. Gibbon's extensive fruit farms, 160 acres in extent, and it was found that the winter moth caterpillars, although present to some extent on Plum and Apple trees, were not so numerous on them as on the Gooseberry bushes. Aphides were, however, found present in considerable quantities, and at their present stage was considered to be more difficult to be successfully eradicated than caterpillars, the buds of the Apple trees being so closely packed together, and the aphides so sheltered amongst them, that it seems in many cases the liquid does not reach them when spraying takes place. There was a great deal of discussion at the conference held immediately after Mr. Gibbon's plantations had been inspected, and it was resolved that the following resolution should be entered on the minutes:—

That the committee recommend an early syringing of the trees for the destruction of the hibernating aphids before the breeding season has commenced, with alum in the proportion of 2 ozs. to every gallon; but now Quassia and soft soap, both to be boiled for several hours in the proportion of 2 ozs. each to every gallon, and that afterwards Paris green, in the proportion of 1 oz. to a gallon of the decoction should be used. The committee, however, still think that an early attention is most important before the aphids has become numerous.

Apparently it is extremely desirable that great caution should be used not to spray any fruit trees with Paris green while they are in bloom, and Mr. Masters, the Mayor of Evesham and secretary of the fruit pest committee, states that in a former minute the committee suggested that the syringing should be done when the leaf-bud is first developed before the blossoming period, and then again after the blossom has disappeared and the fruit has formed. Miss Ormerod is of precisely the same opinion, having stated in a letter that "it appears for many reasons to be undesirable to spray the trees at all when in blossom." She fortifies this by an extract from the report of the Entomologist of the Dominion of Canada, who says:—

It decidedly pays to spray fruit trees as a protection against the various enemies that attack them. This should be done as soon as the petals have dropped, which, in most varieties, would be before there is a very large surface of foliage.

Apples from Victoria, New South Wales.

—An interesting competition was recently instituted by the Victorian Government. A prize of £5 was offered for the best packed box of Apples, consisting of twelve varieties, eight of a kind, to be shipped to London, the prize to go to those which arrived in the finest condition. They were sent to the offices of the Agent-General for Victoria, Sir Graham Berry, and opened and examined on Monday last, May 19. There were two competitors, Mr. S. A. Neilson, Richmond, Victoria, and Mr. Draper, Arthur's Creek. There was no question as to the merit of Mr. Neilson's mode of packing. In all there were ninety-six fruits, only five of which were decayed, and four of these only slightly, these con-

sisting principally of Adams' Pearmain. The fruits, which had been gathered on March 15, 1890, were packed on the 20th, and placed singly in ordinary paper bags. These were in layers, and the intervening spaces carefully filled with paper shavings, a piece of paper the length of half the box, as it was divided into two compartments, being laid between each layer; thus there was little chance of injury. The fruits were in admirable condition, as far as appearance went, and in colour remarkably bright; but the flesh was, with one or two exceptions, very dry and tasteless. Jonathan was one of the best—it is of rich crimson colour, and fairly crisp and sharp in flavour; but King of the Pippins was very poor in quality, absolutely without juice, dry, and unpleasant. Hoover seems a good baking Apple, unknown in England. Ben Davies, a fruit of rich colour, has a flesh as tough as leather. Rymer was large and very tough, absolutely uneatable. Chamberlain's Late Scarlet is a soft, brightly-coloured Apple, very juicy. One Apple, named Sutton's Seedling, was like wool; it had no flavour at all. The other box was packed by Mr. Draper, Arthur's Creek, Victoria, and the fruits were wrapped separately in tissue paper, and so closely packed together, that not a single specimen came out uninjured. All were damaged more or less, and in many instances they were quite rotten. In this consignment the only really good examples were those of Lamb Abbey Pearmain.

NOTES OF THE WEEK.

Clematis coccinea is charming from the Cambridge Gardens. It is a hardy thing, but delightful indoors.

Eurybia Gunniana.—This delightful little flowering shrub comes from Cambridge. It is a rare addition to our garden flora, and comes into flower with our own Hawthorn.

Royal Botanic Society. A floral parade and feast of flowers will be held probably on Thursday, June 26 next. It will take the same form as that of last year. There is a good list of prizes.

Tulipa macrospeila is one of the finest Tulips in the garden. It has the habit and appearance of Gesner's Tulip, and the large cup-shaped flowers are of a peculiarly beautiful bright crimson-carmine shade. A single bed of it has great richness and beauty.

A spotted *Miltonia vexillaria*.—Mr. C. J. Catt, Grappenhall, Hayes, Warrington, sends us some flowers of this in which the lip is prettily spotted with crimson. The flowers are of good size, considering that the plant is only a small one.

Rubus deliciosus.—One of the prettiest pictures in the Botanic Gardens, Cambridge, recently was a plant of this *Rubus* clustering against a wall and smothered with the large white fragrant flowers. It is a charming shrub also for a lawn.

Pentstemon Menziesi.—A very pretty rose-purple-flowered *Pentstemon* from Cambridge. We used to grow it at one time, but like some other *Pentstemons* it withers away generally in our moist English winters. In poor soil and open rock gardens it ought to do pretty well.

Disa racemosa.—This *Disa* makes a delightful group in the Orchid house at Kew. Several plants are in full bloom, each bearing a number of rose-coloured spikes of flowers. It is one of the most useful plants we have had from South Africa, and should become a great favourite.

Justicia magnifica.—This is one of the finest plants we have seen for many a day. It is a handsome plant, with a fine rosy head of flowers with really noble leaves. We should like to figure it. Some of the family used to be more often seen in greenhouses many years ago. In the larger class of house we should like to see them again. The leaves of *magnifica* are each over a foot long.

Cut-leaved Lilac is distinct and delightful. It comes from the Cambridge Botanic Gardens. The old Rouen, commonly called the Persian, does not seem at all known in counties around London, as in many parts of Ireland and Scotland. When well grown it is a beautiful shrub, and should never be forgotten by those who care for fine open-air things. This cut-leaved form is not otherwise different from the other varieties.

Odontoglossum maculatum anceps.—Flowers of this come from Mr. Atkinson, Aigburth, Liverpool. They represent a well marked form; the

sepals rich chocolate, with a few bands of greenish yellow showing through, and the petals of a richer shade of the same colour, the lower half deeply blotched with crimson-brown, the lip coloured in the same way. It was certificated recently by the Royal Horticultural Society.

Broccoli Suttons' Bouquet.—We have received from Messrs. Sutton and Sons, Reading, a plant of this curious Broccoli. Its peculiarity is that on the plant around the usual head are developed from five to ten subsidiary heads, all of which are fit for the table. It is also said to be very hardy, not a single head having been injured by frost.

Flowers from the north.—Messrs. Cocker and Sons, Aberdeen, have sent us a very interesting gathering of hardy flowers. Amongst them are the double Primroses, which grow so well in the north of Scotland. The most interesting of all the flowers sent was *Trollius asiaticus*, certainly the most richly-coloured form we have ever seen. Included in the collection also was the wild form of the Wallflower, the plants of which were found on the top of a wall 12 feet high, and which had been growing in that position for many years.

Two distinct Hoyas are *H. Paxtoni* and *H. imperialis*, both in bloom now in the stove at Kew. They represent the two extremes in the genus—the smallest and the largest. *H. Paxtoni* is the smallest and occupies a pot; the luxuriant growth, now beautified with the pendent clusters of small white flowers, having peculiar elegance, different to that of *H. imperialis*, which is trained up the roof, and bears an umbel of the deeply-coloured flowers. Of the two we prefer the little *Paxtoni*.

A good Carnation.—I send you some Carnation blooms from plants grown in 7-inch pots with from four to seven shoots on each plant. I think it is the best yellow Carnation I have ever seen. It is not a tree kind. The growth is very short. Pride of Peshurst, which I also grow, does not produce such large blooms.—DORSET.

**** A fine large flower, and very sweetly scented, but, unfortunately, if we may judge from the flowers sent, subject to splitting.**—ED.

Arctotises.—Among many other charming plants from the Cambridge Garden, Mr. Lynch sends us a group of these beautiful sub-tropical Arctotises. In depth and variety of colour they are quite distinct from the flowers of the same class, natives of Europe and the north. *A. revoluta* is delightful in colour; so are *A. arborea*, with black and yellow centre, and aureola, which is of a rich splendid tone. It was figured in THE GARDEN, Oct. 14, 1882.

The Water Lily house at Kew is open again for this season, and all interested in Gourds and tropical climber plants, which run over the rafters, or aquatics, representing the finest of Water Lilies, should not pass by this structure, which is close by the great Palm house. At the present time *Solanum Wendlandi* is in full flower, also the Sacred Bean (*Nelumbium speciosum*) and a variety of *Nymphæas*. One of the richest in colour is the deep violet-blue *N. zanzibarensis*, and another of a paler colour is the Berlin variety of *N. stellata*; its flowers are of a deeper blue than those of the type, and have broader segments. The stems stand fully 18 inches out of the water, higher than any other form. A lovely thing is *N. s. albiflora*, also the rich red *N. Lotus rubrum* and the pale canary-yellow *N. Martiana*.

Notes from Haarlem.—The Irises belonging to the *Oncocyclus* group are this year particularly beautiful with me. They seem to have derived especial advantage from the very warm and dry summer of last year, which caused the rhizomes to ripen off thoroughly. Of *I. iberica* I never before had a finer display; *I. susiana* is showing plenty of spikes. The wonderful *I. paradoxa* will be open within a few days, and the new *I. lupina* (the Wolf's-fur Iris) opened its first flower a day or two ago. The colour of the flowers of this extremely distinct species is a satiny greenish yellow, delicately veined all over with brownish black, the lip marked with a large black blotch in the centre; to this small group of Irises it is a decided acquisition. Of other Irises, the fine *I. Korolkowi* and its varieties well deserve a word of praise. A great beauty was *I. Korolkowi violacea*; the flowers, borne in pairs, are of a good size, the ground colour

a pure white, veined all over with lilac, the inner segments of the flower a dark violet; it is a very fine flower. *I. Leichtlini* presents a rather singular combination of colours—bronze, yellow, rose, and lilac being united in the flower segments. Of liliaceous plants, none now surpass the *Eremurus himalaicus*, a stately plant with its strong spike and large raceme composed of hundreds of pure white flowers; the display of the magnificent *E. Bungei* with its splendid golden yellow-coloured spikes also promises to be grand.—C. G. VAN TUBERGEN, JUN.

Wood Sorrels at Kew.—Not the least interesting feature at Kew now is the Cactus house, where, besides a fine variety of *Phyllocactuses* in flower, is a rich show of Oxalises, or Wood Sorrels, which have run over the stages and now made a delightful picture of flower beauty. *O. brasiliensis* is one that all who want a bright thing for a warm house should have; it has rose-coloured flowers, produced in the greatest profusion. Then we have another charming species in *O. Bowieana*, of which we hope shortly to publish a coloured plate; the flowers are about the size of a penny, smooth, and of a shining crimson; it also grows freely along the stages, running here and there with the utmost freedom.

Hardy flowers at exhibitions.—One of the reasons, though possibly not the chief, of the decay of miscellaneous exhibitions is the lack of enterprise on the part of those who compile the schedules. The same things that were the glory of the shows in years gone by are still shown when the public have long since sickened of the formality and stiffness then considered beautiful because it was the fashion to like such things. At the recent Aquarium exhibition direct encouragement was given to hardy flowers, a hopeful sign that through the agencies of tufted Pansies, large masses of Irises, and other things that beautify the garden, the shows will gain in interest and variety of exhibits. It has been seen, by the splendid groups of hardy flowers at the Royal Botanic shows, that pretty effects can be obtained with their help, and by offering prizes for individual flowers they might still further aid in removing that sense of sameness and monotony from the exhibitions of the present day.

Cineraria aurita.—Those who admire the graceful beauty of the true *C. cruenta*, the parent of our many florists' varieties, will delight in this lovely *Cineraria*, which is now the chief plant of interest in the greenhouse and temperate house at Kew. Imagine a plant as elegant as *C. cruenta*, but with flowers several times larger, and a good idea may be gained of this rare species. There are several specimens all in full flower, and creating a pretty picture of slender growth. The leaves are rich green, except on the undersides, where there is a soft felt-like down, which also covers the stems. The flowers are each the size of a halfpenny, borne in branching panicles, and bend gracefully with the least breath of wind. A note appeared on it in THE GARDEN, April 19 (p. 357), but this does not do justice to the plant. This when about 3 feet high and in full bloom makes a charming group for the greenhouse. Cuttings may be struck easily in the autumn. Those who have large houses, or wish to make graceful arrangements of plants, should make a note of *C. aurita*, not forgetting also *C. cruenta*, now in perfection in the Kew greenhouse. Both are worth good culture, but in the eagerness to acquire the florists' varieties, these fine flowers have been overlooked; hence their scarcity in even good gardens.

Narcissus poeticus recurvus.—Is it unusual for this to throw two flowers like biflorus, and the latter to throw three flowers? In several instances this has occurred in my garden here this year.—HERBERT J. ADAMS, Roseneath, Enfield.

Frank Ripley. A very common occurrence.

Names of plants.—*E. J.*—Both are forms of *Oncidium luridum*.—*G. H. C.*—A very nice form of *Dendrobium thyrsiflorum*; the *D. Dalhousianum* with double lip is only one of those freaks which all flowers run into sometimes, and this year it has been very prevalent amongst Cattleyas. Others next week.

WOODS AND FORESTS.

REPLANTING FOREST GROUND.

GROUND that has previously carried a crop of timber is considered by many to be incapable of producing a second crop of the same species of trees unless it is allowed to lie idle for a series of years. However plausible this may appear, it is not borne out by actual experience and observation when proper means are taken to at once replant the ground after the former crop has been removed. The soil that is suitable for the growth and healthy development of any particular species of tree will still continue to be so, and in place of being exhausted it will often produce a heavier second crop than was the first. For example, when cutting plantations of Ash, Oak, Spanish Chestnut, Sallows, &c., I have found that the trees produced from the roots left in the ground were far superior to such as had been planted in fresh soil. This, I think, is conclusive proof that the soil was by no means exhausted. Pine trees, however, are widely different in many respects from hard-wooded trees, and many failures have occurred here and there throughout the country in the endeavour to reforest Pine woodlands immediately after the trees had been cut down and removed. This, I have no doubt, has helped to create a prejudice against the system. If we inquire into the circumstances in connection with this, it will be found that the way in which the ground has been prepared is the cause of the failure. In replanting such ground, the first step to be taken is to examine it to ascertain whether or not it is infested with the Pine beetle or Pine weevil, and if so, the stumps and roots above ground should be scarified to prevent the insects from depositing their eggs between the bark and wood, and thus increasing the number of their species. The bark and surface rubbish should then be collected and burned. The next step is to have all drains and water channels cleaned out and put in a thorough state of repair, and in some cases it may be necessary to cut new drains. In digging the pits for the plants any roots of the former trees should be picked from the soil as the work proceeds in order to render it as pure and clean for the young plants as possible. The surface sod had better be laid on the edge of the pit at one side and the subsoil on the other, and be allowed to lie exposed to the influence of the atmosphere for at least six months before planting is commenced. This exposure improves the soil and renders it more suitable for the roots, promotes their growth, and gives the plants a good start. When planting the trees, the sod should be chopped and placed in the bottom of the hole, and the loose friable soil used for covering the roots. In this way I have replanted forest land with perfect success, and have, therefore, no hesitation in recommending the system to others.

J. B. WEBSTER.

Holly hedges.—These are not only the most compact, impenetrable, and the handsomest of all live hedges, but they may be safely employed under the shade of large trees, where Thorn and other hedge trees might not thrive. The best time to plant is about the middle of August, and thence to the end of September. The months of April and May are also suitable. To ensure a rapid formation of a good hedge, plant a double row of strong nursery trees 3 feet to 4 feet high, cutting back any side-branches that interfere with close planting. When the planting is finished spread a mulch of half-rotten manure 2 inches or 3 inches thick over the roots. They should not be touched with a knife nor shears for at least three years, for every leaf removed will check the growth. The subse-

quent management will consist chiefly in cutting to line in the month of April, and the less severely this is done the better, unless severe pruniness is required, in which case the shears must be put into the hands of a man who may be trusted. It is far better, however, to rough prune with the knife. It is right to add, because it might not occur to the owner of a property, that noble Holly hedges may be secured by leaving the trees to grow entirely unchecked and without any pruning whatever.

PLANTING FOR SHELTER.

In planting merely for shelter, it is usual to employ common, hardy, fast-growing trees. I have seen the Huntingdon Elm used in very exposed places, to receive the first fierce blast of the wind, with good effect. It grows rapidly, and has a less stiff and more elegant appearance than the common Elm or Oak. Having established a first line as a sort of outwork against the enemy, better and choicer trees and shrubs may be introduced. There are, of course, places where these observations on the importance of shelter are unnecessary. The greatest amount of shelter will commonly be required on the north and east aspect, though there are localities where the west winds at times come with the force of a hurricane. They are usually not so cold and cutting as those from the east or north; still, it is necessary to provide shelter in some situations against their destructive force. In the arrangement of the groups of trees and shrubs many things have to be thought of before the plan is laid down. The means of the proprietor will in the main decide the question as to the quality of the materials employed. Planting either for shelter or general effect may be looked upon as a permanent work, and it is a great pity to do it imperfectly, either by deficient preparation of the sites, or by planting cheap and inferior subjects. If the work be well done, and a good selection suitable for each position made, it will annually become more valuable and interesting. One of the evils to be avoided is thick planting; many shrubberies are utterly ruined by that and subsequent neglect. Thick planting would do no harm if thinning were attended to in good time; but even then I question the advantage of planting many masses, except it be on the windward side. Besides, buying more plants than are really necessary adds to the cost of the work.

In setting out positions for belts or groups of trees and shrubs in bleak, exposed situations, where the soil is bad or inferior, after the positions are marked out and trenched, soil should, if possible, be carted from other positions and placed on the top to deepen its staple; it will elevate the site and give the planter an earlier opportunity of seeing and assisting the development of his ideas than would be possible if planted on the level. The idea of planting on slightly elevated sites may perhaps be cavilled at and deprecated; but the extra depth of soil obtained, and the freer drainage which is secured, add so much to the warmth of the soil, that many rare plants may be planted with a reasonable prospect of their succeeding even in otherwise impossible situations, and which it would be almost hopeless to think of planting unless some such plan were adopted. Every experienced planter knows that a tree about whose hardiness there may be any doubt often succeeds on a raised site, when others in a lower situation fail. But I do not believe in raising the site at the expense of depth of soil. The elevated surface should be so much added to its depth—not, as I have sometimes known to be done, raising the surface by filling up underneath with stones, or clay, or rubbish. I am inclined to think, from what I have seen, that much mischief has been done by planting what ought to be permanent subjects on mounds of stones; in dry seasons the plants actually perish for want of water.

Trees planted on a heap of stones are in a worse position than if growing in a thin stratum of soil on the natural rock, so far as regards moisture. It may savour somewhat of empiricism to attempt to lay down rules or to give hints about a matter requiring a special study of all the connecting circumstances, many of which would be altogether of

a local nature. These should, and must be thought out on the spot; but when the ideas have been matured and the plan arranged, if the designer takes hold of one end of an ordinary wagon rope, steps out boldly with the rope trailing behind him, with a couple of men each provided with an armful of pointed stumps to stick in the ground at intervals by the side of the rope as it glides along, it will be found that a bolder, freer, and better outline has been obtained in a few minutes than perhaps would or could be secured by trusting to the eye or by measurement. I have seen both plans tried, and the rope plan is by far the best, always supposing that the person drawing the rope possesses a good eye, and has the design well arranged in his head.

In making alterations involving earth-moving—which most improvements do—there should be no difficulty in arranging for the deepening of the soil where the better and choicer kinds of trees and shrubs are intended to be planted. H.

Soils for Oak coppice.—In regard to the soils most suitable for the growth of Oak coppice little can be said, as it grows on soils of very diverse qualities. It thrives moderately well on very poor soils, if naturally dry or well drained. The most suitable soil is a good loam mixed with sand, and on a subsoil of clay and gravel; it also thrives well on a light sandy soil, with a gravelly subsoil when sufficiently drained. I have also seen a very good crop of coppice cut from a black mossy soil resting on a subsoil of clay. Perhaps the most unsuitable soil is marsh that cannot be properly drained. It would be much more profitable to cease cultivating the Oak in those bad soils, and to plant them with Alder or Black Italian Poplar. It is a mistake to attempt to grow Alder and Oak together in these damp places, as the Alder grows more quickly and cleaner by itself. The most important thing in regard to soils is proper drainage. The granulated particles of undrained damp soils being quite glued together from the effect of stagnant water, there is but a limited circulation of air, and the admission of rain water is obstructed by the same cause. Rain water is one of our best natural fertilisers, and when allowed to freely percolate into a properly drained or naturally dry soil, it assists regularly and steadily in decomposing the mineral and organic ingredients of the soil, and thus these are turned into food fit to be imbibed by the roots. Drainage raises the temperature of the soil and provides a greater range of feeding surface for the roots of the trees. It also encourages the production of spongioles, and enables the roots to extend their ramifications, both in a perpendicular and lateral direction. Stagnant water is destitute of those ingredients, such as carbonic acid and the alkaline substances that tend to promote the sound and vigorous growth of trees. It is also considerably impregnated with vegetable putridity, which is inimical to the healthy growth of trees. On cold damp soils the young wood is very imperfectly ripened in autumn, and the first sharp frost generally destroys a great many of the leading tops and young growths at the extremities of the branches. On marshy situations with a humid atmosphere, want of efficient drainage keeps the roots in a state of semi-activity during the whole winter, and for want of sufficient repose they grow very feebly. On black mossy soils with a clay subsoil, it has been found necessary to lay out the drains 24 feet apart, and to have them 30 inches deep, while on soils with a non-retentive bottom, drains 34 feet apart and 24 inches deep have been found sufficient.—G.

The Ash.—In the Ash, beauty of foliage generally accompanies elegance of form. The way in which the branches first start off with a growth close to the stem, then gradually assume a graceful sweep, often ending with a recurvate form, is highly effective. When fairly sheltered, the Ash retains its leaves of a lively green in a mild autumn longer than most other trees. It is seldom very handsome in old age, as the new growths which start from broken branches and from the trunk after accidents do not harmonise with the ruin.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

ROSE PROSPECTS.

Roses usually benefit much in May through heavy rains or thunderstorms, less because their roots are thirsty than because their tops are dusty. Young and tender foliage is less able to clear off the dust than that which has reached greater maturity. This is hardly what might be expected at first sight, for extension of growth, enlargement of area, by spreading the dust wider, might be assumed to loosen its hold. But, on the other hand, the more tender the leaf, the more easily and the more deeply the dust penetrates, and the stronger its adhesive power. A heavy thunderstorm, such as we had last night, is the best of all cures for dust on Roses or other plants. And seldom has Rose foliage looked more clean and promising than it does on this 20th day of May. It has often been more vigorous and of greater length, for since the latest sharp bites into the bark and substance of Rose wood the plants have been somewhat shy, charm the weather for a few hours or days ever so softly or winningly. Neither have many Roses as yet got over the hard frost grips of the early spring; hence many of them have been late. Up to and through the middle of May the soil has been cold and wetter than usual. The earth conditions of our Rose roots have joined forces with their frost-bitten tops to hold them back, so that, with the notable exception of Teas on walls, lateness and small size have been prominent features in our Rose prospects in May up till now. Already the tide seems to have turned and to have set in in favour of a prosperous Rose season. The result promises a great gain in time as well as of force. Should the present vigour and activity proceed without further reverse or check, June rather than July may yet be pre-eminently the month of Roses, to the justification of the poets and believers in old fashions, associations, and seasons.

Turning from fancies to facts, the recent storms of thunder and rain have cleared off or checked insect pests as effectually as the soot and the dust; in fact it can hardly do the one without the other; for just as cleanliness is the parent of health, so dirt of all sorts is the happy breeding-ground of insects of all kinds. Thrips and scale are seldom troublesome among Roses under good cultivation, and maggot and aphides have not been troublesome this season. Heavy rains, however, are even more useful as preventives to insects than as cures. The new supplies of food that they either tap afresh or present contribute to that vigour that grows out or off so many insects. Should aphides, maggots, or other Rose pests appear, however, lose not an hour in destroying the first intruder. It is ever important in the highest Rose culture to watch the signs of the appearing of some of them, and thus to be forearmed for the mastery over them. For example, one of the surest signs of the near approach of flights of aphides is the advent of swarms of ants. The latter precede the former with as unerring certainty as the night the day, inasmuch as the aphides seldom or never invade our Roses in flying swarms, but are carried on to them by the more plodding and industrious ants. Now, as the ants also love sweetness, they may be easily dislodged or,

what is better still, prevented from lodging on our Rose leaves and branchlets by syringing the Rose trees with tobacco water or Quassia tea.—D. T. F.

—So far this month has been specially favourable to the Roses, and at present the prospects of a good bloom are very favourable. Every shoot is breaking with customary vigour even upon such supposed tender kinds as Souvenir d'Elise Vardon, Comtesse de Nadaillac, and Niphetos. The advantage of early autumn planting is most apparent now, for groups that were planted last November are much stronger in growth than others which from unavoidable circumstances were not planted till February and March. Numerous are the pests which at times attack the Rose, but green-fly is generally first. Almost as soon as the buds have burst green-fly appears. Green-fly may be checked, and for this purpose nothing is more effectual than Fir tree oil, which mixed in the proportion of about half a pint to two gallons of water and syringed over the plants at once destroys them. For Roses in the open ground I adopt a simple and very economical plan by having a little of the mixture in a basin or earthenware bowl into which the tips of the shoots can be dipped. By this means little or none is wasted. The operation needs care, as the young shoots are easily broken, but as they lengthen they become more pliable, and as the aphides congregate upon the tips of the shoot it is generally possible to dip a sufficient length of the shoot to ensure the destruction of the pest. Mildew has already made its appearance upon some plants of Mme. Berard upon a wall. Dusting with sulphur is a tedious process, and often it is not possible to distribute sulphur all over the affected parts, whilst its greatest drawback is its disfigurement of the Rose foliage. But there is no need to use sulphur, as a more easily applied, more quickly effectual and less disfiguring remedy for this pest is to be had in sulphide of potassium. At the present time, when the foliage is young and tender, it must not be used too strong, a solution containing a quarter of an ounce of sulphide of potassium to one gallon of water being ample. Later on if mildew appears when the foliage is stronger, the solution may contain half an ounce of the sulphide to the same proportion of water. It is best applied by the syringe, wetting the entire bush by covering it with a fine spray. It is equally as effectual whether applied in the evening or early morning, but perhaps the evening application is the best, as the mixture does not then so quickly evaporate. A dull day, too, may be chosen for the application, but when once mildew appears it is well not to delay, but to seize the first opportunity, as it spreads with extraordinary rapidity. The little green caterpillar, which is often so troublesome, devouring leaf and flower-bud also, is this year up till the present almost, if not entirely absent. It is perhaps the worst of pests when present, as it generally manages to make itself secure between or rolled up in the foliage where insecticides if applied cannot reach it. In this case recourse must be had to hand-picking.—A. H.

TEA ROSES IN POTS.

THE crop of flowers that may be expected from pot-grown Tea Roses next winter and spring is to a great extent dependent on how the plants are managed during the summer from the time that the principal blooming is over up to autumn. Unless they are carefully and liberally treated after flowering, so as to enable them to make good the strength they have lost, a falling off will be seen in both the size and quantity of the flowers. As a rule strong wood makes fine flowers. Plants that were forced so as to begin blooming shortly after the beginning of the year will soon require potting. This operation should be done every year with the Tea varieties when they have been for a time in a state of comparative rest. When in good condition the Teas are never wholly dormant. The repotting is necessary to admit of the old soil being replaced with new which is requisite, for though much may be done to keep up its fertility by the regular application of manure in one form or other, still the roots extract

some elements from the soil which cannot easily be replaced by ordinary manures. Nothing but the best loam should be used; it ought to be rather heavy than light in texture. In localities where the soil is light and sandy, I should advise yellow clay or, better still, marl if it can be had being mixed freely with the loam. Whichever is added should be well pulverised by being allowed to get thoroughly dried through in the sun, after which if slightly moistened it will crumble down into small bits. This with a liberal addition of rotten manure is the next best soil to loam that is heavy enough to require sand with it. As much of the old material should be got rid of as can be done without injury to the roots, any breakage of which must be avoided, for even under the best cultivation they are not too numerous. In the size of pots used it is necessary to be guided by the size of the plants and the more or less vigorous nature of the variety. Overpotting should be avoided. Drain well and secure the drainage, so as to prevent the soil getting carried down into it, by a layer of fibrous matter on the top of the crocks. The soil can scarcely be made too solid in the pots. Care should be taken not to fill the pots too full, and room should be left to admit of sufficient water being given at one application to moisten the soil all through. After potting, the plants should be stood for a time in a house or pit where the atmosphere can be kept a little closer than ordinary, so as to encourage root action. Where the intention is to have the plants in the best possible condition they should never be exposed out of doors. Where, as often happens for want of room, there is no recourse except turning them out, strict attention must be given to watering, and also to seeing that mildew, green fly, or red spider are not allowed to infest them. If any of these pests are permitted to gain a footing, it is impossible for the plants to do well. T. B.

ROSES IN THE LANDSCAPE.

GRADUALLY, yet surely, Roses are getting off exhibition and dinner tables, and out of beds and borders into new places of higher honour and greater power in landscapes and pleasure grounds. No plants have suffered more from being over-fettered and confined than Roses. Most of their natural grace and beauty has been cut or squeezed out of them through art, so-called, and while nothing could rob individual blooms of their beauty or fragrance, Rose plants have all too often been dwarfed into insignificance, or stilted into ugliness through our stereotyped means of culture. Yet there are few families of plants that furnish a richer variety of form, colour, stature, and habit than the Rose. In order to develop to the full the peculiar idiosyncrasies of special species or varieties of the Rose, the chief thing is to let them alone. Furnish each plant or each group with sufficient space, and leave it to fill and adorn it in its own good time. Then, and only then, shall we discover anything of the wonderful capacities of the Rose in the rich and varied furnishing of landscapes. Now and then a monster Dog Rose or Sweet Brier draping a living or garnishing a dead pollard in a wood or hedgerow, or a huge Tea, Noisette, Ayrshire, or other Rose rambling at will in a rich soil, affords us glimpses of the marvellous powers and the inexhaustible richness of the Rose in the furnishing and ennobling of landscapes.

Fancy such masses multiplied by scores or fifties, as they might readily be, and we should virtually have new and brighter landscapes. Land is now cheap and plentiful; some of it is running to weeds—the dreary, depressing landscape of the sluggard—for lack of higher, better crops. Now is therefore the time to form new landscapes or glorious masses of Roses, or light up the old, dreary monotonous landscapes of evergreen shrubs and trees with gleams and groups of beautiful Roses. To evolve to anything like the full extent the landscape-making capacity of Roses, their branchlets must be left as wild and free as their blossoms. Many of them from the character of their growth might be improved through being run up trees or

stout stakes of a rough or rustic character, such as young Larch trees with the branches or parts of them left on as snags. But once mounted, they should be left alone if a maximum of beauty is to be realised. The great desideratum demanded in our landscape is more of Nature and less of art. Roses planted with judgment and left to themselves afterwards, will be sure to run out into natural channels. It is gratifying to find of late years semi-natural Roses moulding and modifying such a necessarily artificial landscape as that of the Crystal Palace. The so-called rosery there has always been the weakest part of those, on the whole, charming grounds. The site was too bleak, the arches too high to become richly and fully draped with Roses. But in the beds and borders of late years, under the direction of Mr. Head, many Roses have been given their heads as single plants and in groups, and these are rising rapidly in stature and growing into more profuse beauty and exerting a more beneficent and telling influence on the landscape every year. It is only needful to contrast these spiral climbing or bush Roses with the dwarfs that may yet be met with in the gardens of the Crystal Palace and elsewhere, to see their marvellous difference and absolute contrast in landscape effects. Planters seem to have forgotten that Roses are strong enough to stand alone in the landscape without a flower at all. In what other family of plants shall we find such endless variety of size, form, colour, habit of leaf and branch? Mass Roses in sufficient bulk, blend their statures wisely, and pose them skilfully in relation to other subjects, and where else shall we find such tender spring tints or more varied or brilliant summer and autumnal tints than among Rose leaflets and branchlets? And the flowers so full of sentiment, so indescribable in their fragrance and their beauty are superadded gifts and graces over and above their permanent beauty in the landscape. Nor must we forget the hips. We have nothing like them in Nature; their size, their prodigality, their brilliance light up the landscape, and seldom fail to excite attention and command admiration.

D. T. F.

MOSS ROSES.

WHY is it that so little attention is paid to the cultivation of Moss Roses? Most establishments of any importance whatever can make a good show with the ordinary Hybrid Perpetual, Tea-scented, and other sorts, but comparatively few can boast of a single bush worth looking at of Moss Roses. This is strange, but nevertheless true, and, moreover, one to be much regretted, for what class of Roses is more interesting, more beautiful, and sweeter than that now under notice?

At this present moment I could mention a nobleman's garden where everything is carried out on an elaborate scale and where an extensive collection exists, but not a single specimen of a Moss Rose can be seen. This is but a typical case. There are many others of a similar character.

With few exceptions, the Moss Roses are of easy culture, and will, under good management, thrive well in most gardens. At the same time there is no denying the fact that to plant them in a cold or unkindly soil is to court failure, and this cannot be too strongly impressed upon would-be cultivators. To produce the best results a rich and rather dry soil is essential, and given this, the majority of this charming section will flourish and produce satisfactory results. The best specimen of a Moss Rose I ever saw was growing in a cottage garden in Hampshire, and on a soil of a gravelly nature. It was the common or old Moss, and the bush measured nearly 5 feet in diameter. No regard was ever paid to pruning it, with the exception of cutting out an occasional dead branch or thinning it as required, and yet under this somewhat rough treatment it rarely failed to produce an immense quantity of beautiful flowers during the summer months. A dry, but sheltered bank is an excellent position for Moss Roses, and there a dozen or two bushes may be planted with advantage. Some years ago I had a sloping bank filled with these Roses, containing some fifty or

sixty bushes, under my charge in a northern garden, and by giving them annual dressings of decayed manure the trees made vigorous growth, and produced abundance of bloom.

Occasionally one sees attempts to grow the Moss Rose as a standard, but the system cannot be too strongly condemned. The common Hybrid Perpetual receives sufficient barbarous treatment when grown on this mop-stick method without practising it on such a beautiful subject as the Moss Rose. But even were there anything in the system it is not to be recommended here, for as standards the Moss Roses will not flourish. They will grow for a few years, struggle for existence a short time longer, and eventually die. Establish them on their own roots, and how different the result. If properly treated the plants will quickly form bushes several feet in diameter and the same in height, to say nothing of the masses of rich blossom they produce under this method of culture.

As pillar Roses some of the strongest growing kinds may also be utilised, inasmuch as they will attain a height of nearly 8 feet when planted in a kindly soil and favourable position. The old Moss, which has pale rose-coloured flowers of a good size, and is still one of the best in cultivation, is well adapted for this purpose. Baronne de Wassenauer, which produces clusters of bright red flowers, is also suitable for pillars, and the same may be said in regard to Captain Ingram (dark maroon) and Clemence Beaugrand (bright pink). The Tinwell or Damask Moss, as it is sometimes called, will be also found suitable for pillars in a good position. It is a vigorous grower, producing exceptionally large foliage and well-mossed flowers of a rose colour. John Cranston, again, is a good grower, and may therefore be put into use for this purpose, as also may Luxembourg and Princess Adelaide. The two first of these three have crimson flowers, and the other light pink.

The varieties mentioned may, of course, be also grown as bushes, but in addition to them there are other kinds equally worthy of notice. White Bath, for instance, is a beautiful Rose when seen at its best, and it is surprising that this variety is so little thought of. The flowers are white, well mossed, and make a charming button-hole when in the bud. Another white variety with well-mossed flowers may be found in Unique, which is like the last named, but a moderate grower. Lanei, with rosy-crimson flowers, is also deserving of a passing notice, and the same may be said of Ecclatante, Princess Alice, Etna, and others.

Most of the foregoing varieties bloom during the summer, but there are autumn blooming Moss Roses, and to these a brief reference may be made in passing. They are generally known as perpetual Moss Roses, and require precisely the same treatment as the others. There are several varieties of them, but Mme. Edouard Ory is, perhaps, among the best. It is only a moderate grower, but produces abundance of bright rosy-crimson blooms. Mme. Souper and Salet have red flowers. For producing beautiful white buds, Perpetual White is one of the best of this class, and it is, moreover, a good grower.

As regards the pruning of Moss Roses much might be said. That this is imperfectly understood is only too evident by the number of failures which take place. There are some varieties that require close pruning, and there are others that should have little or no pruning whatever. White Bath and Princess Royal, for instance, I have found flower best when pruned closely; whereas, on the other hand, such varieties as Luxembourg and the old Moss undoubtedly do best when sparingly pruned. A safe rule, however, is to prune according to the growth. For example, the weak and moderate growers should be pruned rather hard, while the strong and robust kinds may be pruned but very little. Follow this rule and an abundance of beautiful Roses, other matters being favourable, will be the result.

C. L.

Selection of Roses.—Would you kindly give me the names of what you consider to be, say, the

best twenty Roses in each section, as I contemplate apportioning a part of my garden and greenhouse to the growing of some of the best varieties, and shall feel extremely obliged if you will be good enough to assist me in the matter—the catalogues are so very confusing. Is there such a Rose as Homer? and would you classify it among the above?—A. COPPIN.

* * The best twenty Hybrid Perpetuals are—

A. K. Williams	Violette Bouyer
Mme. Gabriel Luizet	Viscountess Folkestone
Ulrich Brunner	Suzanne-Marie Rodocnachi
La France	Duke of Edinburgh
Mrs. John Laing	Louis Van Houtte
Alfred Colomb	François Michelon
Charles Lefebvre	Baroness Rothschild
Etienne Levet	Merveille de Lyon
Lady Mary Fitzwilliam	Captain Christy
Marie Finger	
Marquise de Castellane	

The best twenty Teas are—

Catherine Mermet	Hon. Edith Gifford
Comtesse de Nadaillac	The Bride
Maréchal Niel	Anna Olivier
Marie Van Houtte	Mme. Lambert
Souvenir d'Elise Vardon	Mme. Hoste
Innocente Pirola	Mme. Bravy
Niphotos	Rubens
Souvenir d'un Ami	Caroline Kuster
Souvenir de S. A. Prince	Perle des Jardins
Jean Ducher	Francisca Kruger

No Roses, as a class, surpass the Teas for pot cultivation, and the twenty Teas above named are all good under glass. Of Hybrids, the best for pots are those which show most the influence of Teas, such as La France, Viscountess Folkestone, Grace Darling, Lady Mary Fitzwilliam, Gloire Lyonnaise, &c. There is a Tea Rose called Homer, but it is small and faulty in shape, and in no way worth growing. Perhaps Mr. Coppin has not come across the report of the National Rose Conference, published in the Journal of the Royal Horticultural Society for October, 1889, and containing tabulated selections of Roses for special purposes and much useful information in a concise form.—T. W. GIRDLESTONE.

AMONG THE ROSES IN MAY, 1890.

MAY is one of the most trying months of the twelve for insects. The aphides too often come in flights during the month. Few or none may be visible to-day; tomorrow the young Rose shoots may be black or green with fly. It is not for us to reason why, but to clear them off with finger and thumb, aphid brush, or a dose of tobacco water. And then among the shoots there are lurking fat aphides and swarms of caterpillars, which must be picked off and promptly destroyed. Nasty work most of this, but love for the Roses to come makes all such burdens light and even pleasant.

Having cleared the Roses of insect pests, it is equally important to clear them of the enemies of their own household. There are suckers above and suckers below, and a surplus of weakly or worthless shoots. The plague of suckers is mostly persistent and troublesome. Hardly has one lot been brushed off when a second or many successional crops appear. They are robbers of the most insatiable sort, and must be suppressed early if flowers and plants are to reach perfection.

Superfluous weakly, mildewed, or misshapen shoots are almost as demoralising as suckers, and should be removed early if the sap that is about to be wasted on such is to be transferred to the bloom or shoots left. Mildew and red rust seldom make their appearance so early, but should they do so, every shoot infested with either should be removed carefully without disturbing or distributing the mycelium, placed in boxes, and be burned at once; then dress the Roses overhead with sulphur or sulphate of potassium. Occasionally Roses, especially climbing Roses on walls, dwelling or out-houses, may get dry at the roots in May; if so, drench them through and through with sewage, soap-suds, or manure water. Any beds or borders assumed to be dry will greatly benefit from similar drenchings. Whereas solid dressings on beds can hardly ever come amiss to Roses, however

disagreeable they may prove to their fair cultivators in May. To prevent the latter dressings of guano, bones, or other comparatively inoffensive solid or liquid manures should be used in summer, though some fair rosarians do not object to have their roseries converted into something akin to a farmyard if they can only win prizes through such rich feeding. On poor soils Briers for budding should be well fed in May, as few things foster early breaks and vigorous growths so favourable to successful budding as the rich feeding of Briers through May and the early part of June.

D. T. F.

Marechal Niel Rose.—Was not "G." drawing slightly upon his imagination when he wrote of a *Marechal Niel Rose* as blooming for months. I have had some experience of this Rose, but have rarely found the bloom from one house to extend over a month, much less several months. It is the peculiarity of the variety to bloom with wonderful profuseness, but also with considerable identity of time. A giant tree may be full of buds one day and not one left unexpanded in three weeks. The great fault of the Rose is that it gives so little succession of bloom, the one crop of the year being all too soon over. With respect to colour, I have found richness of hue in shaded and exposed flowers. Colouring is on the whole rather erratic. Without doubt deeper colour is found in May than in April, because there is more light. Even then colour varies very much, some flowers being almost rich orange and others pale yellow.—A. D.

PUBLIC GARDENS.

THORNS IN GREENWICH PARK.

ALL who admire Thorns, noble gnarled trees now smothered with blossom, should visit Greenwich Park, the most delightful and picturesque of the open spaces dedicated to the public in the vicinity of London. It has other attractions besides its Thorns. The avenues of Sweet and Horse Chestnuts and Elms are in their richest dress, relieved by groups of Thorns charmingly placed on some broad slope. The surface is not like that of the parks in the metropolis, flat, but it is broken up into glades, valleys, and hills, which give views over the Thames, Greenwich itself with the hospital in the hollow, and the surrounding country. Things have been left much as they were when this was a royal park; it wanted no touching up from the landscape gardener, and the natural beauty of the place, its trees and splendid Thorns have been left to us. There are no modern blemishes. At the summit, on the flat stretch like a plateau, there are several large trees of *Araucaria imbricata*, struggling for existence. Some have only three branches, the others dead or dying—gaunt objects that disfigure many gardens, both private and public. We have never seen more wretched "Monkey Puzzles" than at Greenwich. It is pleasant to turn from these to the Thorns, which are the glory of the place, and the beautiful Service trees, now a mass of flower and with the silvery leaves glistening in the sunlight. The Thorns are in groups, placed in the natural glades, and from the gnarled stems the trees must have weathered the storms of centuries. On the left of the Observatory, which commands an extensive view of Greenwich and the Thames beyond, there is a noble group, one specimen, a canopy of white in the late days of May, measuring fully 30 feet across. Others are not half this width, and comprise a variety of shades; there is an intensely rich crimson, a pink, and one of a paler shade, all in excellent contrast and in perfect keeping with the surroundings. The finest masses are near the summit of the park, but lower down groups have been formed, which in every instance show

perfect health and load the air with perfume. There is, fortunately, very little bedding attempted here, and with the exception of the *Araucarias* little to offend. In the broad expanse beyond the Observatory and a little to the right is a large bed of tufted Pansies, now a favourite hardy plant, but the mistake has been made of planting each variety in a single row. The rich golden yellow *Sovereign* and *Countess of Kintore* are the two principal kinds, while near this bed there is one quite 30 feet across filled with *Polyanthuses*. This must have made a glorious show of colour in the spring, and the free use of such things in London parks and gardens is a hopeful sign of future endeavours to make our open spaces more beautiful. There is no need to adorn Greenwich Park. It should be left in its wildness, and its noble groups of Thorns, avenues of Chestnuts, Elms, glades and hills religiously preserved show the thousands that visit this open space the grandeur of a truly English park.

MARKET GARDEN NOTES.

AN unusually fine spring, free from severe frosts or violent gales of wind, but with plenty of rain to keep the soil moist enough for young crops, has caused market gardens to wear a very luxuriant appearance. All kinds of crops look extremely well, the seed having germinated regularly, while the seedlings have made vigorous growth.

POTATOES of all kinds are looking remarkably well, and the early sorts will soon be ready for lifting; the price for old ones is still low, and the promise of an abundant crop so close at hand will not improve the chance of getting more money for the old ones. In this locality early kinds find most favour, for they are cleared in time to get another crop into the ground with very little labour.

EARLY CABBAGES are now being cleared in great quantities, and they are of the finest quality, as the mild weather and plenty of rain have favoured rapid growth, the chief factors in producing mildly flavoured Cabbages.

RADISHES are now in excellent condition, and sell more freely than at any other season of the year. The long varieties are in most request for early crops, but the successional crops that are being sown now are almost invariably composed of the round or Turnip-rooted kinds.

BROCCOLI of the latest sorts is still very fine; such sorts as *Champion*, *Latest of All*, and other naturally late sorts, if planted out rather late on cool rich soil, will continue growing all the winter and produce very fine heads through May, and can sometimes be had up till June.

CAULIFLOWERS of the early London kinds put out in March under hand-glasses are now making splendid growth, and will follow very closely on the latest Broccoli. The *Autumn Giant* is now being planted out in quantity.

PEAS look remarkably well, and the early ones in full bloom promise a splendid crop. They are grown entirely without sticks or supports of any kind. Sown in wide drills from 2 feet to 3 feet apart they grow up into massive rows nearly covering the soil, and the quantity they produce in this way would be difficult to increase by any other method.

TOMATOES are being planted out in all the warmest spots available. Walls with sunny aspects, boarded fences, and thatched hurdles are utilised for this crop, the main thing being to plant out early, good strong plants that have bunches of bloom ready to expand by the end of May.

VEGETABLE MARROWS AND RIDGE CUCUMBERS are now claiming attention, the Marrows being planted amongst some crop that will give a little shelter for a week or two, but the ridge Cucumbers seldom make much progress without a little bottom-heat. Trenches are taken out and filled with fermenting manure, the soil being returned, and hand-glasses put over the plants, which soon start

vigorously into growth, and fruit very freely during August and September.

FRUIT GARDENS AND ORCHARDS have been looking at their best during the past few weeks, the bloom having been abundant and fine on all kinds. The crop of Pears will be very thin, as the fruit has set badly, many of the kinds being quite bare of fruit. The Plums also appear likely to be a light crop, but Apples look as if they would make up for the loss by setting remarkably well, the trees looking well and the foliage bright and clean.

BUSH FRUITS are a good crop generally, and Gooseberries are larger than I remember seeing them at the same date for some years past. Many growers have started picking, not only on account of the higher prices obtainable now than later on, but also to lighten the bushes of part of their load. They are now realising about 10s. per bushel. Red, White, and Black Currants promise well, and Raspberries are looking better than they have done for years.

STRAWBERRIES promise well, and with a continuance of favourable weather we may hope for an early and abundant crop of this useful fruit. Mulching is generally completed, for in this light soil it is of the highest importance, not only for keeping the fruit clean, but especially for checking evaporation. Taken altogether, the season has thus far been favourable, and plentiful crops, but rather low prices may be expected to prevail.

Gosport.

J. GROOM.

NOTES OF THE WEEK.

Aerides Savagranum. A rare form was recently in bloom at Kew. It may be described as a deeply coloured *A. odoratum*, of which it is indeed a variety.

Cattleya Mossiæ.—Flowers of a variety of this named *aurea grandiflora* have been sent us by Mr. A. Taylor, Bath. They represent an excellent type, but we have seen finer; it scarcely justifies its name.

Libertia formosa just now is worth a word of commendation. Ample grassy tufts are producing abundantly spikes 2 feet high of pure white triangular flowers of rather a lasting nature.—T. S.

Mathiola valesiaca is a compact growing heavy-leaved plant, with dull rose-coloured flowers rather freely produced. It is, I should think, a long-lived subject when well established in a sunny clink; it is not a plant of rapid increase.—T. SMITH.

Professor Oliver.—We understand that Prof. Oliver has resigned the post of keeper to the herbarium of the Royal Gardens, Kew, with which he has been associated for about thirty years. We also learn that Mr. Carruthers has resigned the presidency of the Linnean Society.

Delphinium trollifolium. As a May flowering plant this is a most desirable addition to the all too limited group of blue flowers that are of other than prostrate habit. It forms a regular branching pyramid 2 feet to 3 feet high, the colour of the flowers being intense blue. It is increased readily from seeds, which should be sown as soon as they are ripe.

Fog and plants. The efforts of the Royal Horticultural Society to prevent the serious damage to plants by London fogs have not passed by unnoticed. The sum of £100 has been given to the Royal Horticultural Society by the Government Grant Committee of the Royal Society to help forward the work of research.

Orchids from Devon. A gathering of Orchid flowers, comprising *Lidia purpurata*, with a white throat and scarcely any markings, *L. elegans* and *Cattleya Mossiæ*, comes from Mr. P. Wheatley, Ringmore, Teignmouth. The colour of all the flowers is fine and the varieties excellent, but none are worth a distinctive name.

Dendrobium McCarthiæ was finely in flower the other day in the Kew collection. It is a charming June flowering species, and was introduced from Ceylon in 1854. The flowers are borne in pendent racemes of from three to five, and each has pointed sepals and petals of a bright bluish pink colour, the lip very much lighter, sometimes almost white. In Ceylon it is called the "Rainy Month Flower" or May Flower.

Linum monogynum.—This is the most beautiful of the perennial *Flaxes* just now fast coming into bloom. The individual blossoms are about 1½ inches

across, pure white, and produced continuously for months. Associated with the best of the blue kinds, *L. narbonneuse*, a pretty feature results. A fine specimen here about a yard across, freely surrounded with *Scilla amethystina*, is very charming.—T. SMITH, *Newry*.

Oncidium Rogersi.—Mr. Woodall sends us a flower of a remarkably fine variety. The blooms are each over 2 inches across and of the richest yellow colour.

Cattleya citrina.—This, from Mr. Woodall, is charming. The flower is one of two from a spike, and is of unusually large size, besides having a rim of white to the lip. It is the finest form we have seen of it.

Lælia elegans.—A flower of this has been received from Mr. A. R. Cox, Elm Hall Gardens, Wavertree, Liverpool; it is an excellent variety, the lip rich purple-magenta, and the sepals and petals white. This *Lælia* is very fine now in many collections.

Rhododendron cinnabarinum.—This comes from The Denbies, Dorking. It is hardy there, although a Sikkim species, introduced in 1851. The flowers are nodding, borne about eight together in a close umbel, and bright orange-scarlet in colour. It is a charming kind.

Strawberry Auguste Nicaise.—This fine variety was shown remarkably well by Mr. Wythes, Syon House Gardens, at the Temple show. The fruits are large, rich in colour, and of fine flavour, selling well in the market. It is a valuable second early, and does well out of doors. Although well known by name, it is not yet commonly grown.

Vauxhall Park.—This park will be opened on Monday next by the Prince of Wales. The ceremony has been fixed for the evening, in order to allow the working men of the district to take part in it. The new park is situated in the South Lambeth Road, at a point near Vauxhall Railway Station, and has been formed on the sites of two properties formerly known as The Lawn and Carrion House.

Crinum giganteum.—A flower of this beautiful *Crinum* comes from Mr. Woodall, and although an old plant, it is not common in our gardens. The peduncle rises between 2 feet and 3 feet in height and bears about six blooms, which are each from 3 inches to 4 inches long and of the purest white. It requires a stove and was introduced from West Tropical Africa in 1792.

Bronze-leaf (*Rodgersia podophylla*) has come through the spring without a blemish, rather an unusual occurrence here, with the result of a perfect leaf development, and what a handsome plant it is! The largest leaves are each quite half a yard across, of a rich bronzy hue, and have not yet done growing. The best position is a damp rich hollow facing west.—T. S., *Newry*.

Broad-leaved Saxifrages.—As a great admirer of the broad-leaved Saxifrages, I read "A. H.'s" article on them in *THE GARDEN* of April 26 with much pleasure, and think it may be of interest to mention that I noticed their forming a striking feature in outdoor, window, and balcony decoration—grown in pots—at the old city of Nismes, in France, when I passed through it at the end of January and beginning of February. The plants appeared to thrive admirably in the more southern climate; the spikes of flowers looked at once delicate and brilliant against the old stone sills, and the large leaves had, I suppose, been somewhat kept in check by pot culture.—M. R., *Liphook*.

A beautiful contrast.—A few flowering branches of a *Wistaria* have intertwined themselves amongst some shoots of a *Laburnum* on the top of a wall, which divides mine and my neighbour's garden. Both these are now in flower, and the golden bunches of *Laburnum* intermixed with the soft lilac ones of the *Wistaria* form an uncommon and beautiful picture. This is a lesson from Nature, and I wonder why these two splendid spring-flowering plants are not more often planted in company with each other. Both bloom profusely at the same time; their flowers are very similar in form, and they retain their beauty for three weeks or more.—J. SALLIER, *Seauce (Seine), France*.

A noble Anthurium is *A. mortfontense*, now to be seen in the Victoria Water Lily house at Kew, where there is a large specimen in the fullest beauty. It makes a handsome plant, and combines

the characters fairly well of its two parents, *A. Veitchi* and *A. Andreanum*, between which it is a cross. The leaves are large, of the richest green, and leathery like those of *Veitchi*, and we have the deep crimson spathe, but smaller in size, of *Andreanum*. There are many hybrid and seedling *Anthuriums* distinct in name only, but in *A. mortfontense* we have a valuable acquisition, as may be seen from a large vigorous specimen crowded with rich crimson spathes.

Flowers at the Temple.—A few things which struck me at the Temple show were a hardy lilac *Abutilon* (*vitifolium*), single *Pæony Orobis*, *Iris M. Chereau*, *Anemone Athalie*, with cream-coloured flowers, *Pæonia papaveracea*, *Fritillaria kamschatcica*, *Cytisus purpureus*, *Narcissus gracilis*, *Aster alpinus speciosus*, *Iris lavandulacea*, *Gladiolus insignis*, *Dianthus alpinus*, *Trollius europæus albens*, *Pæonia conchiflora*, *Ranunculus platanifolius*, *Vancouveria hexandra*, *Spiræa reticulata*, *Mertensia sibirica alba*, *Anemone sulphurea*, *Helianthemum grandiflorum*, yellow.—M. R.

The Judas Tree (*Cercis siliquastrum*).—All that now remains of what was once a truly noble specimen of this tree is now the centre of attraction upon the lawn. The main body of the tree has long since passed away, but a great vertical arm remains supported by a strong prop. This portion of the tree is quite 20 feet high, and is backed up closely by a dense Evergreen Oak. All the branches and twigs are wreathed in a profusion of flowers, which, though much larger, greatly resemble those of the old *Mezereon*. From a distance, both owing to the colour of the flowers and the rugged contour of all that remains of our specimen, it might be aptly likened to a gigantic *Mezereon* bush. The soil in which the tree is growing is very light.—A. H.

Solanum Wendlandi, illustrated by a coloured plate in *THE GARDEN*, February 1, 1890, is now very beautiful in the tropical Water Lily house at Kew, where there is a specimen in full flower, covering a rafter near the entrance. It is a delightful plant when seen in the robust health of the Kew specimen, its large heads of lilac-blue flowers, shaded with purple, which are each about 3 inches across, hanging down from the roof in rich profusion. It is a native of the colder parts of Costa Rica, from whence it was sent to Mr. Wendland, director of the botanic gardens at Herrenhausen, and after whom it is named. The plant is at its best in August, but it remains in beauty several weeks. This *Solanum* is certainly one of the finest of its race, and nothing could be more graceful, yet bold and handsome for climbing over the rafters in a warm house.

Hardy Cistuses.—Amongst these there are some very desirable garden subjects, which although, as a rule, they are not long-lived, grow fast, are of good habit, and keep up a long succession of bloom. The earliest to flower here is the distinct and neat-habited *rosmarinifolius*; the pure white flowers are only the size of a shilling, but they are produced in great abundance. The next to show colour is *formosus*; it is a spreading mass over 6 feet across, with hundreds of bright yellow, black spotted flowers, and is every morning a most pleasing sight. *Florentinus* has so far only opened a very few flowers, and will be the next in order. This is very useful as a rockery or marginal shrub if it never flowered at all, as the foliage and young shoots are so richly coloured. To bring this character out it requires to be planted in the fullest exposure, and to have a deep bed of generous soil beneath it.—T. S., *Newry*.

Bulbophyllum macranthum.—This genus is rich in curious and interesting species, but only very few of them can be described as pretty. This plant, however, possesses all these characters, and the flowers, as the specific name denotes, are also amongst the largest in the genus. It is a native of Java, and is not often seen in cultivation; a plant is now flowering at Kew. The flowers are each 2 inches in diameter, the lip, contrary to the usual arrangement in Orchids, being uppermost. As is the case with all *Sarcopodiums* (to which section of *Bulbophyllum* this species belongs), the lip

is movably jointed to the base of the column. The ground colour of the sepals and petals is mainly of a dull pinkish-white, thickly spread with tiny black-purple dots; the lip and a portion of the sepals adjoining are yellow. The pseudo-bulbs occur on a slender rhizome at intervals of 3 inches to 4 inches, and each bears a single leathery, deep green leaf. A fairly good figure is given in the *Botanical Register* for 1844, where it is stated that this plant was first introduced from Singapore by Messrs. Loddiges, of Hackney.

The Flowering Ash (*Fraxinus Ornus*).—There is a quiet beauty about this tree in early summer which makes one regret that it is not oftener seen. Unlike most of the species, the flowers of this so-called "flowering" Ash are furnished with four narrow linear whitish petals; individually these are insignificant, but in the aggregate they impart a most delicate feathery aspect to the large panicles of flowers with which the tree is covered at this season of the year. Several specimens in the corner of Kensington Gardens nearest to Rotten Row have been very beautiful of late. It might well be more extensively planted in our public gardens.—R. C.

Solanum crispum.—None of the lists of desirable flowering shrubs recently published in *THE GARDEN* have contained any mention of this most distinct and free-flowering subject. Here it is quite hardy as a bush in the open, one specimen in particular being now very beautiful. It is quite 10 feet across, its lower branches resting on the ground, a densely flowered mass of pale blue and yellow centred blossoms. It does not appear to be at all well known; strangers always express the utmost surprise at seeing it. We occasionally see it as a wall shrub, but as wall shrubs require to be annually trimmed, and as this is rather a free-growing subject, it is never thus seen so well flowered as when fully exposed.—T. SMITH, *Newry*.

Tropæolum azureum is an old plant, but it has become so rare that it is new to many. There is a charming group of it in the greenhouse at Kew, where there are also many other interesting things now in flower. This pretty blue *Tropæolum* should be in every greenhouse, as it is extremely elegant and produces a profusion of flowers of a similar colour to those of the *Violet Marie Louise*. It is a tuberous species, and was introduced from Chili in 1842. We lose much by not growing such a lovely thing as this and the little *T. tricolor*. A light peaty soil mixed with leaf-mould, or good turfy loam and peat, will grow the tubers well, and throughout only greenhouse treatment is necessary. Plenty of water and light is essential during the growing season, and in training the delicate growth on the trellis or balloon take care not to break the brittle shoots. When at rest give no water, and when growth begins again, shake out the tubers and repot. By this simple treatment plants full of flowers of a delightful shade may be had for the greenhouse or conservatory.

Disa tripetaloides.—Although this delightful little Orchid was discovered more than a century ago, it was not until last year that it made its appearance in this country. It is to Mr. J. O'Brien that the honour of having introduced and first flowered this plant belongs. Now that it is fairly established in several gardens, it appears likely to remain, as it is perfectly happy under cultivation. Judging by several plants now in bloom at Kew, it is also very free-flowering. The dark green leaves are each about 3 inches long, pointed, and arranged in a rosette, from the centre of which the flower-spike rises to a height of 1 foot or 15 inches. The blooms, although scarcely an inch across, are extremely delicate and pretty, being of a bluish-tinted white, dotted sparsely with pale rose-purple. Over a dozen blooms may be counted on the strongest spikes. The flowers of this *Disa* have not the brilliancy of those of *D. grandiflora*, nor the striking attractions of those of *D. racemosa*, but still *D. tripetaloides* has a delicate and characteristic beauty of its own that entitles it to a place along with those species, especially as its cultural requirements are identical.

TREES AND SHRUBS.

GARRYA ELLIPTICA.

THERE are various kinds of *Garrya* in cultivation, but this is the one most generally grown. There are male and female forms of it, but the most elegant is the pollen-bearing or male plant.

In the south of England it is one of the best subjects for planting against a wall, trellis, or fence. It grows so rapidly, that under proper treatment a considerable space can be covered in a very few years. Even in the northern counties it makes excellent progress when a good position can be afforded it. As a

shaded from bright sun, and kept close until rooted, will, by the early part of May, form nice little plants, ready to put anywhere. A compost of loam, leaf-soil, some sand, and a small portion of peat suits well. Abundance of water to the roots when growing freely and occasional doses of liquid manure will produce shoots 3 feet long in one season. When growing at the base of a wall, more abundant supplies of water are necessary than when growing as a shrubby plant. During hot weather in summer vigorous syringing of the leaves in the evening is of immense advantage in promoting a healthy growth. Early in November the catkins commence to unfold and last for fully three

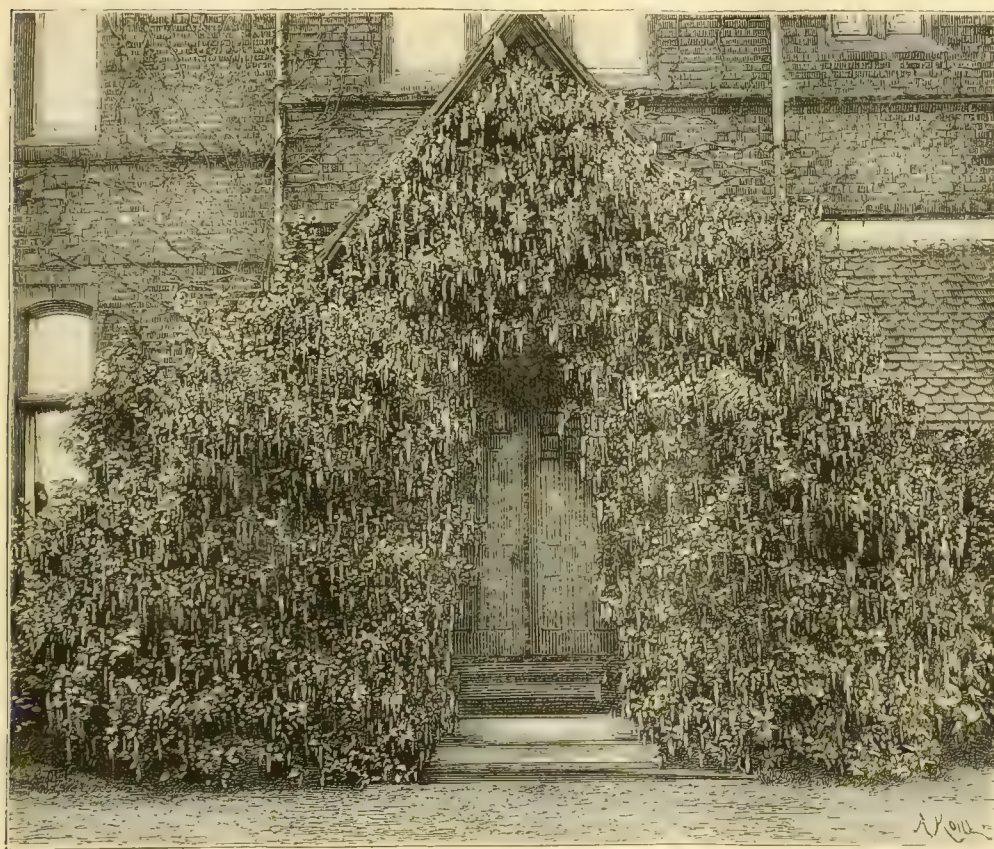
The name would suggest that it is of continental origin, and it has appeared in some catalogues for years, but I have also seen a pale coloured variety, without any special merit, doing duty for it. The variety *Moerloosei*, as grown by Messrs. Veitch, is one of the most desirable forms of the Japan Quince, of which a few well selected varieties are almost indispensable in a garden, for though more commonly grown against a wall they form handsome free-flowering bushes in the open ground. Of white flowered kinds the best is *nivalis*, as it is much the purest, while *cardinalis* and *princeps* are perhaps the best of the rich tinted varieties.—T.

KALMIA.

IN the early days of May, one of the brightest pictures among hardy shrubs is furnished by a mass of the little *Kalmia glauca*, which is then thickly covered with its charming bright purplish-pink coloured flowers. It is a beautiful shrub, which is not grown half so much as it should be, as it is quite as beautiful, though quite different from the commoner Mountain Laurel of the United States (*Kalmia latifolia*). *K. glauca* is of a somewhat upright growth, which reaches a height of 1 foot or a little more, the oblong-shaped leaves, about 1 inch in length, being bright green on the upper surface, but glaucous beneath.

This *Kalmia* is not vigorous enough to hold its own in a mixed border of shrubs or in similar positions, but succeeds best in a peaty compost, or where the soil consists principally of vegetable matter, and which is not, even during summer, very dry. Such conditions also suit *Ledums*, many *Heaths*, *Cassiope*, some of the *Andromedas*, and others. Like all the members of the genus, this *Kalmia* is a native of North America, and was introduced about the middle of the last century. The next to flower is *K. angustifolia*, a little upright shrub, reaching a height of 1 yard or so. Each leaf of this is about 1½ inches in length and three-quarters of an inch broad, usually light green above and pale beneath; but in this respect there is a certain amount of variety to be found amongst them. The flowers are not more than half the size and much deeper in colour than those of the Mountain Laurel, while there are also some very deep-tinted forms, the richest being known as *rubra* and *superba*. Besides these there is also a very dwarf variety (*nana*), which is valuable as a small rockwork shrub, or for associating with *Heaths* or similar subjects. The third to mention is the Mountain Laurel (*K. latifolia*), an evergreen shrub, which, from its size and cultural requirements, is fitted to associate with the *Rhododendrons* and similar subjects. This species, which in some of the shady ravines of North America is said to reach a height of 15 feet to 20 feet, is here more often 6 feet or 8 feet high and remarkably handsome when in flower. It does not bloom till most of the *Rhododendrons* and *Azaleas* are past their best. Of this there is a dwarf variety (*myrtifolia*), which is of more compact habit and smaller in all its parts than the type, while some half-a-dozen years since Messrs. Veitch showed a very beautiful variety which differed from the type in the flowers being of a much richer and brighter colour. This form was named *K. latifolia major splendens*.

With regard to the cultivation of the Mountain Laurel little need be said, as it succeeds under the same conditions as the different *Rhododendrons*, and, like them, does well in soil of a peaty nature, provided it does not get too dry. As with *Rhododendrons*, however, this *Kalmia* often flourishes in a stiff loamy soil. Where the soil is of too stiff and adhesive a nature much can be done by mixing with it a quantity of leaf-mould. In chalky soils it is useless to expect success in the cultivation of the different *Kalmias*. *K. latifolia* is often used for flowering under glass, and there is no reason why the smaller growing kinds should not be used



Garrya elliptica on a porch at Swanmore Park. Engraved for THE GARDEN from a photograph sent by Mr. E. Molyneux.

shrubby plant it succeeds well, forming a dense bush, and if in a sunny spot an abundance of blossoms will be annually produced. The weeping character of the long catkin-like flowers and the dense green foliage render this *Garrya* most suitable for planting on the top of a rockery of large size. When pruning is done it must be judiciously carried out, otherwise a scanty crop of flowers will result. It is not wise to remove the tips of all the shoots annually, as it is from these that most of the blooms are produced.

No difficulty need be experienced in obtaining and maintaining a stock of plants, as cuttings 6 inches or so long, taken off at the end of August, when the growth is partly ripened, inserted firmly in sandy soil in a cold frame,

months. Flowering shoots, if cut and placed in vases in rooms, last a long time and are very useful during the winter months.

The two plants which form the subject of this engraving are growing one on each side of a porch facing west, with a slight inclination to the north. The position is much wind-swept. The specimens put out eight years since have now reached to a height of 18 feet; the two, including the doorway, cover a width of 24 feet, and they have been several times pruned to keep them within this limit.

E. MOLYNEUX.

Cydonia japonica Moerloosei.—This variety of the Japan Quince would appear to be a most continuous bloomer, for it is one of the earliest of all to flower, and is even now in good condition.

for the same purpose. Like their allies, the dense fibrous character of their roots is a great advantage when they are needed for forcing, as they can be lifted and potted without injury. They must not, however, be forced too hard, otherwise the display will be but small. The little *K. glauca* is more at home where the soil is moister than that required by its relatives; indeed we are told by Emerson it is almost an aquatic plant, found at times growing in a swamp. In a general way these *Kalmias* may be increased by seeds, which should be sown in moist peaty soil. As they are very minute, a good plan is to sow them in pots or pans and shelter them in a frame during their earlier stages, otherwise they are apt to die off should the weather be exceptionally wet or very hot and dry. There are two other species of *Kalmia*, which are, however, rarely met with in this country, viz., *K. cuneata* and *K. hirsuta*, this last being very distinct from any of the others, as the whole plant is hairy. It is a small growing species, reaching a height of a foot or thereabouts, and clothed with oblong-lanceolate leaves; it bears its delicate pink blossoms in the same way as the other members of the genus. *K. hirsuta* is a native of the sandy Pine barren swamps of Eastern Virginia, and, like some other plants from that region, it is difficult to keep long in health in this country. T.

TREES ON THE SEA-COAST AT DOVER.

To those about to plant trees and shrubs on chalky soil along the sea-coast a good lesson may be learnt from the results achieved all along the chalk cliffs from Folkestone to St. Margaret's Bay. Establishing either trees or shrubs on exposed chalky soils, but particularly where they receive the full sweep of the sea air, is a by no means easy task, and yet one that if gone about in a proper way and at the right time of the year can hardly be considered as fraught with extreme difficulties. One of the greatest points to attend to in planting trees along the coast, but especially where the soil is largely composed of chalk, is the providing of well-rooted, stout plants that have, if possible, been grown under conditions nearly similar to those in which they are to be placed. Where such could conveniently be spared, I would strongly urge upon intending planters of seaside chalky land to devote a small patch of ground to the rearing of trees and shrubs for planting in such situations, for it is hardly to be expected that such as come from inland sheltered nurseries and where the soil is totally different to what the plants are to be inserted in can succeed in anything like a satisfactory manner under such adverse and totally different circumstances. Last year I sent a number of picked plants with excellent roots from an inland nursery to plant on the sea-coast near Dover, and although every care was bestowed on lifting, transit, and planting, still the results were not what I could have expected, and certainly not at all comparable with those resulting from using trees that had been for a couple of years in a chalky piece of nursery ground close to the sea. Taking this as a timely hint, I have caused a number of young plants to be inserted in this seaside nursery, and I have but little doubt that the percentage of deaths in these when planted out permanently will be small indeed. The after management of trees planted on chalky soil within the influence of the sea is worthy of careful consideration. In the first place, chalky soils are apt to crack, and so cause excessive drought at the roots of the newly planted trees; while, again, the saline blasts to which they are almost constantly exposed tell hard upon such subjects as have been but recently brought from an inland situation. Great care is, therefore, necessary to minimise these evils, and the methods just pointed out of, as it were, acclimatising the

trees, and by careful planting and repeated tramping up of the ground around the plants are productive of the best results, at least so far as my experience goes.

Now as to the trees and shrubs that are best suited for planting along the sea-coast and in chalky soils, I might mention as two of the best the Austrian Pine (*Pinus austriaca*) and the Evergreen Oak (*Quercus ilex*). On Lord Grenville's property, at least in one portion in which I am particularly interested, where the chalk cliffs rise perpendicularly or almost so from the sea-shore, and where the full force of the channel winds is unbroken, these two trees seem better fitted for withstanding the adverse conditions than any other. Certainly the annual growth of both is short, but what else could be expected when their great altitude on the coast line is taken into consideration. The growths, though short, are by no means weak, and seem as if specially formed for doing battle with their peculiar surroundings. For the great amount of shelter afforded both by the Austrian Pine and Evergreen Oak, they are particularly valuable where long-blowing storms are more the rule than the exception. Both succeed well in chalk, and also form the brightest ornaments of the seaside garden or woodland. In the Highland Pine (*P. sylvestris*) will also be found a most valuable tree for chalky soils and along the sea-coast. It is far more refined than the Austrian, grows quite as rapidly under ordinary conditions, but is neither so hardy nor affords an equal amount of shelter, nor yet succeeds with equal vigour in chalk or limestone as the hardy Austrian. Next to these amongst Evergreens comes the Sweet Bay (*Laurus nobilis*), a handsome, hardy, but slow-growing, small-sized tree, but one that is of particular value for sea-coast planting. I have noticed how well it flourishes and how fresh and green it looks on very exposed sites of the chalk cliffs at various of the towns and villages along the English Channel. Occasionally the tips of last year's shoots, and sometimes, too, the leaves, look burnt and brown, but this is only under very peculiar and trying circumstances. The Tamarisk and Privet (oval-leaved) are well known as seaside subjects, and for places where few other Evergreens can succeed they are certainly admirably adapted. In almost pure sand the Tamarisk will grow stout and strong, but the Privet requires a rather better compost to get it to start away freely. *Juniperus communis* can eke out an existence where I feel confident very few other shrubs or trees could subsist for even a short period. On the steep chalky cliffs at 500 feet altitude I found it spreading about in a remarkable way, but in such places it never exceeded a foot in height, but spread laterally to sometimes as much as a couple of yards. Seedlings were freely produced, thus showing that it was quite at home in its dry, sunny, and almost soilless positions. The common Privet I also found in company with the Juniper, and in an equally dwarf condition. The green and gold forms of the *Euonymus* thrive everywhere in a very satisfactory way; this may also be said of the common Lilac, the Guelder Rose, and *Laurus tinus*. The Beam Tree (*Pyrus aria*) is an excellent subject for planting on chalk or limestone on the sea-coast. Moreover, it is a handsome tree of pleasing outline, and with foliage of a rich and unusual shade, particularly when agitated by the wind.

Amongst deciduous trees the Sycamore holds a first rank, for it seems to be peculiarly suitable for the maritime winds and a chalky soil. The Elder has, perhaps, no equal as a seaside

shrub or small-growing tree, it always looking well and growing with the greatest freedom. Honeysuckles (various) do well and bloom freely when planted in chalk, as also the common Box, Holly, Flowering Currant, Forsythia, and Shepherdia. I forgot to mention that the Walnut does exceedingly well on the sea-coast at St. Margaret's Bay, but it does not there attain to very large size, though the foliage tint is all that could be wished for.

A. D. WEBSTER.

THE ARBUTUS-LEAVED MESPILUS.

(*PYRUS ARBUTIFOLIA*.)

THE genus which includes our edible Apples and Pears, Thorns and Medlars is so large, that when one looks into complete lists for one or two species or varieties he becomes so bewildered that he shuts up his book in despair, vows he will defer ordering until he has seen a good selection in leaf, flower, or fruit, and too frequently forgets all about them. The Snowy Mespilus, noticed last week (p. 466) by Mr. Webster, having been exceptionally beautiful this year, I have been reminded of a most charming deciduous tree I saw growing last season in the unique collection planted by Mr. Holford, of Westonbirt, near Tetbury, in Gloucestershire. This accomplished planter lays himself out specially for uncommon, yet perfectly hardy trees, which die off with brilliant foliage, and although his charming grounds are literally painted with fine forms and colours, there are few more striking objects than this Arbutus-leaved *Pyrus*, Mespilus or *Crataegus*, at one time known as *Aronia*. This section, including some half-dozen species and a few varieties, Loudon says is so unlike the others in general habit and appearance, that it would be much more convenient to have it as a distinct genus, say *Aronia*, as it was before the genus was united with *Pyrus*.

All of them are neat-growing deciduous shrubs, natives of North America, and attaining not more than a few feet in height, unless grafted as standards on the common Hawthorn; they may be added to the list I gave the other day of good things suitable for small gardens, and, as a matter of course, for planting in quantity in large ones.

The species, which in a spirit of humble resentment to tantalising botanists I shall call *Aronia arbutifolia*, grows from 4 feet to 6 feet in height in swamps from Canada to Carolina, and although introduced in 1700, is seldom met with in English gardens. Some leaves now before me recall those of *Arbutus Unedo*, but are rather more blunt or obovate, deeply serrated, and although kept loosely in a book, still retain their colour, a brilliant crimson. The pretty Thorn-like white flowers are produced in May and June, and the fruit, dark red, is ripe in September.

The common Hawthorn, by no means fastidious as to soil, provided it be fairly good and met with everywhere, may be used as a stock, budding 3 feet or 4 feet from the ground being preferable to grafting. Stout Thorn Quicks growing in the nursery may be budded in August or grafted early in March, but time being an object, it might be worth while to look round for wild stocks so placed that they would not be checked by ultimate removal.

Should anyone feel disposed, as I hope they will, to make up a selection, commencing with the Snowy Mespilus and the subject of this notice, they might include *Aronia intermedia*, the dwarf *A. pumila* or *Mespilus pumila*, *A. melanocarpa*, a bog species, also its variety *A. subpubescens*; *A. floribunda*, a garden variety, with purplish red leaves and black fruit, and highly ornamental when grown as a dwarf standard; *A. depressa* and *A. pubens*, two garden varieties; and last, but, according to Lindley, quite as important as the first, *A. grandiflora*, supposed to be a hybrid between *A. arbutifolia* and *A. chamæmespilus*, height 4 feet to 5 feet, flowers white, fruit purple; ripe in September. Decaying leaves purple and yellow. W. C.

Phillyrea Vilmoriniana.—For the first year

or two after the introduction of this Phillyrea it was regarded as a handsome evergreen shrub, but little or nothing was said concerning the flowers. These are small and white and arranged for some distance along the shoots in dense axillary clusters, as in the South African Winter Sweet (*Toxicophlæa spectabilis*); in fact they bear a certain amount of resemblance to those of this stove shrub. In both, too, the fragrance of the flowers is very pronounced. The flowers are succeeded by oblong-shaped berries, which become of a blackish purple hue, and ripen in the autumn. No doubt these berries give seed, but besides this it can be easily propagated by cuttings, though I have several times heard assertions made to the contrary. All that is needed is to take cuttings formed entirely of the current season's shoots towards the end of the summer, when if they are dibbled into pots of sandy sandy soil and placed in a frame where there is a little heat, they will be well rooted in the spring. Such a mode of increase is far preferable to grafting, as the foliage on those struck from cuttings is much more handsome than in the case of those grafted on an allied species.—T.

FLOWERING TREES AND SHRUBS AT KEW.

THERE were so many interesting and pretty-flowered plants among those exhibited by the Royal Gardens, Kew, at a late meeting of the Royal Horticultural Society, that we think a list of them will be of some service to those of our readers interested in plants that are useful for spring effect. The richness of the collection at Kew is scarcely conceivable to any, save those who are acquainted with every nook and corner of that vast garden, and it is only when the plants in flower there at any one time are brought together, as at the Drill Hall last week, that some idea of the collection is obtained.

Acer pseudo-platanoides
variegatum
Amelanchier asiatica
Botrychium
canadensis
vulgaris
Arctostaphylos californica
Azalea amara
pontica
Baccharis patagonica
Berberis brachybotrys
canadensis
Darwini
empetrifolia
morenensis
stenophylla
Thunbergii
vulgaris globularis
v. purpurea
Caragana arborea
a. nana
Cerasus acida humilis
a. fl.-pl. fol. var.
Avium dasycarpa
a. nana
A. fl.-pl.
A. Rhexi fl.-pl.
humilis
Mahaleb
M. x Avium græcum
M. chrysocarpa
M. pendula
oxycarpa
Pattoni
pennsylvanica
pseudo-cerasus fl.-pl.
pumila
serrulata
vulgaris fl.-pl.
Cercis siliquastrum
Chœsia ternata
Comptonia asplenifolia
Corylopsis spicata
Cotoneaster horizontalis
reflexa
Crataegus coccinea
c. acerifolia
c. indentata
oxyacanthoides
o. glandulosa
o. obtusata
o. pendula
pentagyna
tomentosa mollis

Pyrus Aria
Bolwylliana
communis nivalis
floribunda
Maulei
M. superba
M. variegata
pinnatifida
Ringo
R. fastigiata
Sorbus hybrida
spectabilis
Rhamnus Alaternus
A. aureus
Rhododendron glaucum
kewense
Ribes aureum serotinum
aurantiacum minus
cereum
floridum
fol. punctatis
irriguum
i. album multiflorum
lacustre
Ribes sanguineum carneum
grandiflorum
s. pruinosum
Rubus deliciosus
spectabilis
Sorbus lanuginosa
Spiraea arguta
chamædrifolia
crenata
hypericifolia

Spiraea inflexa
lavigata
oblongifolia
prunifolia fl.-pl.
ulmifolia
Skimmia Fortunei
Staphylea pinnata
Syringa dubia
persica alba
vulgaris
v. Camille de' Rohan
v. Charles X.
v. fl.-pl.
v. fl. albo
v. lovanensis
v. merithiza
v. rubra insignis
Ulex europæa
e. fl.-pl.
e. parviflora
e. Welwitschianus
Vaccinium amarum
corymbosum amœnum
frondosum venustum
Myrtillus
pennsylvanicum
sp.
tenellum
uliginosum
Vitis-idea majus
Viburnum Borejaeticum
cotinifolium
Lantana
prunifolium

CAMBRIDGE BOTANIC GARDEN.

THE Cambridge Botanic or University Garden is not the least interesting spot in a town rich in scholastic and architectural associations. The old garden, founded by Dr. Walker in 1761, was very different from the pleasant place now under the curatorship of Mr. Irwin Lynch. It existed in the town itself, facing Downing College, and a few fragments remain in the shape of a fine old *Sophora japonica*, venerable Ash, and rusty gates, which have not yet fallen to the increasing demands of the University. No one regrets leaving the old spot, now for the most part occupied with lecture rooms, laboratories, and museums, as the present garden is more beautiful, less confined, and larger, giving ampler scope for the energies of those who are responsible for its welfare. As far as we know the old place had no striking associations, but it may be identified with Don's "Hortus Cambridgensis," a valued book that will keep it fresh in memory. The new garden—if we may call it so—was established in 1846, and the event commemorated by the planting of a Lime tree by the Vice Chancellor, the Rev. Ralph Tatham. The first curator was Mr. Murray, who died in 1850, and was succeeded by Mr. J. Stratton from the Edinburgh Botanic Gardens, his successor being Mr. Mudd, whose work on "Lichens" is a remarkable study of the subject. He died in 1879, and Mr. Lynch, who was formerly in the Royal Gardens, Kew, was appointed. A change was then made manifest. The crowded belt of trees that surrounds the garden was thinned out, and not too soon to save many fine things from an untimely end through overcrowding; the plants were arranged in a more picturesque way, and the Cambridge Garden raised to a proud position in the world of botany. There is little scope for picturesque effects, as the garden, some 21 acres in extent, is conspicuously flat as the surrounding country, but the soil is warm and sandy. The desire to make improvements, develop new ideas, and create pretty features is crippled by the impecuniosity which seems to afflict all such places. The means for carrying on the work are quite inadequate, and even 17 acres of ground, which should be rightfully devoted to the interest of botany, are let out in allotments to bring in rent to help pay the expenses of the botanic establishment.

Against such formidable odds Mr. Lynch has to fight, but the condition of the garden, the variety of plants, not set out in an open-air herbarium, but so far as possible tastefully disposed in large beds, show the care and unflagging interest taken in their welfare.

The months of May and June are when the University Gardens of Cambridge is in its richest dress. The Thorns are now approaching their fullest beauty, and here one finds a variety of kinds, large bushes smothered with bloom, Lilacs, Laburnums, and a fine Judas Tree (*Cercis siliquastrum*), with its multitude of small crimson flowers, so planted that at certain points we get pretty views and charming combinations of colour, even though the surface of the ground is as flat as the neighbouring fens. Enclosing the whole garden is a belt of trees, and starting from the house of the curator there is a charming border of hardy flowers, not planted, as the beds, with the things in their natural order, but with the endeavour to make huge masses to show the true beauty and value of herbaceous things. The dwarf, rich yellow-flowered *Cheiranthus Marshalli* made clumps of strong colour, set off by masses of Irises. The tall, slender, pale blue *I. missouriensis*, tridentata, the dwarf deep violet-purple *Chamæiris*, and many other kinds which do well here form large tufts that give throughout the summer a succession of flowers. It is natural that the Irises should have a special place at Cambridge, as Prof. Michael Foster's garden is not far distant, and he, in his enthusiasm for a flower he makes a study of, has not forgotten the garden of his university. Thus we have a rich selection of species, both common and rare. The German varieties are commencing to flower, and a large bed devoted to these makes a brave mass of deep purple colour. Near this border of hardy flowers and enclosed partially from view is a bog garden, entered by a wooden gate, a surprise to those who least expect the pleasant sight of water plants in flower and a variety of moisture-loving things that refuse to grow on the natural sandy soil. In the second week of May the Cape Pondweed and common Buckbean covered the surface of the miniature lake with white flowers, and in the peaty soil the Japanese Primrose (*Primula japonica*) was in full bloom, a moist spot just suiting this fine-leaved and richly coloured hardy plant. In a similar position *Saxifraga peltata* was flourishing with remarkable vigour, its tall flower-stems, crowned with the pinkish blossoms, rising nearly 3 feet in height. At the upper end of this bog garden and on a sloping bank cut out into the form of a rockery, *Oswego Tea* (*Ourisia coccinea*) was thriving well; Orchises, some from the fens of Lincolnshire, *Primula rosea*, and *Arum proboscideum*, a curious little thing, with a flower like a small rat, besides a variety of other hardy plants that love the vicinity of water and a peaty soil. Prettier than the bog garden, and creating a charming little artificial glen, which will lose its artificiality more completely when the plants spread about, can be seen from the road, by the side of which flows Hobson's conduit. Water from this forms a bubbling brook down a little glade, and by the side has been planted a collection of things that will do well in a moist and shady nook, overshadowed, but not too much darkened, by leafage overhead. Here many of the Orchises were in flower, the Japanese Primroses in a variety of shades, the little Herb Paris, and other water-loving gems. It is a pleasure to find such charming nooks in a botanic garden, which usually recalls an unlovely place filled with specimens classified without regard to their likes or dislikes. At Cambridge

things are managed differently, and the trickling brook and bog garden show that something more is attempted than mere classification. There one can learn under what conditions plants do best without the strictly botanical educational advantages of the garden suffering in the smallest degree.

We have another glimpse of the same endeavour to make the place attractive to the eye by the growth of flowers in the Grass, to bring a little of English woodland scenery nearer home. Daffodils send up their slender stems in the spring, and here and there herbaceous *Pæonies* are commencing to bloom in the "wild" break beneath the belt of trees on the margin of the garden. This is the situation that *Pæonies* delight in—partial shade and moisture, and the way to get the full beauty of leaf and flower is to form large clumps, that make rich and bold effects in the months of May and June. The single varieties are the best for this form of planting, as, associated with Grass, the double kinds are too lumpy, like the *Hyacinths* in the London parks, which are positively unsightly on the turf. Mr. Lynch has permitted the Siberian *Bupleurum aureum* to spread about in its own way, and the greenish-yellow flowers rising a few inches above the Grass make a peculiarly happy picture from a distance, not so pretty, however, as a sheet of *Bluebells*, which we should like also to see colouring the wild spots with rich blue. In the beds are masses of *Pæonia tenuifolia*, *anomala*, and varieties of *officinalis*, to represent the natural order, and amongst the *Windflowers* very beautiful is the *Snow-drop Windflower* (*Anemone sylvestris*), now the prettiest feature in many good English gardens. The *Aroids* are well cared for at Cambridge, and a remarkably interesting collection has been brought together, the most popular of which are the *Dragon's Mouth*, *Arum crinitum* and *A. Dracunculus*, but there is a variety of kinds all more or less of interest to the botanist than the gardener. In the beds of *Tulips*, very pretty a few days ago, were the fragrant *T. persica*, *T. flava*, *vitellina*, *fulgens*, *viridiflora*, and the old *gesneriana*; but we should like to see these in greater masses to obtain the full richness of the interesting range of colouring.

The rockery, we think, is the least interesting feature of these pleasant gardens; there are too many stones and too few plants, but as these spread we shall no doubt have an interesting picture. Very pretty now is the little *Arenaria cespitosa*, which is very much like the *Balearic Sandwort* (*A. balearica*), a minute creeping herb that runs over the facings of the stones, covering them with a dense felt-like mat of the richest green, studded in the late spring and summer with a multitude of small white flowers. It is just the thing to hide the bareness of stones on the rockery. In a border running by the side of one of the houses and in the fullest sun, the *Mourning Iris* (*I. susiana*) was in full bloom, and a glass covering is put on directly the flowers are over to thoroughly roast the bulbs. This is the treatment which Professor Foster finds so successful in his Shelford garden, and it is carried out also at Kew with the best results. In a similar position and with coping as a protection is a fine collection of *Opuntias*, and those who have seen these succulents at Cambridge must have noticed with pleasure the splendid growth of the several kinds all growing in full exposure to the sun. The finest is *O. Engelmanni*, and it has made remarkable leaves. In this border also is *Gerbera Jamesoni*, which has stood so far the winter, but it remains to be seen whether in the severest frosts and without some protection the plants will survive.

The trees in the Cambridge Gardens are, of course, not old, and the bad planting and after neglect have not improved their condition. Much has been done, however, to mend matters, and a careful survey will reveal many good specimens of uncommon kinds. The *Thorns* are the richest at the present season, and as the various things allied botanically are placed together, we have fine colour effects in the month of May. There are a few trees in the centre of the grounds, but they are confined chiefly to the surrounding belt. One interesting little dwarf tree is the dwarf *Almond* (*Amygdalus nanus*), with which one bed is filled. The plants are on their own roots and growing vigorously, spreading about here and there on all sides. This is grafted in nurseries, and we thus lose its naturally spreading and charming habit. Near the bog garden is a noble specimen of the Virginian *Papaw* (*Asimina triloba*), which has formed a dense spreading bush; it is one of the things that should not be overlooked. The *Purple Beech* gives richness to the belt of trees and lights up the delicate green of the expanding foliage. Noticeable near the border of hardy flowers is the *Caucasian Walnut* (*Pterocarya caucasica*), of which there were originally two specimens. One was blown down, and a forest of stems came up, producing a dense thicket of growth. They are placed near a spring, which keeps the roots soaked with moisture, a situation that seems to suit well this North American tree. Then we have the *Weeping Elm* (*Ulmus montana pendula*), and on the roots of the common kind is growing *Lathraea squamaria*; it is an interesting thing in its way, and has established itself well at Kew on the bank of the central pond.

There is also here, very charming just now with its silvery white leaves glistening in the sunlight, a specimen of the *Willow-leaved Pear* (*Pyrus salicifolia*), and a lovely picture is made by the *Alder-leaved variety* of the *Juneberry* (*Amelanchier canadensis*); it is about 20 feet high and smothered with white bloom. This is one of those beautiful trees that are too rare in English gardens. It is not that they are difficult to grow, as they thrive almost anywhere, but rather that the craze for *Conifers* and *Evergreens* has overshadowed them. Our gardens lose much by the absence of such charming deciduous trees and shrubs. Near by is a picturesque old *Crab*, a delightful feature and associated with the variety *asplenifolia* of the common *Beech* and other things. *Abies excelsa monstrosa* is worth a note only for its size, and there are also specimens here of the Chinese *Xanthoceras sorbifolia* and *Tilia petiolaris*, 50 feet high; the fine-leaved American *Elm*, *Osage Orange* (*Machra aurantiaca*), *Acer cretica*, and the *Flowering Ash* (*Fraxinus ornus*). There is also a tree of the double *Horse Chestnut*, the flowers quite double, and not so handsome as those of the common single. The *Montpelier Maple* and the *Moosewood* (*Acer pennsylvanica*) are also represented.

The island that adorns the centre of the gardens gives scope for producing rich effects with such bold-leaved things as *Polygonum sachalinense* and *Gunnera scabra*, things that should only be used where fine effects are wanted, and not in small places. A large plant of the first named on the margin of the lake is happily placed to show off its large leaves and noble habit. We were gratified with a bed of hardy *Fuchsias*, representing old favourites as *Riccartoni*, *gracilis*, *globosa* and *corallina*, interesting things whose names conjure up lovely pictures of luxuriant growth and flower in old and out-of-the-way gardens. They have been ruthlessly banished from the modern garden;

but big masses, as at Cambridge, should help to bring them forward again. We can ill afford to lose such noble, hardy shrubs as these deciduous *Fuchsias*. There are so many interesting plants at Cambridge that many good things must have a separate note. Every spot that will grow a tree or plant is occupied. Near Mr. Lynch's house the fences are covered with *Ivies* in rich variety, *Piptanthus nepalensis*, *False Heath* (*Fabiana imbricata*) and the Japanese climbing *Bramble* (*Rubus phoenicularis*), a picturesque and delightful climber when spreading about over rocks or knolls.

THE HOUSES must have special notice, for a new range has been built, and the old structures, threatening to fall to the ground with the first storm that arises, will soon give way to buildings of vastly better construction. The range is not yet complete, but it is so planned that, unlike the old arrangement, it is not necessary to walk through several hothouses for the cool plants. From what we can judge at present this range will be as good as anything we have seen in a botanic garden. A corridor runs along outside, the walls of which in due time will be clothed with creepers, and the houses are placed on one side, each class of plants having a structure to itself, approached straight from the corridor without the necessity of passing through other houses. This is as it should be. The stove is full of interesting plants in the finest health, such uncommon things as *Plumbago capensis alba*, *Medinilla Curtisii*, *Tacca Warmingiana*, *Cochlostemon Jacobianum*, *Ochna Kirki*. In the annexe to the Palm house is a *Water Lily* house, in which *Nymphæa Marliacea*, the *Canary Water Lily* figured in THE GARDEN, March 31, 1888, is in full bloom. We hope Mr. Lynch will try this in the open as well. Then there is a fernery with noble specimens of *Adiantums*, *farleyense* amongst the number, and an interesting collection of *Orchids*. A remarkable plant, which is in one of the old houses, is *Aloe plicatilis*, an immense specimen, interesting in its tree-like growth and spikes of light red flowers. Another remarkably fine plant is the *Caper of commerce*, *Capparis spinosa*, which is growing against a wall and protected by a frame. In the old houses is a rich collection of *Grevilleas*, and very pretty clustering against the roof of a cool structure is *Clematis coccinea*, while the *Droseras* are represented by the best species, and also the *Arctotises*, of which *aureola* is the richest in colour. In the propagating house we saw rooted cuttings of *Ipomœa Horsfallii* and *Combretum purpureum*, about which some discussion has lately appeared in THE GARDEN. To form a part also of the range are new laboratories for botanical work.

SHORT NOTES. FERNS.

Loxoma Cunninghamii.—This is a pretty plant. The fronds are pale green above and glaucous beneath. In some plants the glaucous appearance is wanting. I used to get plants of this species from a gentleman in New Zealand, and although both glaucous and plantarum-like plants came, I never could see any other difference. It is said to be only found in New Zealand, and I hope to find it permanently established in our collections. G.

Asplenium pinnatifidum.—This, although not so rare a species as it was a few years ago, is well deserving of attention, as it is undoubtedly hardy in some parts of the country. In habit the plant resembles *Antigramma rhizophylla*, but the fronds are not entire, neither are they proliferous at the apex, as in that plant. It appears to have been gathered in Southern Missouri and Tennessee.

Actinopteris australis.—This is the extreme form of the beautiful *A. latata*, which forms a miniature fan-like frond. The plant itself is, I believe, analogous with our *Asplenium septentrionale*, and requires to be grown in a similar manner. The segments of the

fronds are much longer than in the typical species, whilst the tips of the segments are entire. This form is said to be a native of Abyssinia, and grows more freely than *A. radiata*.—G.

Cyathea Cunninghamii.—This is a tall, slender-stemmed species which has somewhat the appearance of *C. medullaris*, but the fronds are more flaccid and pale green. The stem is clothed with the black footstalks of the old fronds, which give it much the appearance of its stouter relative. The finest example I have ever seen of this species was in the nursery of Messrs. B. S. Williams and Son at Holloway, where it used to be a conspicuous object in the conservatory, in company with many fine forms of *C. medullaris*, *C. dealbata*, *C. Smithii*, *Dicksonia antarctica*, and *D. squarrosa*. Now that the

spicuous specimen, the deflexed lower pinnae rendering it very striking.—H.

STOVE AND GREENHOUSE.

THE HERBACEOUS CALCEOLARIA.

WHERE these showy greenhouse plants have been well cared for they are now in full beauty. The large collections exhibited in London by Messrs. Sutton and Sons, of Reading, were examples of the furthest advance yet attained in the direction of improved garden forms. The habit of the plants is sufficiently dwarf without giving one the idea of stunted growth, as ex-

Farnham Royal, that the form of the flowers of the Calceolarias of thirty years ago was better than that of the present productions. He was ready to admit it, but I was forced also to admit that the plants, with their well-formed golden flowers richly spotted crimson, were of a tall, straggling habit, and did not form such handsome specimens as those exhibited now-a-days. The colours are now very brilliant, and amongst a plentiful variety of spotted forms there are rich self-coloured varieties, golden yellow, and rich deep crimson or scarlet, with many intervening shades. The whole series of garden varieties now under cultivation is interesting to those who have watched the improvements that have been made. My own knowledge of it goes back about forty years, when the yellow spotted forms were grown under name and were propagated by cuttings and division in some of the leading Edinburgh nurseries. The supply was then very limited, and propagated plants do not grow so vigorously as seedlings, besides having an awkward habit of dying off in pieces. Sometimes half or about a quarter of a plant will die off, leaving the remaining portion a poor example of what a specimen Calceolaria ought to be. Nevertheless, good specimens are sometimes obtained by dividing the old plants. The way to treat them is as follows: When the flower-stems are removed, some fine sandy soil should be placed around the base of the plants, and the growths will form roots in this, when they may be divided and repotted in August or early in September; but where one plant is raised in this way hundreds are produced from seeds, and to obtain good specimen plants, now is a good time to sow them. I advise some care in opening a half-crown packet of the best Calceolaria seeds, as they are very small and few in number; the least awkward jolt of the paper will scatter the seeds in all directions. The pot or seed-pan should be prepared by being well drained and almost filled to the top with the ordinary potting soil; the half-inch on the top should be fine sifted sandy soil; make this quite level, sow the seeds evenly over it, and sprinkle a little moist clean sand over the seeds. They vegetate best at this season in a frame or hand-light on the north side of a wall or fence. Place a square of glass over the pot to keep the soil moist. When the tiny plants have grown large enough to be handled, they must be pricked out, about a dozen of them into a 3-inch pot. They will grow rapidly in an ordinary garden frame, and should be replanted again in clean pots as they fill their present ones. They can be grown on until each plant quite fills a 7-inch or 8-inch pot, and in time forms a handsome specimen, covered with hundreds of beautiful flowers. The plants like moderately rich potting soil, good loam four parts, one part leaf-mould, and one part decayed manure; some broken charcoal is excellent for keeping the compost sweet and open. The herbaceous Calceolaria is not at all a tender plant, like the Cineraria, for instance. If a collection of both were grown in one house, frost that would not in the least injure the Calceolarias might kill the Cinerarias. In winter the plants are liable to be attacked by mildew, and green fly is their worst enemy; destroy the first by dusting with flowers of sulphur, and the latter by fumigating. All through the dull dark days of winter keep the plants near the glass roof, a dry atmosphere and just enough artificial heat to keep the temperature above freezing point being maintained.

J. DOUGLAS.

Grevillea alpina.—Most of the Grevilleas are neat growing shrubs that produce their curious



A well-grown herbaceous Calceolaria.

Ferns are likely to become again popular, this is a species which deserves attention.—W.

Lomaria vulcanica (T. F.).—The frond sent is a fine one of this species; it is a native of New Zealand, and would appear to be a somewhat common plant in the northern and middle islands, but it does not appear to ever have been a common plant in our gardens. It is a handsome species distinguished by having the lower pair of pinnae deflexed and falcate; the fertile frond is much narrower than the barren one, both being thick and leathery in texture, the rhizome clothed with long blackish chaffy scales. This plant thrives well in the cool fernery, and forms a handsome and con-

sive dwarfness does. The flowers, in addition to being freely produced, are rich, varied, and brilliant in colour. Their form has not been considered so much as other points, and yet in the eye of a trained florist this is at least quite as important. The old florists sacrificed too much for form, and it may be that under the new system of culture we do not care for it enough. When the flowers had to be cut for exhibition, the habit of the plants from which they were obtained was not considered. One end only was kept in view, and when that was reached the other points were immaterial. I well remember remarking to Mr. J. James, of

and in many cases brightly-coloured blossoms for a long period, and as some of them bloom during the winter and early spring months they are then especially valuable. *G. alpina*, or *alpestris*, as it is sometimes called, forms a compact, much-branched bush clothed with rather hairy, lanceolate leaves. The flowers, which are borne in terminal racemes, as in many of the others, are of that peculiarly curved shape common to most members of the genus, and at the basal part bright crimson, the tips greenish white. It is an interesting plant for the greenhouse at this season of the year.

Cereus C. J. T. Peacock.—About this time last year the famous collection of succulent plants formed by the late Mr. Peacock was disposed of, and among them were a great number of this *Cereus*, which is certainly one of the most beautiful of the speciosissimus section. It is a very large flower, 9 inches across, though according to the late Mr. Croucher, who at the time of its first flowering had charge of the Sudbury House collection, it will attain a diameter of 1 foot. It is one of the very brightest of its class, for rich scarlet, dazzling purple, and violet are all charmingly blended. It forms a freely-branched specimen, and, like all of its class, is of easy culture. These beautiful flowering Cacti show signs of popularity, though up to now there is, I believe, really very little demand for them. Given the above-named *Cactus* with the large cream-coloured *Phyllocactus crenatus* and the beautiful rose-tinted *P. delicatus*, we have a trio of the finest and most distinct of the flowering Cacti.—H. P.

Phyllocactuses are the most interesting, useful and brilliant race of Cactuses, all being easily grown, and exactly suitable for those who have small houses. Cactuses will never become popular, but this genus has great claims by reason of the richness and size of the flowers. When the collection of Mr. Peacock was dispersed, several splendid varieties of *Phyllocactus* were distributed, and amongst them the C. J. T. Peacock, one of the loveliest of all, and, with several other kinds, now in full flower in the Cactus house at Kew. One of the finest in bloom there at present is *Imperator*, the flowers rich crimson, shot with that pellucid satiny sheen which lights up the bloom with a vivid lustre. One plant at Kew had several flowers open, and presented a splendid picture. Unfortunately, they last a very short time, but open in quick succession, and there is pleasure in watching expanding blossoms. Quite different in colour is *P. crenatus*, a lovely thing, the flowers as large and fragrant as those of the night-flowering *Cereus grandiflorus*; the inner segments are ivory-white and the outer greenish yellow. This species was introduced in 1839 from Honduras, and is one of the parents of the numerous race of hybrids which are amongst the finest of the *Phyllocactuses*. *P. Gordonianus* has a smaller flower of a rose colour, but it is a gem in its way. *Rose Perfection*, shining rose, a lovely flower in the full sun; *Admiration*, rich crimson, shot with the characteristic violet lustre; and *P. delicatus* are also good types. All may be grown together, as each is of a different shade of colour, or with flowers of a distinct shape, so that those who want plants that give variety and not much trouble would do well to grow this class of Cactus.

New Pelargoniums.—Two new varieties of *Pelargonium* now being distributed by Mr. F. Perkins, of Leamington, are *Princess Beatrice* and *Prince Henry*, both, but more especially the last, being very useful acquisitions to the "Regal" section. The difference, however, between this class of *Pelargoniums* and some of those called "decorative" is so slight, that for all practical purposes they would be far better merged into one group. *Prince Henry* is of a short, sturdy style of growth, well furnished with handsome roundish foliage a good deal like that of the now popular variety *Mme. Thibaut*; in fact, one would think it is either a seedling or a sport from it, but the flowers are richer in colour. In *Prince Henry* the blooms are borne in large bold trusses, and each has a conspicuous white centre surrounded with intensely bright carmine, while all the petals are also edged with white. An attractive feature is a bright ma-

genta tinge just where the carmine and white of the centre merge into each other. *Princess Beatrice*, which is also of good habit, is a semi-double blush white flower, many of the petals having a small wine-coloured blotch in the centre of each. This, though distinct, is not likely to be as useful as some varieties with pure white blossoms, or at all events even if slightly spotted they have the ground colour of that tint. Among a group of the newer *Pelargoniums* shown by Messrs. J. and J. Hayes, of Edmonton, I was most struck with *Empress of India*, a very fine showy flower. It appears to have a free habit and carries its foliage well, added to which the flowers are large, of good substance, borne in massive clusters, and of a bright and telling colour, all desirable features in a market *Pelargonium*. The variety in question is of a bright carmine-scarlet colour, with the upper petals blotched with maroon and the whole flower edged with white. Perhaps the markings and shape of the blossoms are not regular enough to agree with the florist's ideal of a show *Pelargonium*, but many of these greatly lack the vigorous constitution of a market *Pelargonium*.—H. P.

BILLBERGIA.

This is another beautiful family of Bromeliaceæ which, I think, I have previously said something about, and one species (*B. vittata*) was recently figured in these pages. *Billbergias* are so beautiful, and our Continental neighbours have raised several of these handsome plants, which proves that there is a wide field open to the hybridist, that I wish their cultivation was taken up in England. These plants, although somewhat stiff in growth, can yet be arranged with taste, and then they form a beautiful picture. I must confess that as grown in this country they are uncared for and not arranged with taste; therefore they present an uncalled-for and an unwarrantably bad appearance. *Billbergia* contains many species, which rank amongst the showiest of all the Bromeliads. The inflorescence is usually in a dense spike, which is either erect or drooping. Naturally *Billbergias* are mostly epiphytes, but they submit to pot culture, and are best so grown, the leaves being heavy. Basket culture will, however, suit them. Light fibrous peat and good leaf-mould may be used as soil, and the pots or baskets well drained. Water should always be kept in the crown of the plant. If any of the smaller kinds are grown they may be fastened upon a block of wood, *Sphagnum Moss* being the best material to use in this case. They should be hung up near the glass with good exposure to sun and light, and may be treated in much the same manner as *Orchids*. During winter very little water should be kept in the rosulate crowns. Many of the kinds having a drooping inflorescence form exquisite ornaments when planted in pockets in the walls; they also make fine bracket plants, and should be those chosen for hanging basket culture. The following dozen kinds are some of the best:—

B. AMENA.—This plant is the least showy of the kinds here enumerated. It is perhaps more correctly called *B. speciosa*, but here I adopt Lindley's name. The plant is an erect grower; the leaves, armed on the edges with distant spines, are green, sparingly furnished with a scurfy powder beneath; the inflorescence erect, furnished with long red bracts, the flowers being creamy white, tinged with green and tipped with bright blue. It appears to have been introduced to cultivation in the early part of the century, and is a common species in Brazil.

B. BAKERI.—This is a very pretty species, figured in the *Botanical Magazine* some twelve years ago under the name of *B. pallescens*. This name had already been given, and Prof. E. Morren some two years later re-named it as above. It is similar in

habit to *B. vittata*, but the leaves have in addition some spots in the upper part, whilst below they are thinly furnished with a scurfy powder, the marginal spines being small and very few. The inflorescence is furnished with numerous bright red bracts. It is said to come from central Brazil.

D. BREAUTIANA is a garden hybrid obtained in France between *B. pallescens* and *B. vittata*. It is erect in growth, the leaves green on the upper side, banded beneath with white scurfy powder. The inflorescence is drooping, of great size, being in many instances nearly 2 feet long; the large bracts are brilliant red, the flowers long, white, suffused with pink, the sepals and petals both broadly tipped with violet. It is one of the handsomest plants of the whole genus, producing freely its beautiful spikes during the dull months of winter, and hence doubly valuable.

B. BARAQUINIANA.—This plant appears to me distinct from *B. decora* of Poepp, although it comes very near to it; but for horticultural purposes both forms are desirable. The leaves, from some 18 inches to 2 feet long, are dull green above, with a thin coat of scurfy powder beneath; they are distinctly banded with white, the edges armed with small brown spikes; the inflorescence is drooping, bearing at the base several large bracts of a pinkish hue; the peduncle is quite mealy, and the flowers green. It is said to come from the Amazon district.

B. DECORA.—In this plant the leaves are of a deeper and richer green, and they are also more or less spotted with yellow, and have less of the white scurfy powder upon them. The inflorescence is drooping, like that of the previously named plant, and the flowers are also green, but the bracts are more numerous and bright red. It comes, I believe, from New Grenada.

B. EUPHEMIAE.—This plant is less showy than many of the kinds, but yet is well deserving of a place in a collection of these plants. The leaves, plain green, armed on the edges with small brown spines, are on the under side covered with a scurfy white powder. The inflorescence is pendent, furnished with pinkish-white bracts; the flowers green, broadly tipped with rich violet. It comes from Southern Brazil.

B. MACROCALYX.—A fine, bold-growing plant, with bold leaves of a rich green on the upper side, with a few pale spots. The spike is drooping and bears a large head of flowers, and at their base are numerous large rosy-red bracts; flowers yellowish-green, tipped broadly with pale blue.

B. MORELI is a very showy and beautiful species from the neighbourhood of Bahia. The plant is stout in growth and the leaves are spreading, bright green on the upper side, beneath slightly scurfy, the marginal teeth-like spines being very small. The spike is 1 foot or more long and dense, the bracts large and bright red, the large flowers greenish-yellow, the petals tipped with blue. It is extremely handsome.

B. NUTANS.—This is a very elegant plant with long and narrow leaves, and to preserve its beauty and elegance, the plant should be carefully moved when required, so as to prevent the leaves breaking. The leaves are some 12 inches or 18 inches long. The inflorescence is 1 foot or more long, the bracts bright red, whilst the pendent Fuchsia-like flowers are green, edged with bright blue. It is a native of Brazil.

B. SANDERIANA is a bold and handsome plant, a native of the forests in the Organ Mountains, Brazil. It forms a large rosette of stout leaves, which are bright green on both surfaces, the edges armed with brownish-black spines; the spike is drooping, the bracts bright pink, the flowers yellowish-green, the sepals and petals tipped with rich blue.

B. SAUNDERSI.—This is a very distinct and beautiful variety, introduced from Southern Brazil by the late W. W. Saunders nearly twenty years ago. The leaves are bright green on the upper side with numerous irregular white spots; beneath they are brownish-green with a more or less dense coating of white scurfy powder, and armed at the edges with somewhat small reddish-brown spines; the

inflorescence is a lax-drooping raceme, the bracts medium-sized, deep red; the flowers are red at the base, yellowish-green and tipped with blue in the upper part.

B. VITTATA.—This is a beautiful plant, a figure of which appeared in *THE GARDEN*, August 6, 1887 (p. 106). It has broad stout leaves, bright green above, beneath conspicuously banded with white, and the edges armed with small, but closely set blackish spines; the inflorescence is drooping, sometimes branching, furnished with bracts large and bright red, the sepals and petals red tipped with violet. It come from Southern Brazil.

W. H. G.

FLOWER GARDEN.

DOUBLE-FLOWERED EARLY-BLOOMING TULIPS.

As I am a great admirer of that brightest ornament of the spring garden, the early-blooming Tulip, and as I had hardly any of the double-flowered section in my garden, I applied towards end of last autumn to Messrs. Van Tubergen, of Haarlem, for a complete collection of the seventy-four named varieties offered in their ordinary catalogue, and with these they also sent me for trial twenty-five new varieties not yet in commerce, which formed the two centre lines of my bed of ninety-nine varieties, nearly all of which bloomed beautifully this spring. This was certainly one of the brightest and most ornamental beds of early-blooming Tulips I have ever seen. Of the twenty-five new varieties twenty-three flowered, and the following brief descriptive notes of them will, I hope, prove interesting to your bulb-growing readers.

PRESIDENT GRANT.—A good scarlet self colour.

RUBRA MAJOR.—A fine large scarlet flower, the lower half of the outer petals flamed with green.

SESOSTRIS.—A rather small light rose-coloured flower, outer petals flaked with green.

QUEEN OF THE NETHERLANDS.—A finely formed, very fully double flower of a beautiful shade of creamy white, deepening to pale rose colour in the centre. This is the most beautiful double Tulip I have seen. It was awarded a special certificate by the jury at the quinquennial exhibition.

LA MODESTIE.—A small rosy blush flower.

LAVOISIER.—A fine large, but not very double orange-scarlet flower, with yellow edges to petals.

LOED BEACONSFIELD.—A beautiful deep rose-coloured flower.

FLUEELEN MANTEL RECTIFIED.—A fine large yellow flower, heavily flamed with carmine. A very handsome Tulip.

FARADAY.—A fine large orange-scarlet flower, most of the petals heavily edged with yellow.

GUSTAVE FLORET.—A medium-sized orange-scarlet flower, with fringed petals lightly tipped with yellow.

MINE D'OR.—Orange-scarlet, upper half of petals margined with yellow.

GERTRUIDA MARIA.—This failed to bloom.

EPAULETTE D'OR.—A good light yellow, flamed with scarlet. A very pretty variety.

QUEEN VICTORIA RECTIFIED.—A fine large flower of the deepest shade of rose colour, flamed and striped with white.

L'INDIEN.—A fine tall-growing Tulip which might be shortly described as a double form of Keizer Kroon and so nearly identical with the older varieties Czar Peter and Lady Palmerston as not to deserve a separate name. The last named is a more fully double flower.

PAULINE, TRUE.—A rather small flower, being in fact a double form of the beautiful Roi Pepin.

WILLIAM III.—A good bright scarlet flower.

GRENADIER.—Almost identical with Faraday, but rather a thinner flower.

ADDISON.—A pale blush flower, the outside petals feathered with green.

SAMPSON.—Failed to bloom.

PRINCE OF ORANGE.—A nice clear orange with paler centre. A striking flower.

IMPERATRIX RUBRORUM.—A fine scarlet flower, heavily flamed with gold.

PHENIX.—A good, large, light scarlet flower.

SALAMANDER.—Blush white, heavily flamed with rose colour.

REX MAGNIFICUS.—A large white flower, most of the petals tipped with rose colour, the outer petals flamed with green, and the foliage margined with white.

A FEW OLDER VARIETIES IN SAME BED.

SCARLET KING (?)—Not scarlet at all, but deep rose and perfectly single.

HECLA.—Also perfectly single.

L'IMMACULÉE.—Quite the best and largest double white I have seen, but rather a tall grower.

MME. SONTAG.—Produced two flowers on one stem, which is unusual, as did also La Candeur.

POURPRE BORDÉ BLANC.—A small, dull-coloured, and worthless variety.

PARMESIANO.—A lovely, large, rosy-blush flower.

PRINCE OF WALES.—A fine double scarlet.

BUONAPARTE, BLUE FLAG, and BELLE ALLIANCE are so much later in flowering than the other varieties, that they should be put with *Marriage de ma Fille* as blooming at same time.

GRAND VAINQUEUR is a good pure white, but not fully double flower. W. E. GUMBLETON.

NOTES ON HARDY PLANTS.

Potentilla lupinioides is a brilliant May bloomer for the rockery, and often it will flower later in the summer. Bright golden flowers the size of a shilling-piece with a deeper or orange-coloured star-shaped "eye" are profusely borne on spreading forked stems, and though the stems almost rest on the ground, all the flowers face upwards, and thus make an effective display. In every way it is neat, even when not in blossom. The Lupine-like foliage is of a glossy deep green hue, and when small specimens have become established they bloom profusely. Give it a sunny place and a deep root-run of rich loam.

Campanula hederacea.—Many a rarer plant lacks the charms of the Ivy-leaved Bell-flower, and though a native it is seldom found wild with coarse companions. In cultivation too it seems to refuse to put on its best dress unless given a snug, moist corner, and separated from other plants that threaten to overpower it. It is interesting to read what Master Howe, "of the Physick Garden in Westminster," says in "*Phytologia Britannica, &c.*," 1650, about the habitat of this fragile plant: "Tender Ivy-leaved Bellflower, Ivy-Bells, found on a watery bank, where little or no Grasse grew, in a lane near Woodhead in Cheshire." In cultivation it is greatly helped and seen to advantage when spreading over a mulching of dark-coloured cocoa-nut fibre or half decayed Sphagnum kept moist.

Primula suffrutescens is now in flower. The somewhat long and woody stems are numerous branched and each offset is terminated by a rosette of small and narrow-toothed leaves. The older ones send out a short scape topped by a few small flowers of a bright rosy-crimson colour, having a well defined "eye." The habit and all the parts of this species are distinct from those of any other *Primula* I know, and if it cannot be said to be one of the freest bloomers, a *Primrose* so unique should be included in every choice alpine collection. Nothing could be harder; indeed it is much safer in winter in the open on a dryish part of the rock-work than kept under glass. This equally applies to young plants rooted during the previous summer. The best care you can bestow upon it is to set it in full sunshine in deep rich loam, rather light. Leave it alone and wait for flowers until it has grown slightly leggy, a condition that is quite allowable in a *Primula* that never grows higher than 4 inches or 5 inches here at least.

Viola sagittata is a pleasing and distinct Violet in several ways. The flowers are large, and spring up in vast numbers from the bulky crown of the plant, and their stalks are about the same length as the arrow-head-shaped leaves among which they crowd. Their colours are puce, broadly streaked with

dark purple. There are no signs of runners; the habit is compact and a group is capable of making an attractive show.

Phlox nivalis.—Why is this lovely white-flowered species neglected? True, the flowers are not so large as those of some of the varieties of *setacea*, but to my mind they are more winsome than those of *Nelsoni* or *The Bride*. The sprays of starry blossoms spread themselves on the surface or droop, according to their surroundings, in a pretty manner. Compared with the other and better-known varieties, this is a smaller plant in all its parts, but the chief distinction is its pure white star-shaped flowers. It enjoys a bit of limestone in the soil about the roots and full exposure.

P. divaricata = canadensis is another species rarely seen. It grows 9 inches high and in May bears massive, yet elegant clusters of glistening mauve flowers, each nearly an inch across. Everybody admires, yet few plant it. Why, it is hard to say. Those whose gardens do not abound with slugs might certainly expect to grow it with little or no trouble, but there might be a little difficulty in getting the true form or at least the one here intended, as I have received several inferior plants under the name. The plant has a perfectly erect habit, and the stems and leaves are rough from the somewhat short stiff hairs.

Ourisia coccinea.—I have grown this for twelve years, and never before has it shown so well for bloom. It is, doubtless, a shade lover, but I am inclined to believe that the warmer weather of last spring, or, in other words, the longer summer of last year, better suited this shy bloomer. I know many that have grown this plant for a good while, and yet have never seen its brilliant flowers. Let us hope that what seems to be the fuller maturity of plant will now reward their patience. Those who do not possess it might be recommended to do so, for it has neat foliage and a good habit, and if it should flower, I do not know what we have to compare with it for richness. The little spikes of scarlet drooping tubular flowers are matchless. My original plant came from the late Miss Owen, who grew many choice hardy flowers, and especially bog-loving species, among which she classed this, if I remember rightly. J. WOOD.

Woodville, Kirkstall.

Old Tree Pæonies.—The date of the introduction of these into England is a point of much interest. Talking to an old gardener here aged 79, he said when he was 13 or 14 he was employed in the garden at King's Weston, near Bristol, by Lord Clifford. There are six or eight famous Tree Pæonies there. I have counted 300 blossoms on one plant myself. Every year this man was employed to construct canvas coverings round these Tree Pæonies. I asked him how big they were then, and I made out that they were bushes then at least 3 feet through 65 years ago. These Pæonies have been planted at least 30 years, for I think it impossible for a Tree Pæony to grow into a 3-foot bush under 30 years. This will take the date of planting of these Pæonies into the last century. Would someone tell us if other plants are known to have been planted at an earlier date still?—C. O. MILES.

Tulips diseased.—I should be much obliged if you would inform me what is the matter with the enclosed Tulips. I planted a border of 1000 breeder Tulips last autumn, and some of them have become affected in the way you see. Some of my Parrot Tulips are in the same condition. I think it must be too much manure, but would like to have the opinion of some readers of *THE GARDEN*.—M. F.

* I grow a large collection of Tulips, and last year many of the plants went off in the same way as those sent by "M. F.," and I never found out what was the cause. They were not so bad in some parts of the beds as in others, but a large number of them could not produce their flowers at all. Good Tulip growers came and looked at them, and the verdict of them all was that they had been exposed to some deleterious smoke, such as one might have from brick-kilns or funnels from an acid

factory. We are miles from either, and I believe the keen frost winds had something to do with it. The leaves were chilled at night, in fact, frozen hard, and by day exposed to bright sunshine. They are all right this year, in perfect health and blooming splendidly. The leaves sent have no fungoid growth on them that I can see. They have probably been exposed to some deleterious fumes in the atmosphere. If this is not so, I should say it was the weather. The only way to make secure is to protect them at night, as the leading growers do, and escape either sharp frosts or hot, scorching sunshine.—J. D. E.

ALPINE AURICULAS.

THE charming bank of alpine Auriculas shown by Messrs. Sutton and Sons at the Royal Aquarium at the end of April served two purposes; it taught the general public what delightful subjects can be raised from seeds, and it served to show that the raising of good alpine Auriculas is by no means a monopoly in the hands of a few persons only. In this collection a very fine quality of pip was in combination with bold and striking colours. Messrs. Sutton and Sons in selecting plants as seed parents have steadily kept in view the importance of raising varieties that will please the general public, and they have obtained bold and striking hues shading off to paler tints of varying beauty. There was a robustness of habit that lent wonderful freedom of flowering to the plants, and the scapes were crowned with remarkably fine trusses of bloom. Their fancy types, though what is and what is not a fancy Auricula is a point very difficult to determine, were charming, and the fact that a first-class certificate of merit was made to an exceedingly pretty pale coloured variety of great softness and delicacy by those claiming to be experts in Auricula culture testified to its value. Some like rich hues in their alpine Auriculas—golden centres with brilliant crimson, maroon, and purple shadings, while others prefer creamy and white centres in combination with pink, pale rose, mauve, lilac, and other soft tints. The Auricula possesses an immense capacity for variety, and all who love it and desire to grow it are likely to be abundantly satisfied with the produce of a good strain of seeds.

In the early days of the alpine Auricula as an exhibition flower, only what is known as shaded flowers were admitted to competition. That is to say, there was a white, cream, or golden centre—sometimes wrongly denominated paste, as that term applies only to the edged and self show varieties—with a dark zone of colour next the centre, shading off on the petal edges to a paler tint. In the early steps taken by the late Mr. Charles Turner towards the improvement of the alpine Auricula, he raised fine varieties having self-coloured margins, generally of a rich maroon, a shining velvety colour, as in the case of Mercury, Colonel Scott, John Bull, and others. To shut these out from competition would have been a pity, and in the south (for instance, at the Auricula shows held at the Drill Hall, Westminster, and at the Royal Aquarium) self flowers are admitted in competition, though of late years the selfs have given way to a very great extent to the shaded varieties.

Seed of alpine Auriculas can be sown at any time of the year almost. The best time to do it is as soon as the seeds are gathered, say in August or in early spring. In March last I sowed two boxes of seed, using shallow wooden boxes with some rough drainage at the bottom, then some Moss, over this some rough potting soil, and then a surface layer of fine compost. This was pressed down firmly and made level, the seeds scattered thinly over it, and then was added a very slight covering indeed of silver sand and dry cocoa fibre in the form of dust; a gentle sprinkling followed. The boxes were placed on a shelf in the greenhouse, each covered with a piece of glass and shaded from bright sunshine. The seeds quickly germinated, and now I have a fine crop of young plants. As soon as the most forward are large enough they will be pricked off into pots of fine soil, and encouraged to grow on

into size. This process makes room for the other plants to increase in size, as well as for those which germinate successively, and some always much later than others. I keep the boxes until the end of the year, but if kept until the following spring I should not be surprised if some seeds germinated then. The Rev. Mr. Horner has stated that he keeps his seed pans of show varieties for three years, and some plants put in appearance long after the seeds have been sown. Hence the necessity for patience in raising seeds of Auriculas.

R. D.

Doronicum Clusii on the Grass.—This free-growing hardy plant cannot be too often recommended. It grows about 18 inches high, increases rapidly, and will grow in almost any situation or soil. It is as a plant for massing on the Grass that I wish to direct attention to it here. We have a large clump now in full flower on the Grass. It is from 3 feet to 4 feet across, and is growing on a sloping bank facing north, with a large bank of Rhododendrons at the back. On one side is an ornamental pond, in which is growing the Water Hawthorn, which is also in full bloom. We only planted this mass during the past winter, by preparing five holes at equal distances, leaving the turf between them. In each we planted a large clump. The plants have all grown together, and have the appearance of one specimen. We have also a large patch growing in a bare border, but in this position it does not look half so well, nor is the effect so good.—DORSET.

Primula Goblîi.—This Primula, a cross between *P. Auricula* (L.) and *P. villosa* (Jacquin), according to the "Oesterreichische Botanische Zeitung," vol. xxv., p. 82, was said to have been found by Kriegskommissär Peheim, of Gruz, on Mount Eisenhut, near Turrach, in Styria. Later on some plants under this name, found at Turrach, were distributed, and I myself had one of them; but I mistrusted it from the first. Several years later I sent my then head gardener, M. Obrist, on the Eisenhut to collect this cross, but M. Obrist, a very experienced collector, could not find the plant, but he was able to state that neither on Eisenhut nor on the surrounding mountains did *P. Auricula* occur. As he himself could not find Auricula, he tried to get information of its whereabouts; but guides, curators, officers—in short, everybody—assured him that *P. Auricula* did not grow in the neighbourhood, so that it is impossible that the cross Auricula and villosa, viz., Goblîi, can ever have been found on the Eisenhut. Another very trustworthy collector, M. Sünderman, of Lindau (Bavaria), a nurseryman in alpine plants, had the same experience on the Eisenhut as M. Obrist. It is, however, quite possible that a cross between Auricula and villosa occurs somewhere, and even that the plants sent by M. Peheim to Innsbruck were the true Auricula—villosa.—O. FORSTER.

Variation in hardy plants.—Although there is now much less of that epidemic of variegation in foliage amongst hardy plants that seemed to run through vegetation a few years since, still it would seem that the sickness has not worn itself out. At the last meeting of the Royal Horticultural Society there was presented not only a silver-leaved Lunaria (Honesty), but also a variegated Christmas Rose. Both were emphatically plants spoiled. Comparatively few, after all, are the variegated plants we care to preserve. Those which have given variation in colour of foliage without detracting from robustness of habit have proved useful, but very many have been worthless. Of all variegated trees the most markedly so is perhaps the silver-leaved Maple, and yet it must be honestly said of it that the less it is planted the better. Variegated Chestnuts, Sycamores, Elms, and other large trees are abortions. Of true hardy plants for border growth, one of the very best is the Golden Valerian, so striking in good climates in the early spring; and the golden-tipped Stonerose is another most useful plant for carpet work. It will be well if we see no more of the spoilt Honesty and the sickly-looking Christmas Rose. The foliage of both plants in the normal green state is admirable; especially is that of the Honesty when seen

on strong plants, and the tall colchicous forms of the winter-blooming Hellebore. These latter make splendid clusters of leafage. Even big clumps of Foxgloves, Columbines, Mallows, giant Poppies, &c., give striking effects in green foliage in their season, for which sickly variegation would be but an indifferent substitute.—A. D.

Primula intermedia (Portenschlag).—This is a cross between *Clusiana* and *minima*. The first specimens were found in 1851 on the Schneeberg (Niederösterreich) by F. Salzer. Since then it was lost, until by a strange accident it was again found on the same day, June 10, 1885, in two different localities by E. Wiemann, Botanic Garden, Vienna, on the Schneeberg, and by M. Obrist on the Sparfeld, near Kalbling. There are three different forms of this cross. The one nearest to *minima* (super-minima and *Clusiana*) is *P. Wettsteinii* (Wiemann), the second is *minima* and *Clusiana* = *intermedia* (Portenschlag), and the third is sub-minima × *Clusiana* (not named yet).—O. FORSTER.

GARDEN FLORA.

PLATE 755.

THE WOOD SORRELS.

(WITH A PLATE OF OXALIS BOWIEANA.*)

THERE are more than 200 species of *Oxalis*, most of them natives either of South Africa or America. They are nearly all inhabitants of sub-tropical regions, only a few being found in the colder parts of both temperate zones and proving hardy in England. Of the few which are distinctly tropical, the most remarkable are those which climb, such as *O. scandens*, whose stems extend half way up the roof of the Palm house at Kew; those with decidedly woody stems, represented by *O. bupleurifolia* and *O. Ortgiesi*, and those which have sensitive leaves, and of which *O. sensitiva* is the best known. The flowers of these are small and unattractive. A knowledge of the genus as typified by our native *O. Acetosella*, the common Wood Sorrel or Shamrock, would scarcely enable one to recognise as *Oxalis* such plants as those named. In like manner we have amongst the species from temperate regions many with foliage totally unlike that of the Shamrock, some having large simple leaves, others pectinate, peltate, pinnate, or multifoliate leaves, and some, again, have no true leaves at all. Equally striking is the range of variety shown by the underground parts of these plants, some having a Tulip-like bulb, others a fleshy root like a Carrot, others scaly Lily-like bulbs, others rhizomes, and others a woody rootstock.

A few of the species, as, for instance, *O. Deppei* and *O. crenata*, bear fleshy edible tubers. Others possess a powerful acidity, due to the presence of oxalate of potash, the oxalic acid of commerce being obtained from *O. Acetosella*.

So much for the general characteristics of the genus. Considered as garden plants, we find amongst the hundred or so species that have been or are in cultivation a large number possessed of characters decidedly ornamental, and which are very easy to cultivate. Figures of about 130 species have been published

* Drawn by H. G. Moon for THE GARDEN in the Royal Gardens, Kew, July 20, 1889. Lithographed and printed by Guillaume Severeyns.

31 MAY 1890



OXALIS BOWENIANA

from plants cultivated in England, the bulk of them African. Jacquin's beautiful monograph of the Oxalises cultivated in the Imperial Gardens at Vienna in 1794 contains figures of over 100 kinds. In our own time, the late Mr. Giles Munby was a keen collector



Oxalis Deppei.

and cultivator of these plants. When he died his collection went to Kew, where they are now, and where they make a pretty display all through the spring and summer. The chief drawback many of the Oxalises have as decorative subjects is in their habit of closing their flowers early in the day or when the sun ceases to shine upon them. Seen on a bright sunny morning the Kew plants are gay with flowers, many large and bright in colour, as in that represented in the accompanying plate. Besides the Kew collection, there are also two good collections known to me, one at Schönbrunn, under the care of Professor Hildebrandt, who has made a speciality of the Oxalises for many years, growing them as few can; the other collection has been formed by Mr. Endicott, an amateur in New York.

Although at least a hundred species could be named as being pretty enough to take rank with the choicest of flowering plants for the greenhouse and out of doors, it will serve a more useful purpose, perhaps, if the selection



Oxalis Bowieana.

is limited to a dozen of the very best of what are in gardens. These are given below.

The cultural requirements of those here recommended are very simple. So far as our experience at Kew goes, none of them can be called hardy. Collections have been tried under various conditions in the open ground, but they have proved a failure. The only truly hardy

species of Oxalis at Kew are *O. Grahamiana*, *O. vespertilionis*, *O. violacea*, with, of course, the two British species and their varieties. We read of the success of such as *O. Bowieana*, *O. floribunda*, *O. lobata*, and *O. Deppei* in various English gardens, particularly in the south, and I should say that wherever the last-named quartette can be grown permanently out of doors, a large number of species would probably prove equally at home. For beginners the wisest course would be cultivation in pots in the first instance, and experimenting with the surplus plants—for all the kinds multiply very rapidly—in the open border. Under a south wall or on warm positions in the rock garden would be the most likely places for them. They prefer a light sandy soil with plenty of drainage. For pot culture the practice at Kew is as follows: When the leaves turn yellow in autumn, the plants are placed in a frame or open shed and allowed to bake. They are kept all winter as



Oxalis crenata.

dry as possible and out of the reach of frost. About the beginning of February the tubers are all shaken out, sorted, and repotted. The strongest growers, such as *O. Bowieana* and *O. floribunda*, are planted in deep pans 10 inches across, in a mixture of loam, leaf mould, and sand, a dozen plants being sufficient for a pan. The smaller kinds are planted in 5-inch pots. They are then placed in a frame, kept dry and protected in severe weather by a covering of mats or straw. When the leaves have pushed above the soil water is given, and should the weather be cold the most forward plants are removed to a sunny greenhouse. During summer all the plants are plunged in Cocoa-nut fibre in a sunny position out of doors. A still more satisfactory plan has been tried lately at Kew, namely, planting the surplus tubers along the margin of the raised bed in the large succulent house (No. 5). A few inches of soil form a narrow border in front

of the gravel and along the edge of the brick wall. Of the species thus tried, the most successful so far are the following, viz., *O. floribunda* and its varieties, *O. cernua*, *O. incarnata*, *O. brasiliensis*, and *O. Bowieana*. These are flowering freely now, and in a week or two will be at their best. The temperature of this house rarely falls below 50° even in winter, but there is plenty of light and the atmosphere is dry.

The following are specially well adapted for pot culture:—

O. BOWIEANA.—A Cape species introduced in 1821, and sometimes used as a bedding plant, notably in Battersea Park. It is the largest in leaf and flower of all the stemless trifoliate kinds. The Kew plants have leaves with stalks 6 inches long, three heart-shaped leaflets 2 inches across, a scape 8 inches long, bearing an umbel of about a dozen flowers and buds; each flower is 1½ inches across and coloured bright rose-red. It blooms from May to July under glass.

O. ARENARIA.—A native of Chili, where it is abundant in sandy pastures. The leaves are divided into three or four leaflets, and the scape is erect, 6 inches long, purplish at the base; the flowers are in umbels, each an inch across and coloured bright violet-purple. It blooms in March.

O. ARTICULATA.—Introduced from the mountains of South Brazil, and for many years cultivated under the name of *O. odorata*. It has a short, woody, stem-like rootstock 4 inches high, a dense tuft of grey-green, three-foliate leaves, and numerous spreading scapes, bearing many-flowered umbels, each flower an inch across, coloured pale lilac, and fragrant. It blooms in June.

O. BRASILIENSIS was sent to Kew by Mr. Darwin during the famous *Beagle* expedition. It is one of the most delightful little plants, its short-stalked, Trefoil-like leaves of the darkest green forming a compact tuft, from which spring the slender scapes 6 inches long, each bearing an umbel of from three



Oxalis floribunda.

to eight flowers, of a rich crimson-purple colour and 1½ inches across. Pans of this species were shown from Kew several years ago at one of the fortnightly meetings of the Royal Horticultural Society at South Kensington, and attracted much attention. It blooms in May and June.

O. CERNUA.—An old garden plant introduced from the Cape, and figured in the *Botanical Magazine*, t. 237, as *O. caprina*. It has a bulbous rootstock, slender leafstalks 3 inches to 4 inches long, a blade divided into three bi-lobed divisions, a scape 6 inches long, bearing from two to six flowers of

the richest canary-yellow, and each fully $1\frac{1}{2}$ inches across. Some pans of this species in full flower are now very attractive in the Cape house at Kew. It is very free-flowering, and is certainly the best of the yellow kinds. There is a variety of it with double flowers, but it is rare, and not so free-flowering as the type. It bloomed at Kew last year.

O. COMPRESSA.—This is very similar to *O. cernua*, but it is easily distinguished by its flattened ciliated petioles, which are scarcely 2 inches long. It may be only a variety of *O. cernua*. It is a native of the Cape. It flowers every summer at Kew.

O. ELEGANS.—A native of the Andes of Loxa at an elevation of 7000 feet, from whence it was sent to Messrs. Veitch by their collector Lobb in 1849. It has a tufted habit, leaf-stalks 6 inches long, the blade divided into three deltoid leaflets, each 1 inch long, green above, purple beneath. The flowers are in umbels of from six to nine on the ends of scapes 8 inches long, and they are coloured rich purple with an eye-like zone of a darker colour; each flower is 1 inch across. This is said to be quite hardy in the south of England.

O. FLORIBUNDA.—A good garden plant, well named, happy under the simplest treatment, and when in flower pretty enough for anything. There are rose-coloured, white, pale flesh, and white margined with rose varieties; grown in pots, in baskets, or in borders, as at Kew, they are all very effective when in flower. The plant forms a short herbaceous stem crowded with long-stalked leaves, and scapes from 6 inches to 1 foot long, bearing umbels of flowers which though only medium in size are abundant enough to make a good show. This species is cultivated as *O. arborea*, *O. rosea*, *O. lilacina*, &c. It was introduced from Chili in 1823.

O. HIRTA.—A variable plant and with a multiplicity of names as a consequence. It has thin herbaceous decumbent stems with leaves along their whole length, each leaf being almost sessile, and divided into three narrow lobes half an inch long; flowers axillary, singly on short stalks, each flower $1\frac{1}{2}$ inches across, and coloured rich purple, or violet, or lilac. Some of its names are *canescens*, *macrostylis*, *longisepala*, *fulgida*, *rubella*, &c. It is from the Cape. I have seen stems of it 18 inches long bearing flowers from top to bottom—a most beautiful picture.

O. LASIANDA.—A Mexican plant with digitate leaves, each of the seven leaflets being 3 inches long by 1 inch broad. The scapes are 1 foot long, and bear umbels of about a dozen flowers, which are each 1 inch across and coloured rosy-crimson.

O. LOBATA.—A pretty little Chilean species with small three-foliate lobed leaves and golden yellow flowers, borne singly on slender stalks 4 inches high, each flower three-quarters of an inch across. It forms one of the prettiest of objects in a sunny position in the rock garden. It is hardy with Herr Max Leichtlin at Baden-Baden, where it is in bloom all through the summer. At Kew it invariably perishes in the winter when left outside.

O. VARIABILIS.—A Cape species showing considerable variation both in leaf and flower. It has a large bulbous rootstock, from which springs a tuft of short-stalked leaves with three rounded dark green leaflets which are generally hairy. The flowers are borne singly on erect stalks 3 inches long, and each flower is cupped, fully 2 inches across when expanded, and coloured purple, rosy-lilac, white, or white and yellow. Some of its names, viz., *grandiflora*, *speciosa*, *purpurea*, and *alba*, indicate its handsome and variable character. It is one of the commonest of Cape plants, its flowers studing the flats there as thickly and with much the same effect as Daisies and Dandelions here.

W.

New design for window-boxes.—The flower-pots from Messrs. Oetzmann & Co. are simple things and useful for their purpose, but we do not care for the contrivance to turn them into window-boxes. All the inventors of such things are too fond of patterns. If they would give people good shapes and good colours and leave out the pattern, it would be twice as well for all concerned; but they have got the decorative craze, and we must suffer it for a time!

THE WEEK'S WORK.

FRUITS UNDER GLASS.

PEACH HOUSES.

VERY early trees from which the crop has been gathered may be relieved of superfluous wood which has carried the fruit, and, considering that their principal growth has been made in the early spring months, the greatest possible care must be taken of the foliage, as the hottest part of the year will cover their season of rest. To this end the shoots should be carefully and well thinned, as there is nothing like light, cleanliness, and fresh air as elements most favourable to the preservation of the leaves. The next step will be the regulation of the shoots retained, as it is very important that these be placed a fair average distance apart and in positions most likely to shelter the old branches and bare stems from the paralyzing influence of the sun. The trees, as a matter of course, must be regularly syringed with fresh water, the roots copiously supplied with the same element, or possibly a dash of weak liquid to keep them in growth, and the house must have an abundance of air.

Houses in which the successional crop is now taking the last swelling must be treated to a regular circulation of warm, fresh air, and the trees being free from spider, syringing may be relaxed, but not suddenly discontinued, as a certain amount of moisture is beneficial when, at this advancing season, the fruit is ripe. All bare stems, for instance, walls, and floors may be damped every morning, and the weather being bright, this process may be repeated when the air is reduced in the afternoon. Turn aside the leaves shading the fruit, but do not cut them off, as this process, too common, spoils the yet imperfect buds, and carried to excess detracts from the size of the Peaches when ripe. About this time the roots should receive their last supply of tepid water, and considering that evaporation or perspiration through the leaves is increasing every day, the borders should be well covered with some non-conducting material best calculated to keep them moist and active.

Gathering the fruit is an operation requiring judgment and great care, for if taken too green they lack the flavour a home-used Peach should possess; if allowed to hang until dead ripe their brisk, sprightly flavour is gone. Then as regards care, each fruit should be detached without undergoing the slightest pressure from the fingers or hands. The fruit borne by an over-cropped or under-watered tree, unfortunately, often parts too readily, but when all things are right it hangs until dead ripe, as the tree is quite capable of carrying and finishing the crop. Good forced Peaches should weigh from 8 ozs. to 10 ozs. each, and as these should reach the table quite free from blemish, they should be detached with a pair of Grape scissors, be placed on squares of tissue paper, and laid in flat padded boxes or baskets where they can remain until wanted for use.

These remarks as to gathering apply to all Peaches, but their condition for market purposes is a special business, as London fruiterers care not how hard they are provided they have size and a bright colour. Gathered and packed in this state they cannot easily be bruised, but quality under these conditions is another matter, for notwithstanding their coming up from the vaults without spot or blemish, the public do not get the piquant flavour enjoyed by those who eat their own fruit direct from the trees. There is no remedy for this, as buyers, as a rule, are guided by the eye; therefore growers may as well keep their fruit at home, as dead ripe Peaches do not suit the trade.

Late houses.—Thinning the fruit and shoots and tying in will still require constant care, and the trees being in good health the smallest possible percentage over the regulation number will suffice, as late Peaches should not drop. A Peach to a square foot of foliage is ample, and 5 inches from shoot to shoot is quite close enough in late ripening trees. The period of ripening, again, is another important point, for if wanted very late now is the time to retard, not by shading, but by gradually

increasing the circulation of air by day for the present, later on by night as well. The trees in all cases should be well syringed once a day very early in the morning, and again about 4 p.m. when the weather is fine. Closing for an hour will increase the size of the fruit and suit the trees, but late maturity being the object, ventilation may reduce the temperature to 50° through the night. If well drained, late borders can hardly be over-watered, the quality of the liquid being regulated by the strength of the trees and the approaching weight of their load. Mulching, too, is equally important, as thousands of leaves spread out within 18 inches of the glass require an enormous quantity of moisture which must pass through the roots.

CHERRIES.

Houses containing ripe fruit cannot be kept too dry and cool, certainly through the night and generally through the day unless the outside atmosphere is unusually arid, when the floors and walls may be damped with the syringe. Keep the roots steadily moist by watering pot trees early on bright mornings, and at once cover up the surface with short straw or some non-conductor that is dry. If May Duke and other early soft luscious varieties are intended to hang beyond their usual season they should be lightly shaded for a few hours on hot days, but fleshy sorts like Elton and the Bigarreaux will stand and improve under the fullest exposure to light. As soon as the fruit is gathered remove pot trees to a cool house, where they can be well syringed and fed, and when the whole set are clear repot and keep them for a little time under glass.

PLUMS.

If any of the very early sorts, including De Montfort, which is one of the best, are quite ripe, stand the pots by themselves where the atmosphere can be kept dry, airy, and cool. Re-arrange the others and continue syringing with pure soft water once or twice a day until the fruit has finished swelling. Keep all lateral growths closely pinched, examine curled leaves for grub, and smoke lightly for the destruction of aphids. Top-dress pot trees, mulch those planted out in borders, and water copiously with pure water or liquid where the crop is heavy and the trees will stand feeding.

FIGS.

When the first crop in the early house is over the trees should be carefully examined for scale and spider, two insects to which forced Figs are subject. Brown scale spreads very fast, and soon attacks the young leaves and second crop fruit if left unmolested. Insecticides just now are out of the question, but if taken in time the bulk may be destroyed by the use of a short stumpy brush made up of a few hard bristles. Red spider soon succumbs to hard syringing, but it should be followed up, as now is the time to wage war with these insects. If insufficiently thinned, reduce to moderate quantity, as second fruit is never so large as the first, no matter how well the trees are fed and managed. Remove all weak sprays and tie out shoots where the shape of the trees can be improved, but discontinue pinching, as fresh breaks after this date will barely have time to ripen.

Successions.—If judiciously started, the crop in the second house will ripen during the time the second in the first is swelling, when, with a third or late set of trees coming on, there will be no break in the supply of fruit throughout the season. Brown Turkey, White Marseilles, and Osborn's Prolific are three of the best early and main crop varieties, as they are most prolific and the fruit is excellent. Early Violet, rather small, is one of the best for very early pot work, and Negro Largo is a sterling sort for climbing up pillars and under lofty roofs, where it fruits profusely throughout the late summer and early autumn months. As none of these single crop Figs require pinching, all the extending shoots should have ample room, plenty of water, and good syringing. Of sun heat they will stand any amount, but high flavour cannot be secured without ample ventilation.

POT VINES

upon which the Grapes are quite ripe must not feel the want of pure water, neither must they

have full exposure to the sun, as the black varieties soon lose their colour. Keep the house well aired and cool and moderately dry, but avoid extremes, as damping the floors and walls on hot, dry days supports the foliage and keeps the berries fresh at a time when solar heat is daily increasing. White Grapes will stand any amount of sun after they are ripe, always provided they have plenty of air; hence the advantage of keeping all the white varieties together for the convenience of shading the black ones. If spider, no unlikely enemy, has gained a foothold, sulphur the pipes, or sponge the foliage with soapy water, not only to keep it out of the bunches, but also to prevent it being carried into other houses, and last, but not least important, get rid of these breeders of mischief the moment the crop is cleared from them.

Canes intended for next year's forcing will now be making rapid progress, and the roots having reached the sides of the pots will be in a condition for taking mild stimulants in the form of weak guano water, which makes foliage, or clarified liquid made from good cow manure. Soot water, weak and clear, also may be used both for watering, syringing, and damping. Train the young rods beneath the wires, pinch all laterals at the first leaf, take out the points when they have attained the requisite length, say 6 feet to 9 feet, and carefully preserve all the premier foliage, so apt to scald when early ventilation is neglected. W. C.

PLANT HOUSES.

ROSES.—Plants of *Maréchal Niel* should be pruned as soon as they go out of bloom. All weak wood that has not been strong enough to produce flowers ought to be cut out, and the strong shoots formed last summer should be shortened moderately, but not cut in too closely. I have seen this Rose so weakened by the excessive use of the pruning knife, that it produced not more than half a crop of flowers the year following. The aim of the pruner should be to get, so far as possible, a portion of strong wood evenly distributed over the plant from the lower part to the extremity. Some growers score the bark of the main stem freely with the knife, with the view of preventing or reducing the disposition which this Rose has to form protuberances on the stem, and which sooner or later appear and always end fatally; but I do not think much, if any, good results from the practice. Some plants that are so treated may seem to go on longer without showing the disease, and others that have the bark freely cut succumb whilst young and in other ways vigorous. The same difference in the age at which the disease comes is observable in plants that never have the bark interfered with. The only safe course to follow in order to keep up a supply of bloom is to have several plants of various ages, and to plant young ones as soon as disease appears in any established specimens. This Rose, like other strong-growing plants, requires a good deal of sustenance. As soon as the soil in which it is planted begins to lose its fertility, means must be taken at once to make good the deficiency by surface dressings with manure or frequent applications of manure water, which should be given regularly at short intervals from the time the growth begins to move before flowering up to the end of the season when shoot extension is about to cease. Above all, it is necessary to see that the border is fairly moist all through from the surface to the drainage. Where possible, it is safest to have the border outside the house, as then there is less danger of its getting dry.

PRIMULAS.—The single and semi-double varieties that were sown early in April will now be large enough to prick off. The ordinary way is to put the little plants singly in small pots, and after they have filled these with their roots to move them into those in which they are to bloom. A much better plan is to put them in shallow boxes; so treated they make much quicker progress, occupy less room and do not take half the time to water. Little pots are continually getting dry in summer, and, consequently on the small quantity of soil the roots are

confined in, the plants suffer severely if deficient in moisture. It is likewise much easier to raise the boxes so as to have the plants close to the glass than when in pots; and when the time comes for potting they can be moved from the boxes without the roots being broken to any extent that will do harm, provided the soil is of the right description. To secure this, in addition to sand, enough leaf-mould and rotten manure, both passed through a fine sieve, must be mixed with the loam, which also must be sifted. The plants should be put in not less than 3 inches apart. After they are put in boxes, the best place to keep them in is in frames stood facing north, with the boxes elevated so as to get the plants close to the glass. With the requisite amount of air given daily and a thin shade on the glass when the weather is bright, the leaves and leaf-stalks will not get drawn. Where this takes place no after-treatment will ever make good the defect.

DOUBLE PRIMULAS.—When the plants are blooming freely early in spring there is naturally a reluctance to interfere with them, so that their propagation is deferred until later. When they are in good condition they are seldom wholly out of bloom, but the flowers can now be better spared than earlier, and no time should be lost in getting on with them, so that the crowns may have time to root and grow up to a useful size before winter. Where the old plants have been properly treated by keeping the soil well up so as to cover the base of the stalks of the lower leaves, roots will in most cases be already formed at the base of the crowns. By using the knife carefully, enough of these may be secured to each piece, so that there will be little difficulty in getting them established. Put them in pots proportionate in size to that of the crowns. Use rich light soil of a like description to that advised for the single and semi-double varieties, pressing it moderately firm in the pots, and finish with a little sand alone on the top. Keep the house or pit where they are stood close, giving less air until the plants are established. Shade regularly from the sun, but as soon as they are well rooted let them have plenty of light.

LILIES.—Established plants that are strong and growing freely, or that have formed their flower-buds, should have weak manure water given frequently. They are better now out of doors with the pots plunged in coal ashes. Let them have a light position, but where the wind will be broken. Attend to staking, and in doing this it is necessary to be careful where the sticks are inserted, so as not to injure the roots. Do not use more sticks than requisite, as it is not possible to insert them into the soil, which should now be full of roots, without breaking some.

LILIES AFTER FORCING.—Such kinds as *L. Harrisi*, *L. eximium*, and the old *L. candidum* that have been forced should, as they went out of bloom, have been put in a cold house or pit and regularly attended to with water. They may now be turned out of doors; if plunged, all the better. Keep them clear of aphides, and supply their wants with manure water. If properly attended to, some of them will flower again towards the end of the year.

T. B.

HARDY FRUIT GARDEN.

OPERATIONS in this department just now are as manifold as they are important and pressing. Peaches upon which fly has been unusually troublesome will be the better for frequent washing with pure water, but where the aphids has not been killed, all curled shoots which cannot be spared must be dipped in weak tobacco water, or a solution of Gishurst compound 3 ozs. to the gallon. Defer the use of all insect destroyers until after the sun is off the walls, also when there is the slightest danger of frost or cutting winds, and if used at all strong, syringe early the following morning. Follow up disbudding, allowing about 5 inches for each shoot retained, and heel in the most forward before they become liable to injury; also thin the fruit, leaving a moderate percentage for dropping or other mischances, and give preference to the finest on the upper sides of the shoots, as these are in the best position

for colouring. Examine the borders, and if rain from the south or west has not been abundantly plentiful, err on the safe side by one or two thorough soakings. Also add more fresh stable litter to the wall paths, as anything approaching dryness is detrimental if not fatal to the culture of stone fruits.

APRICOTS.—These will now be forward enough for the final thinning of the fruit so apt to set too thickly in clusters upon the spurs. Moorpark and other choice varieties intended for dessert should be thinned until each fruit left has ample room to swell to its fullest size, whilst the prolific preserving sorts may be allowed to carry heavier crops, provided they have room to expand without becoming deformed. Conjointly with this operation continue the work of disbudding, stopping for spurs, and pinching where the curled points reveal the presence of grub. Wash the trees frequently with the hose, choosing mild dull evenings for these operations. Also mulch with additional good stable manure, and see that ample supplies of water reach the lowest roots. Nail in leaders, also the requisite number of intermediate shoots, but carefully avoid crowding, as next year's crop depends upon getting the young wood thoroughly ripe. Train young trees fan shape, as being the best for filling up gaps when large branches die, and if growing evenly allow all the shoots to extend, otherwise pinch the points and allow the first lateral to resume the lead.

W. C.

THE KITCHEN GARDEN.

TURNIPS.—Those sown in frames on a slight hot-bed are now very serviceable. They are acceptable in the kitchen when of the size of Walnuts, and drawing them thus early favours the growth of a good succession in either a frame or on a border, as the case may be. Early sowings on sheltered borders where not protected with fish-nets fared badly, birds pulling up the greater portion, but later sowings, strange to say, were not interfered with. Thinning out ought never to be long delayed. It greatly simplifies the work if they are first cut out with a hoe, small patches of plants being left from 6 inches to 9 inches apart, according to the habit of the variety, the final thinning to be completed by the hand after the plants are too large to be much interfered with by slugs. Successional sowings may well be made on east or other cool borders, giving the preference to Snowball and the later Veitch's Red Globe. Crops obtained by sowing seed of these and Chirk Castle Black Stone early in June on a north border have frequently done us good service in the late autumn and winter months.

THINNING AND TRANSPLANTING ONIONS.—What thinning out is necessary cannot well be done too early. Taken in hand now and before the ground has become hard, the plants may be easily and cleanly drawn; whereas if left till they are very much larger they have already weakened each other, and in addition are difficult to draw without breaking. We sow thinly, and the small amount of thinning needed is done early, this being a good preventive of Onion maggot, much loosening of the ground having quite the opposite effect. When the rows are from 10 inches to 12 inches apart, a most serviceable crop of bulbs may be had by leaving the plants about 4 inches apart. If good space is allowed between the rows, it does not matter if the bulbs eventually press against each other. Onions transplant readily in showery weather, and if it is done when they are about 6 inches high they will form good bulbs or nearly as large as those not moved.

PARSNIPS.—These are among the earliest to require thinning. While the ground is soft and the plants young they can be drawn easily, and if need be may be successfully transplanted to wherever there are blanks to be made good. Very large Parsnips are objectionable, the smaller roots usually being the best in point of quality. Nor are the latter so liable to become diseased, keeping much better accordingly. If exhibition roots are required, then the plants must be thinned to a distance of 12 inches or more apart, some growers leaving them 15 inches asunder. For home con-

sumption a distance of 8 inches or 9 inches apart is quite sufficient.

PEAS GROWN THINLY.—The state of the ground during April and the early part of May was most favourable to the germination of seed, and in consequence the plants in the rows of Peas are in many cases far too thick. Somewhat dense rows of plants are desirable only in the case either of early varieties or when a quick and heavy crop of short duration, in preference to a far more continuous supply of superior pods, is wished for. Crowded rows are also the first to succumb in dry hot weather. The wiser plan, therefore, is to sow the seed moderately thickly in the first instance, and to thin out somewhat freely when the plants are nearly fit for staking. Nearly all the maincrop and late varieties will, provided they are given good room, branch freely and strongly, what at one time appearing to be hardly worth staking eventually developing into most profitable rows. If the plants are thinned to about 5 inches apart, they will in most cases grow and branch strongly, and be less liable to suffer by mildew.

PEAS, DROUGHT-RESISTING.—Where the soil is of a shallow, quickly-drying nature, it is impossible to succeed with Peas in hot dry weather without taking extra trouble in preparing the sites for the rows. The usual plan is to prepare trenches much the same as for Celery, only somewhat wider, more of the soil also being returned to the top of the manure that has been well mixed with the bottom spit. One of the principal recommendations of the plan is the fact that if a portion only of the soil thrown out is returned to its original position, a basin is formed which admits of the requisite heavy supplies of water being readily given. Trenches are not always the most satisfactory on heavy retentive soils, the best plan in this case being to manure and deeply dig the ground early enough for it to become well pulverised before the time arrives for sowing the seed. Wide drills 6 inches deep should be opened with a spade, 3 inches only of the soil being distributed over the seed, the remainder being worked up on either side of the row, so as to form a good basin for holding water. Thorough soakings of water or liquid manure only are of any avail in the case of strong rows of Peas, and these, as a rule, cannot be applied unless a basin is formed capable of holding it. The more vigorous growers, notably *Ne Plus Ultra*, *Emperor of the Marrows*, and *British Queen*, are the most reliable for sowing now, but *Autocrat*, *Latest of All*, *Veitch's Perfection*, *Walker's Perpetual Bearer*, and *Sturdy* have also done good service late in the season. It is too early to sow any of the round-seeded or somewhat inferior quick-growing varieties, the end of June being quite soon enough in the southern part of England at any rate.

VARIOUS.—Heavy soaking rains, though seasonable enough, have materially retarded progress in many gardens, and slugs have had matters very much their own way. Soot and lime or other somewhat similar preventives are of no effect in very showery weather, and those who wish to preserve the young growths of *Asparagus* and small plants generally must constantly resort to hand-picking night and morning and trapping the slugs. They collect the most freely around heaps of brewers' grains, and are also attracted by little heaps of bran and sugar, loose slates and tiles, heaps of Broccoli leaves, or any other cover. The tiny black slugs are the worst to deal with, and they are very numerous this season. Should the weather be brighter and warmer by the end of May, *Tomatoes*, *Vegetable Marrows*, *Gourds*, *ridge Cucumbers*, and *Indian Corn* may in most districts be planted out, but if the opposite prevails, they ought, as a rule, to be kept in pots another week longer. Should any of them receive a severe check at the outset, they recover but slowly, and valuable time may be lost. In any case it is advisable to have some kind of temporary protection in readiness to use over those most exposed, as it sometimes happens severe frosts are experienced during the first fortnight in June. Small plants can be covered during cold nights with flower-pots, the

holes of these being stopped. Branches of Evergreens, sheets of paper, and various other contrivances are frequently utilised for protecting larger plants.

W. I.

KITCHEN GARDEN.

TOMATOES IN THE OPEN.

TOMATOES not protected by glass are, and doubtless always will be, a very uncertain crop, but those who are only partially successful with them will find they pay well for the trouble taken in their culture, while if a favourable season is experienced, they may prove the most remunerative open-air fruit or vegetable grown. Given a dry hot summer, they will produce and ripen fruit in any quantity, and what we have most to dread is a dull, cold, and wet season. In our variable climate we never know what to expect, but if we go to work in anticipation of a bad summer, there is much less likelihood of failure. Few need to be told that *Tomatoes* frequently succeed well in the open ground, clear of, but sheltered by walls, fences, and hedgerows, though it must be admitted that these are the positions where complete failures most often occur. All things considered, there are no sites for this crop to equal a sunny or south wall. Not only do the plants derive much benefit from the heat radiated from these walls, but the roots also have comparatively dry and warm quarters, everything, therefore, being favourable to a good early start. Not infrequently south walls are much the driest in the garden, very little rainfall reaching anything at the foot, and this is exactly what saves the *Tomatoes* from disease, the *Potato fungus* rarely, if ever, effecting a lodgment on dry foliage.

Garden walls being constructed principally for forwarding hardy fruits, those in charge strive to cover them as much as possible with good trees, this leaving but little space between them for *Tomato* culture. Even in this case sunny walls can yet be found for the latter in most gardens, notably the high fronts of forcing and other houses. We have frequently taken exceptionally heavy crops of fruit from plants trained up front walls from 3 feet to 5 feet in height, and hope to do so again this season. A deep rich border is not needed, our plan being to form a temporary ridge of fairly rich loamy soil from 12 inches to 15 inches in depth, and about 18 inches wide. Those who have plenty of turves at their disposal could easily build a front wall of these, or the soil might be enclosed with the aid of a loose brick wall. The walls of forcing houses are never really cold, and these raised ridges of fresh soil are the most quickly warmed by both the walls and sunshine. Any kind of fairly rich compost answers well for these positions, a mulching of either decaying leaves or short manure being given when dry, hot weather sets in. If there is plenty of head room the plants may be trained upright, but ours are trained obliquely, which gives a greater length of fruiting growth. They succeed well planted 12 inches apart, and there is no necessity to stop the plants when the roof of a low house is reached, especially if a heavy crop of green fruit is desired. As I have previously suggested, it might pay well to construct walls 4 feet or more in height, fitting movable lights or glass copings to these principally for *Tomato* culture, such conveniences also being utilised for forwarding vegetables before being required for *Tomatoes* and late in the autumn for protecting *Chrysanthemums* duly transplanted from the open ground. Sunny fences are sometimes devoted to *Tomatoes*, these being the next best thing to

warm walls. We have covered quite high fences with strong old plants that have previously ripened the principal portion of their early set crop under glass, and a heavy, if somewhat late, supply of ripe and green fruit was obtained three seasons out of four. It should be borne in mind that there are various uses for green fruit; in fact, the time is not far distant when there will be a brisk demand for them, and methods of training and stopping so as to secure plenty of these without greatly interfering with the production of ripe fruit ought to be adopted accordingly. In this connection I might point out that there is no necessity to stop the plants beyond the third cluster of fruit that is formed, very little, if anything, being gained by this proceeding, the better plan being to allow the leading growths to extend and to produce one or two large bunches of fruit for use in a green state.

Substitutes for fences even may be found by the persevering gardener. Many years ago, when the good old *Hathaway's Excelsior* was first grown in this country, I saw a grand lot of it grown on an old disused Vine border, the plants being trained against shutters that were originally made for covering the same border. Never since have I seen a better lot of fruit on plants, either under glass or in the open, and I have repeatedly imitated that method of sheltering and training *Tomatoes* with most satisfactory results. Shutters 4 feet or more in width are frequently to be found in private gardens, numbers of them being used for protecting Vine borders, and also salading and some kinds of vegetables during the winter and early spring months. If these are fixed with the aid of stout stakes lengthways in a sunny position, facing south, yet sloping somewhat to the north, a capital site for *Tomatoes* will be formed. A little old hot-bed manure forked into and mixed with the ordinary surface soil of the garden will answer well, but if these screens are erected in the frame ground or on uncultivated ground, then ought a ridge of good loamy soil, as advised in the case of fronts of houses, to be formed for the plants to root into. These screens will be most quickly covered with growth in full bearing if strong plants are put out 12 inches apart, and either trained uprightly or obliquely, according to the head room, but plants being scarce, double or treble the space may be allowed them, a side-shoot being laid in on either side. If it is not advisable to fasten up the growths with ordinary shreds and nails, cover the boards with coarse mesh galvanised wire netting, and tie them to this. Being naturally much exposed to any kind of downfall, the plants trained over these sloping screens are quite as much liable to be overtaken by disease as any grown clear of shelter of any kind, but they produce more quickly than the latter.

Tomatoes grown in the open and supported by stakes only were a complete failure in 1888, and were only partially profitable last year. Those thus treated in the *Chiswick Gardens* of the Royal Horticultural Society were by far the most heavily cropped I saw anywhere last season, and they must have paid well. I have previously observed the neighbourhood appears to be the most favourable to this method of growing *Tomatoes*, but strong plants being available, there is, however, good reason why a few or many of them should be tried in the open in various southern and south-western districts. A rich soil is undesirable, this frequently causing a rank unfruitful growth, while, on the other hand, progress may be much too slow on hungry ground. Good retentive loamy soil may well have a little partially decayed manure forked

into the surface, or, better still, a liberal dressing of superphosphate of lime, but where the natural soil is either gravelly or sandy, a peck of fresh loamy compost may well be substituted for the ordinary soil at each station. Put out the plants, previously well hardened off, during



Tomato, Hathaway's Excelior.

the first or second week in June, according to circumstances and not less than 2 feet apart each way. Place a stout stake, 4 feet in height, to each plant at once and attend regularly to the training, removing all side shoots and stopping the plants when the top of the stake is reached. There is little or no necessity to supply these or the Tomatoes in any other position with water after they are once established, the only exception being in favour of those located where no rainfall reaches them. On no account should any superfluous side shoots be allowed to form, and a few days' neglect of training leading growths



Tomato, large red.

may result in the loss of some of these by breakages when they are taken in hand.

During favourable seasons any variety will succeed in the open, but the ribbed forms, notably Earliest of all, Open Air, Orangefield, and

Large Red, are the surest setters and the first to ripen. The new Conference, evidently, is an enormous and sure cropper, and will be found one of the best for all sites. King Humbert or Chiswick Red, Golden Nugget, Vick's Criterion, Yorkshire Wonder, Queen of Tomatoes, Victoria, The Peach, and other small or comparatively small-fruited varieties are remarkably productive against sunny walls or screens especially. During a moderately favourable summer any of the Perfection type will produce heavy crops of handsome fruit, and Dedham Favourite is one of the surest bearers. The two forms of Mikado are more productive against sunny walls than under glass, and the quality of these is exceptionally good.

W. IGGULDEN.

SHORT NOTES.—KITCHEN.

Broccoli Late White Victoria.—This is excellent. We have tried it, and found it is entirely free from the disagreeable bitter twang which a great many Broccoli have, and which at one time we connected with market culture and heating by rail. Now we find it is possessed by the garden Broccoli even when quite fresh, so we are all the more pleased to welcome this variety from Mr. Gilbert.

Frame Cucumbers.—After trying many varieties I am still so well satisfied with Telegraph that I grow more of it than all other kinds put together, and for amateurs who want a really useful variety for supplying moderate-sized fruit in quantity I am sure that no better Cucumber can be grown. Set out good strong plants in frames on a compact mass of heating material, pressed down tightly so as to insure a gentle but lasting bottom-heat. Plant in a mound of decayed turf, and add to it as the plants grow. Plenty of Cucumbers will result.—J. G. H.

Raised ground for early crops.—When plants of any kind are planted in good soil elevated above the surrounding level of the ground, they invariably do much better than those which are grown on the natural level. Carrots sown during February with Radishes between the rows are earlier than those growing in unheated pits. Radishes were fit to pull during the first week of April, while those in the pits were not ready for use till late in the same month. Potatoes grown in this way on elevated beds can also be had some weeks earlier than those on the ordinary surface. Of course they require protection, which is easily given with wire hurdles, on which mats can be speedily placed when there is the slightest indication of frost. I know a gardener who had sown and planted Asparagus for years in succession on the ordinary levels and all ended in complete failure. He afterwards tried ridges well above the surrounding level, and complete success resulted.—T. C. H.

Early Cauliflowers.—Many methods have been chronicled as to the best way of obtaining these at the earliest possible time in spring. Some growers recommend and adopt growing them in pots or frames through the winter; while others advocate sowing them very early in the year and growing them on under glass. This may answer where there is ample glass accommodation. I remember seeing a grand lot in this way at The Deepdene, Dorking, early in spring. There are only a few places so favoured for pit room. A third method, and the one I believe most generally adopted, is to plant five plants under a handlight early in autumn, carefully attending to them here during the winter, and removing the handlight when the weather will permit. Requiring a continued supply of Cauliflower and Broccoli, I have tried several methods—namely, growing in pots, wintering in pots, and wintering the plants in shallow wooden boxes and under handlights, as above described, with the following results: Those under handlights will be ready first, then those wintered in pots, while those from boxes will be last. The plants are all of the same kind—a good early strain of Dwarf Erfurt. I hope to cut from the first batch by the 1st of June. These plants have been grown on a south border, and treated to a good supply of manure water three or four times. I find it difficult to have Broccoli

after May, as even such late kinds as Late Queen, &c., will be over by that time this season.—J. CROOK.

ORCHARD AND FRUIT GARDEN.

PEARS.

THE fruit in this locality appears to have set very well, so well that if one-tenth of the fruit stands there will be need for thinning. We are not, however, yet out of the wood; therefore but little must be said upon the prospect of an operation which struggling competitors with foreigners will but too readily undertake when the proper time comes. Frost, we may now hope, has been left behind, but we have a troublesome and destructive enemy in the weevil, which enfolds in the leaves and destroys a large percentage of flowers before they are fertilised. Trees here on back walls which have been repeatedly syringed with soapsuds throughout the winter have suffered very little; whilst some old trees on a cold stone wall, and considered of less importance, are in much worse condition. From these observations I am able to endorse my advice to fruit growers as to the value of home-made soapsuds and repeated applications through the dormant season. Where the let-alone principle has been followed by the loss of some nine-tenths of the fruit in each truss, it is useless crying over spilt milk. Not so to attack the retreating enemy by hand-picking into a bag or folded apron for conveyance to the fire and copious hosing with cold water. Lacking a strong force through the hose, a good garden engine may be used in preference to the hand-syringe, which is not sufficiently powerful for drastic purposes. The first business, of course, is the extermination of enemies, and when these have been disposed of the operations of pinching and training will require attention. It is not a good plan to commence pinching too early, as undue haste frustrates our object by inducing a forest of soft spray, where well-timed action might result in the formation of flower-buds. Cordons on the Quince come first, and if not already done, pinching should be followed by liberal mulching, not so much for feeding as for keeping in moisture. The rainfall this season in this locality has not been equal to our requirements, and the copings and foliage having so completely sheltered the roots, these Quince stocks will prove more than grateful for an occasional soaking.

Large horizontal-trained trees on free stocks having a broad and deep root-run will be quite wet enough, but the better to save labour later on they also should be treated to a good surface covering as a non-conductor and conservator of moisture. Omitting the great number of suitable materials, I may say one of the best general coverings for wall paths is fresh stable litter, with or without the manurial part acceptable in the Mushroom house. When the time arrives for pinching these trees, the upper parts and breast-wood from or near the main stems should be broken out first, otherwise these strong shoots will soon become robbers, running away with the sap which should go to the support of the fruit, generally most plentiful near the extremities of the branches. Fine fruit only now being of any value, thinning in due course will require attention, an operation most readily performed by a pair of Grape scissors. If really fine fruit is wanted not more than one should be left upon each spur, that is of the large growing varieties, when the Pears are evenly distributed, but when certain parts of a tree are minus fruits this principle must not be closely adhered to, otherwise a repetition of

thinning for the big Gooseberry will be the outcome. Small growing varieties like the delicious little Seckle, Winter Nelis, the medium Beurrés, and others may be left much thicker, but as evenly as possible, just by the removal of all small fruits from each spur, and finally, for Pear thinning must be carried on patiently and piecemeal, by working for the retention of the finest, naturally the fittest, as wall fruits in many instances are deficient in flavour.

Grafts attached upon the whip system and tied to the numerous small branches should be examined when they have made from 9 inches to 12 inches of growth, and if the ligatures are found to be cutting into the bark they should be loosened, but not untied, and clayed up again to keep them moist until after mid-summer. If the trees are old and have received a sharp check, the whole of the spray may be allowed to grow the first season with great advantage, whilst that upon vigorous young trees may be shortened moderately. Maiden stocks, as a matter of course, must be treated precisely as they are treated in trade nurseries.

W. C.

WARTS ON VINE LEAVES.

I HEAR a good many complaints this year (especially do they come from those who have not had much experience in Grape culture) about the prevalence of warty-like excrescences upon the under sides of the leaves. This is the effect of one of the greatest errors—too much moisture—in the treatment of Vines which amateurs commit. Especially in the case of young Vines is it more noticeable. Vines which have their foliage covered on the under side with warts cannot perfect a crop of Grapes so well as those which have their leaves free of such unnatural excrescences. This defect in growth is the outcome of too much moisture upon the leaves and atmospherically. In the latter form the mischief is most generally committed, although in conjunction with an insufficient supply of fresh air. Amongst cultivators generally it is a rule to damp the surface of the borders, paths, walls, and stages, if there be any inside the house, twice daily, and in some instances oftener. This treatment is all very well when judiciously carried out, that is when the days are bright and dry, so that an abundance of air can be admitted to the house without unduly cooling the temperature, but loading the inside of the house with moisture, when the outside elements do not admit of sufficient fresh air being admitted, causes the formation of the warts. In the case of new vineries, or even old ones, where the Vines have just been planted, many persons make it the rule to thoroughly drench the foliage twice daily during the time growth is active. This treatment may be correct when the weather is hot and the outside atmosphere dry, but when the atmosphere is loaded with moisture, and but little of the sun's power felt, then the daily syringing twice, or even once, is a mistake. Grape growers who are year after year successful, study the appearance of the weather daily before determining the treatment the Vines shall receive for that day, as upon this point depends much of their success. A superabundant quantity of atmospheric moisture inside any vinery must be avoided. Moisture is necessary for the life and success of the Vines in perfecting their crop of fruit, but it should be given in such a manner as to be easily balanced by a judicious supply of fresh air.

The first thing to do when Vine leaves are affected with warts is to check the supply of moisture in the air by damping down the borders only when the weather is bright, and this but once daily, preferring the afternoon at the time of closing the house. Air should be admitted very early in the morning when the temperature reaches 70°. When the temperature is allowed to rise to 80° before any air is given, the air in the house becomes stagnant and is not conducive to a healthy growth of the Vines;

the pores of the leaves become so gorged with an excess of moisture that assimilation is hindered to a serious extent, the result being warty foliage. If the atmosphere outside is loaded with moisture, it is the height of folly to do likewise inside the vinery. By equalising the supply of moisture and heat in the vinery, both very necessary matters in Grape culture, Vines affected with warty foliage can be cleared of these excrescences in the future growth; it is not possible perhaps to rid the present leaves of the warts when once thoroughly affected, but the after growth can be made perfect by a judicious application of air to the house aided by the proper regulation of moisture.

H.

SHY VINES ON THE LONG-ROD PRINCIPLE.

THE remarks upon this subject by "W. C." (p. 464) induce me to give my experience of one particular variety, which he names, viz., Barbarossa. Agreeable has been written as to what mode of pruning best suits this variety, some persons considering that it can only be managed successfully upon the long-rod system, while others find no difficulty in growing it well upon the spur treatment. Some, again, will treat it in a medium kind of style, that is prune some growths to within one eye of the main stem, leaving the next growth about 6 inches long; with the intention of its producing the present season's crop of fruit, the spurs, short and long, are treated in the manner indicated in alternate years; those on the close system this year will be left long next, and so on. This method prevents all the side spurs reaching such a length from the main stem as they must if all were pruned on the long-spur system. Those cut in the latter manner are pruned close in to one eye again next year after bearing fruit, and come into bearing the second year again. This may appear to some a complicated method of Vine pruning, but I have seen Vines of this variety so managed and with excellent results. The Vine was kept for years to the one-rod system. Many people I know have a fancy for training up now and again alongside of the old one a young rod, removing the older one entirely as the young cane comes into bearing. Now comes (to me) the strangest part of the experience with this variety. Twelve years since I obtained eyes of this variety from the very Vine I have quoted as being rather peculiarly treated as to pruning, as I considered it was a fine type of Barbarossa, never failing to colour its bunches perfectly. The eyes were rooted in due course, made good progress, and were planted in a new border the following year. Two years afterwards one of them produced its first bunch, it having previously been subjected to preparation for close spur-training by having the growth so cut as to leave one pair of side shoots and a leader. Ever since then, the Vine in question has been pruned on the close spur system with good results. It now has a rod 16 feet long, and has never failed to perfect a full crop of fruit until this year. It shows signs of its inability this year, as only three bunches have developed from all the growths.

Splendid crops of finely-finished fruit have been cut from this particular Vine, in some seasons as many as eight bunches, the smallest weighing not less than 5 lbs., while others were considerably heavier. With one exception only, the Grapes have ripened thoroughly, the berries keeping quite plump and of good colour until after Christmas. Why it has failed to show more bunches than the number named is a puzzle to some persons after all these years of exactly the same treatment of close-spur-pruning.

No doubt the heavy crops of fruit it has borne previously are now telling upon its strength, yet from the size and health of both wood and foliage there is no indication of weakened growth. The border in which the roots are is partly inside and partly outside. I think that the inside border was allowed to get somewhat dry once last season, as the berries of all the sorts did not swell away so freely as they should have done after stoning had taken place. This temporary check may have had a damaging effect upon the Barbarossa for the present season; whether the close spur pruning or the

dryness at the root is the cause, I am at a loss to understand. S.

BIRDS, INSECTS, BUDS, AND GUNS.

ALTHOUGH, unlike "A. D.," I live in a densely wooded part of the country where bullfinches abound, I join with him in condemning the fallacious practice of shooting our best friends when they are most busily engaged in our interest. If shooting down these hard-billed birds as they are detected in the garden saved the crop, one could but arrive at the conclusion that this is a very primitive mode of gaining our point, but it does nothing of the kind, for after the gardener has wasted his time, his shot and powder, and ruined numerous trees and bushes into the bargain, he will find these wily little fellows have cheated him out of their share and a portion of that which he may rightly call his own. Mortifying no doubt, but, nevertheless, true, as facts of this kind have come under my notice many times, and yet these shooting men keep blazing amongst their twigs, for they are slow to learn. Some few seasons back a tenant living within a mile of me shot over one hundred bullfinches in a small Cherry orchard, which, gun in hand, he tended early and late, but his buds were decimated all the same, a convincing proof that he was on the wrong track.

Netting an orchard of standard Cherry trees is simply out of the question, but surely there are other ways and means, and those who would find them must begin at the beginning, first by the destruction of the larvæ of insects, and second by the use of winter dressings which will make the swelling buds disagreeable to the taste. The tempting season is of short duration, but once it is over the beautiful birds disappear from the fruit trees and settle down to the important business of building nests and bringing up their young upon insects new workers which would devour every green leaf were it not for their feathered foes. Wall trees and bushes, as a matter of course, can be netted from about Christmas until the toothsome stage has passed away, when prudence suggests the removal of the nets, not for the benefit of the birds, but for the well-being, if not the very life of the trees. "A. D." wishes someone would try the permanent wire netting experiment, very wisely adding the rider that he is afraid the insects would have the best of the arrangement.

Upon this point there exists very little doubt; none, in fact, in my own mind, as I have seen it tried upon a small scale, when failure was most decided and complete. The whole of a princely garden, it is true, was not enclosed, but a broad north border, some 18 feet in width and probably 60 yards in length, bounded by a lofty wall, had been planted with Gooseberries and Currants, with the view to the exclusion of bud-eaters in the winter and the wily fruit-eater in the summer. The work had been most efficiently performed by the sinking of neat posts, carrying a light plate along the front, and from this the roof-supporting rafters rose to the coping of the wall. Aviary wire-netting made the structure bird-proof, but, alas, the designer had reckoned without the aid of the naturalist or the experienced gardener, for the bushes at the time I saw them (early in July) had lost every leaf. A dreary waste, which Mark Tapley might have pronounced "jolly," had been produced by the busy caterpillar, whilst the industrious grub-eating birds were excluded from their natural food. Caterpillars, some may say, are exceptional insects, which often devastate where bushes are freely exposed. Just so; but it is questionable if Plums and Cherries placed under similar conditions would have been in better plight. Birds at certain seasons find most delicious food, insect and vegetable, in the buds of certain fruit trees, but destroy the enchanting feathered race, and our orchards, our gardens, and our woods will soon become a desolate waste. Later in the season they take, if they can, the lion's share of the ripe fruit; but nets now are cheap enough, and those who would save their crops must look to an intelligent use of these over the two periods I have named. Songsters, I believe, never were so numerous, but the Small Birds Act is not the true cause. A series of mild

winters has told in their favour, and, thanks to the short-sighted growers, who must have been sportsmen or gamekeepers, so has the wholesale destruction of hawks and harmless owls, now almost extinct.

W. C.

Peaches in cold house.—I have this day sent, to confirm my notes on page 63 of the present volume, two Peach shoots taken from a tree growing with others as a rough untrained standard in a cold, wet glass-roofed shed. House it cannot be called, as the sides are formed of badly fitting three-quarter-inch boards nailed to Oak posts with shutters for ventilators. The roof only is of 21-oz. glass, and the whole affair is so open and airy that the wind whistles pretty freely through it when the shed is shut up. The trees have not had any fire heat since I left off forcing them in pots some twelve years ago, but transferred to tubs they were placed where they now stand until the latter were rotten, when the decaying wood was picked out and each ball was mounded with loam. A cart-load of fresh stable litter is thrown over the floor every spring, and their liquid is the coldest spring water which comes 3 miles under ground. The samples of Magdala, a tender Peach, are by no means the heaviest, but they are a good average of the set on all the trees, and go far to show that the coddling and shutting up of early houses after the crop is gathered in May, June, or July may result in the buds becoming too ripe to stand. These trees give immense crops every year, and so satisfied am I with them, that I have had all the posts sawn through level with the ground, and the roof within the past few days has been placed 2 feet nearer to the sun. One of my opponents says Peaches should never be thinned in the flower-bud, as we never know which bud Nature has deigned to fix upon for setting and swelling into fruit. Nature in this case has proved a covetous dame, for she has set enough in one to last for ten years. What practical gardener will affirm that the crop on these old standard trees would not have been better had the flower-buds been well thinned.—W. COLEMAN.

* Vigorous, stubby shoots, with a fruit at the base of every leaf.—ED.

SHORT NOTES.—FRUIT.

Vine leaves diseased.—I have enclosed a few Vine leaves which I should like you to examine. They were taken from a Vine on which the Grapes are colouring. The fungus, or whatever it is, is spreading on the Vine. I should like to know if it is possible for you to give a reason. What is the cause and its prevention?—AUSTIN.

* The leaves are attacked by a small mite named *Phytomyza vitis*. The only known method of getting rid of it is to remove and burn the affected leaves, and to keep the stems and the vine itself as clean as possible.—W. G. S.

New enemy to Gooseberries.—Not having seen any answer to Mr. Iggliden (p. 429) as to new enemy to Gooseberries, I send you the following: Some two years ago I wrote to THE GARDEN, complaining of the same thing. I said it was the house sparrows that did the mischief, and still believe this to be the case. For several years our trees have been thus injured. In some seasons, what with their picking out the buds early in the year and then picking off the flowers, we have scarcely a Gooseberry left. This year they have not done nearly so much damage either to the buds or flowers. I hear complaints, however, of great damage having been done in the country (we are close to the town). The sparrows also pick off the Cherry blooms when just opening. I have watched them at work among the blooms, and it is surprising how quickly they cut them off. The fact is, the house sparrows are a plague to the gardener here, for beyond what I have above stated, they attack Peas when coming up, and for some time after even when they are stuck in some instances, and again when the pods are full. It may be said that bullfinches have picked out the buds, but I do

not remember to have seen a bullfinch since I have been here, now eighteen years.—E. PETERS, *Guernsey*.

ORCHIDS.

ARUNDINA BAMBUSÆFOLIA.

THE plants of this genus have somewhat the general appearance of *Sobralias*, but they differ from them in being peculiarly Eastern. The genus is said to be nearly related to *Bletia*, and this is nearly allied to *Cattleya*. T. Spencer sends me flowers of this species. In many respects *Arundinas* resemble *Sobralias*. The plants, however, are dissimilar. *Arundinas* are evergreen, with slender Reed-like stems, which attain a height of some 4 feet or 5 feet, and bear thin narrow leaves, each from 6 inches to 1 foot in length, of a pale green hue, but not plaited like those of *Sobralia*. The spike is terminal, many-flowered, and sometimes branched. The flowers are large and showy, each measuring from 2½ inches to 3 inches across, the sepals and petals spreading, the latter much the broader and ovate. The ground colour of the sepals and petals is rosy pink, with numerous streaks of deep rich rosy magenta; lip three-lobed, the side lobes being of the same colour as the sepals and petals; the front lobe is frilled on the edges, and of a deep rosy magenta, the disc ornamented with several fleshy crests, whilst the throat is white. It is a most beautiful plant and well deserves more extended cultivation than has hitherto been accorded it. The present season is early for it to bloom. I do not recollect ever having seen it previously before the end of June. This early flowering is quite in accordance with the time of blooming of many Orchids this season, as *Cattleyas* of many kinds were quite a month earlier than usual, on account of the mild winter through which we have passed, I suppose. Curiously enough, although the mild winter seems to be accountable for many plants flowering early this season, it does not appear to have had the same effect upon many of our hardy shrubs and trees.

This plant requires a large pot, as it makes a great quantity of thick and fleshy roots, and should be potted in a mixture of peat, loam, and leaf mould. I remember some time ago seeing some clumps of this plant growing amongst the rockwork in Mr. Sander's nursery at St. Albans. During the growing season it requires an abundant supply of water, and even during the winter when at rest the soil must not be allowed to become dry. It also likes good exposure to sun and light. The plant now under consideration has been known for upwards of sixty years, but has been very little grown. For a long time the only plants known to me were those existing in the Schillerian collection at Ovelgounne, on the Elbe. Now, however, it is to be hoped that *Arundinas* and *Sobralias* will again become popular. Probably the advent of some new and beautiful species is required to give the necessary impetus.

W. H. GOWER.

Oncidium sarcodes.—I have received from "W. C. W." a photo. of this species. Unfortunately, it is not good enough for engraving. It represents a plant bearing two spikes, and these carry 264 flowers. If this was anything like a fair variety, it formed a very showy object, for it is almost unsurpassed by any member of the genus in its richness of colouring. I have frequently received this plant from San Paulo, in Brazil, and I have found it to thrive well at the cool end of the *Cattleya* house. It is a very useful plant. Its spikes appear during the winter months, and the

flowers open during the months of April and May. The flowers remain in full beauty for a month or six weeks. I prefer basket culture for this species, although it may be successfully treated as a pot plant. It is known also by the name of *O. Rigbyanum*.—G.

Anguloa Ruckeri (J. Macrosteie).—The flower sent for a spotted *A. Clowesi* is certainly a bloom of this species. The flowers are pale yellow on the outside, profusely marked within with dark rich brown, and of a different shape to those of *A. Clowesi*. It comes from Columbia. I saw last year a very fine white form of this plant from Mr. Dorman's collection at Laurie Park, Sydenham, the flowers being quite as large as those of the typical plant and ivory white. It is a gem, equalling *A. eburnea*, which is a pure white form of *A. Clowesi*, and also very rare. These plants are all natives of Columbia, and succeed best under cool treatment.—W. H. G.

Cattleya Schilleriana Regnelli.—A magnificent variety of this plant was recently flowering in Mr. Sander's nursery at St. Albans, the colour of the lip being exquisite. It appears to be closely allied to *C. Aclandiae*, but in *Regnelli* and *Schilleriana* the side lobes of the lip form a hood over the column, and are not spreading, as in *C. Aclandiae*. When well grown it will produce flowers twice in the season. The pseudo-bulbs attain a height of from 4 inches to 6 inches. The spike bears from three to five flowers, which measure individually some 4 inches across, the sepals and petals being olive-green, more or less spotted with purplish-brown, the side lobes large, white streaked with purple, the front lobe yellow, with a marginal border of white streaked with purple. The flowers are thick and fleshy in texture and last long in full perfection. The plant succeeds best in a shallow hanging basket, so that it may be well exposed to strong light, requiring only to be shaded from the hottest sunshine. It, however, enjoys a moist atmosphere.—H.

Trichopilia crispa marginata (C. W. R.).—This is the name of the flower sent. It is a magnificent form of the species *T. crispa*, but this variety is superior and, I believe, rare. A specimen of *T. crispa* I took to the horticultural exhibition, held in St. Petersburg in 1869, bearing considerably over a hundred flowers, and the same plant soon after its return from this journey produced a second crop, which is generally the case, but whether the variety *marginata* will do this, you who have it will be able to prove. The flowers are large, the sepals and petals spreading, more or less twisted, in the centre reddish-purple, distinctly bordered with white, the funnel-shaped lip being white externally, the inside of a dull red, also distinctly margined with a white border. The plant should be grown in the *Cattleya* house in a somewhat moist and shady position. When the growth is completed it should be rested by removing it to a lower temperature, but not less than 55° or 60°, and it must have water enough given it to prevent its suffering in any way.—G.

Epidendrum nemorale majus.—This is the name of the handsome spray of flowers just to hand from "H. C. C." It belongs to a very large family containing many weeds, but this plant takes rank amongst the handsomest in cultivation. The flowers each measure upwards of 4 inches across, the colour soft delicate mauve, the lip streaked with a violet hue. "H. C. C." tells me the spike had thirty-three flowers before the spray was cut for sending to me. I once remember to have seen a panicle of this species bearing over fifty flowers. It is a species, however, which has become very scarce, and "H. C. C." should endeavour to keep the plant in good health. If properly cared for, these flowers should remain in full perfection until nearly the end of July, as many of the upper ones are not yet open. After they are past, the plant in all probability will require a short period of rest. When it begins to grow it must not have an over supply of water, as the young growths are liable to rot. It succeeds best in the *Cattleya* house upon a block of wood, or in a small shallow basket, which must be well drained, and should be

grown in full sunshine. During the hottest part of the day, however, a thin shade should be given, and too great a heat from artificial means be avoided. No heat will be required in summer, and during the winter a temperature ranging from 55° to 60° will be ample. The plant is found growing on trees and rocks near Sultepec, in Mexico.—W. H. G.

DISA RACEMOSA.

THE first place amongst South African Orchids undoubtedly belongs to *Disa grandiflora*. Notwithstanding the peculiarity of its constitution which causes it in some localities to be more or less a failure, whilst in others it grows with the greatest luxuriance; it has for many years been held in high estimation by English horticulturists. When, therefore, it is stated that *D. racemosa*, although not so brilliant in colour, almost rivals it in beauty, and which, so far as my experience of it enables me to judge, is per-

the greatest abundance in the rocky gullies formed by the mountain streams and shaded by the arborescent vegetation above. In such positions, when the streams become swollen during the wet season many of the plants are completely submerged for a few weeks, yet so thickly and luxuriantly do they grow that they form a thick turf-like carpeting to the rocks.

The genus *Disa* comprises about 100 species divided into groups, showing considerable differences in habit and in the form of the leaves and flowers. The habit of *D. racemosa* bears a near resemblance to that of *D. grandiflora* (a flower of which is here shown), although somewhat smaller. The leaves are radical, springing directly from a fleshy rootstock; they are bright green, each from 4 inches to 6 inches long, tapering gradually to a fine point. The scape is stout, erect, from 1½ feet to 2 feet high, and occasionally bears a dozen flowers; the average,



Flower of *Disa grandiflora*.

fectly happy under cultivation, little more need be said in its favour.

In the cool Orchid house at Kew there is now a group of plants pushing into flower; they are in the best of health and vigour and form a bright and pretty picture. These plants were imported from the Cape in the spring of 1887, but since that time they have more than trebled in quantity. The facility with which this species multiplies, indeed, is one of its most noticeable qualities. Every plant produces several offsets each season, and these, however small, when potted up and given proper treatment soon attain to flowering strength. According to Mr. Bolus, one of the first authorities on the South African flora, this species is found in moist grassy places on the eastern side of Table Mountain at altitudes varying from 800 feet to 2500 feet, extending eastwards from there towards Grahamstown. I am informed by a friend who has collected it in a wild state that it grows in

however, is from six to ten. At its greatest diameter the flower is 1½ inches across, the sepals of a beautiful rosy red. The petals are small, of a purplish rose, transversely marked with deeper coloured stripes. The lip is small, spear-head-shaped, and scarcely half-an-inch long.

With regard to the cultivation of this beautiful plant, I may say that for those who grow *Disa grandiflora* successfully no directions are necessary, as it thrives under exactly similar conditions. For those who have tried that species and failed (and many undoubtedly experienced Orchid growers have), *D. racemosa* will, I believe, form a not unworthy substitute. It should be grown in clean, well-drained pots, the compost consisting of equal parts of good fibrous peat and Sphagnum, with the addition of a little sand and a few lumps of charcoal. In potting care should be taken not to press the soil too firmly, as this *Disa* prefers a rather loose

compost; the plants should be slightly elevated above the rim of the pot and a surfacing of Sphagnum given. During the summer a moist and shaded position in a cool house is suitable. At Kew they are grown throughout the year in an *Odontoglossum* house, and during the warmer months a pane of glass is removed from immediately above the plants, thus giving them an abundant and continuous supply of fresh air. They would, no doubt, succeed equally well in a frame where a little heat could be maintained in winter. When the plants are in full activity almost unlimited quantities of water may be given. A little care is needed just after potting, but at no time must they be allowed to remain dry. Altogether this appears to be one of the most easily cultivated of Orchids. The small cost incurred in supplying its needs, together with its beauty and ready propagation, should secure it general notice. W. J. B.

Odontoglossum Alexandræ.—I am in receipt of a box of flowers of this species, and which rather troubles me, inasmuch as the post-mark is Aberdeen, the letter contained on the inside is dated from Sheffield, and a card, also inside, from Liverpool. I will, however, take the letter, in which it is stated that the flowers have not opened properly, and that the plants from which the spikes were cut are in the best of health in leaf, bulb, and root. If this is the case, I am at a loss to know what is the matter. The flowers appear to me to have a crippled appearance, and all I can suggest is that the plants are not in such good health as "E. P." asserts; they appear to have suffered from fog, but I know of nothing as to the conditions under which they have been grown.—W. G.

Vandas.—In Mr. Jeffery's garden at Beaumont Villa, Northampton, some fine specimens of these are now flowering splendidly. Some plants of *V. suavis*, between 5 feet and 6 feet in height, and with thirty pairs of leaves, are carrying four spikes, bearing forty-six and forty-seven flowers. Of *V. tricolor*, plants standing about 4 feet or 5 feet, with twenty-eight pairs of leaves, are carrying four spikes with forty flowers; whilst of *V. tricolor insignis* there are two plants, each with three spikes with ten flowers on each spike. I hope to find others besides Mr. Jeffery take an interest in Vandas. At present they can be bought for very little money, but in my opinion the time is near at hand when we shall have to import them to supply the demand. They should never have gone out of fashion, for I look upon Vandas as the best and most beautiful Orchids that have ever been introduced.—W. H. G.

Chysis Limminghi (J. Hobday).—The flower is not new; it is that of the species named above. It is a very beautiful form of the plant. "J. H." says it was sent to him from Mexico, but he does not say from what part, and Mexico is a large country. The plant was introduced through M. Linden, of Brussels, in 1855, and I believe I had the first plant which came to England of this species. The flowers are thick and fleshy in texture, the sepals and petals white, with light purple tips. It is a plant from the province of Tabasco, and is found growing on trees near the sea-coast, so that it requires plenty of heat and moisture during the summer months. Under cultivation, the plant thrives best when grown in a hanging basket, which should be well drained and filled with about equal parts of peat fibre and Sphagnum Moss. After growth is finished it should have a thorough rest, and as the flower comes up with the young growth, water and more heat should be carefully supplied. The flowers will last quite three weeks with care.—H.

Dendrobiums at Cheltenham.—Amongst the many forms of the genus now flowering with Mr. Cypher may be noted a very fine form of *D. Cooksoni*, the sepals and petals being very heavily coloured at the base, and some splendid examples of *D. Benzonæ*. This is the best of the white-flowered section, and I am glad to find it coming into favour again. A grand lot of *D. Jamesianum*, with bold and

large pure white flowers nearly as large as those of its stouter-growing relative *D. formosum*, and, like it, varying in the colour of the lip, is also in bloom. *D. rhodostomum* is one of the Messrs. Veitch's hybrids, now very fine here; and I recently noted the same plant at Baron Schroeder's, its white flowers tipped with rosy magenta. Both Mr. Ballantyne and Mr. Cypher speak of it as being nearly always in flower. A very nice form of *D. Falconeri* was also in bloom. It is also in flower with Mr. May at Cheam Park, and with Mr. Swan at Castle Hill, Englefield Green. This species I always found to thrive well in moderate heat all the year round.—W. H. G.

NOTES ON BRITISH ORCHIDS.

KENT may well be called the Orchid county of England, for certainly in no other part have I seen either so fine a collection or the individual specimens so large and robust. Along the chalk cliffs by the sea-coast from St. Margaret's Bay to Dover and Folkestone are to be found many rare and beautiful species, and I may safely say that for six months in the year a search for such will be amply rewarded; this, at least, has been my experience.

The Scorched Orchid (*Orchis ustulata*) is a diminutive, but pretty species, and one that I always consider a rarity, though there be half-a-hundred specimens to the square foot. Usually it is very locally distributed, occurring in small patches, or quite as often singly, in dry chalky ground, and where the herbage is short or almost wanting. When opening this Orchid has a scorched or burnt appearance, hence the common name; but when perfectly developed the sweet little reddish white spikes, that rarely exceed 3 inches in height, have an interest of their own. A very conspicuous and curious plant is the Spider Ophrys (*O. aranifera*)—for it certainly resembles the insect whose name it bears—that just now may be found pretty plentifully on warm chalky banks and downs, but usually where the herbage is not too rank. Tufts of it, containing three or four plants, are often found growing closely together. These have a very pretty appearance, and quite light up the place in which they are growing with their metallic hues. To cultivate so showy and distinct an Orchid is worth repeated attempts, and I see no reason why such cannot be done as well as in the case of many more difficult alpine. Fields of the Pyramidal Orchid (*O. pyramidalis*), with their bright healthy green foliage and big pyramidal spikes of bright rosy pink flowers, mixed with the equally showy and deliciously fragrant *O. conopsea* have a most beautiful and tempting appearance. Both of these are very desirable border plants, and there is no difficulty in cultivating them. The Fragrant Orchid (*O. conopsea*) quite scents the air with its pleasing aroma, and in not a few instances so do the flowers of the pyramidal species, although this is, strange to say, not always the case. Rich loam and a little chalk will soon cause good unbroken roots to become established in any garden. In the same place where grow all the species already mentioned I have later in the season found the sweet little Lady's Tresses (*Spiranthes autumnalis*) growing freely and flowering profusely. It is a pretty plant with fragrant yellowish white flowers, which are spirally arranged around the stem. To cultivate it I have had no trouble whatever. Two or three cespices in which I have wandered of late revealed quite a wealth of the Butterfly Habenaria (*H. bifolia*), while just outside the same grew a plentiful supply of the Bee Ophrys (*O. apifera*). The Habenaria is a very showy and strong growing plant, with large heads of yellowish or greenish white flowers, which, particularly in the evening, are strongly scented. It grows freely enough if carefully lifted and properly managed. Such large and beautiful specimens of the early purple Orchis (*O. mascula*) I never before met with as on several of the Kentish Downs, and particularly where the undersoil was chalk. Some of the individual specimens were nearly 20 inches high, and with spikes 6 inches long and nearly 3 inches in diameter. Close beside these are growing scores of *O. maculata*, but they like a

more sheltered situation and damper soil. Both these species increase under cultivation.

The Bee Ophrys is very plentiful in certain localities, but that it appears and disappears periodically I am now fully convinced from a close watch over its movements in the grounds at Holwood. In a Larch wood where chalk appears through the surface, the large-flowered Helleborine (*Cephalanthera grandiflora*) grows stout and strong and blooms freely from year to year. It delights to send its brittle roots amongst those of some other plant or tree, but particularly the Spruce, Larch, and Scotch Firs. The flowers are very beautiful, being large in size, freely produced, and of a pretty white colour, suffused with deep yellow in the centre. With little trouble it may be grown in any border where shade and chalk can be afforded it. *Orchis Morio* (the green-winged Orchid), in varying colours from deep mulberry to a delightful shade of pink, grows by the hundred in several fields I have seen of late. It likes strong loam and to be left alone. What a curious plant is the Bird's-nest Orchid (*Neottia Nidus-avis*)! It grows here beneath Beeches, and sometimes in company with the *Cephalanthera*. The broad-leaved *Epipactis* (*E. latifolia*) grows in some quantity in company with *Pyrola media* (?) in some of our woods. *Listera ovata* (the Twayblade), with its curiously-shaped green flowers, and the Man Orchis, or *Aceras* (*A. anthropophora*), are found in company in several places near at hand; while that greatest of mimics, *Ophrys muscifera* (the Fly Ophrys), looks as if some well-known fly had alighted on its flower. These are a few of the Orchids I have found of late in several parts of Kent, but there are many others of which I have been sent specimens for recognition.

Now for a word about cultivating these pretty wildings. Nine-tenths of the failures in growing these are due to careless lifting of the plants, and from which the tubers never recover. If you want to succeed, lift the plants for yourself, for it is not to be expected that those who cater for nurserymen will take any trouble to lift the tubers unharmed; quantity, not quality, is their motto. Lift two or three plants carefully with fair-sized balls, just covering the roots and tubers, and plant just as carefully where they are intended to be grown. By so doing I have succeeded with most species.

A. D. WEBSTER.

SHORT NOTES.—ORCHIDS.

Odontoglossums at The Grove, Teddington.—Amongst the many spikes of *O. Alexandræ* in bloom and showing bloom are some good forms of *O. Pescatorei* and a magnificent variety of *O. nebulosum*. Such a form 30 years ago would have been welcomed, but in those days one did not see the fine forms that are now to be found in amateurs' gardens.

Cattleyas are now blooming freely in Mr. Howard's garden, The Grove, Teddington. Many forms of *C. Mossiæ* and *C. Mendeli* are now displaying their charms. One variety of *Mossiæ* is extremely curious, having a lip without the faintest sign of a frill, being in fact exactly like that of a *C. Trianae* in shape. *C. gigas* and *C. Sanderiana* are also promising well, all the young growths being well sheathed.

Cypripedium bellatulum.—This fine species, introduced by the Messrs. Low, of Clapton, is now making a longer footstalk, and in some cases producing twin flowers. This plant, in common with all this section, bore the flowers on very short footstalks, having, it would appear, suffered from the journey to this country. When thoroughly recovered from its removal, it will prove to be one of the very finest of its genus.

Cypripedium vernixium.—This is a Veitchian hybrid raised between *C. Argus* and *C. villosum*, and a remarkably fine variety of it in Mr. Williams' nursery was recently bearing seven blooms. The leaves are tessellated and the flowers large and richly coloured. It has the newly varnished appearance of all the villosum hybrids, and such fine forms of it as here noted should be increased. They are no more difficult to grow than poor varieties, and they take no more space.

Cymbidium eburneum (T. M. W.).—Both your flowers are forms of this species. It has the purest waxy-white flowers of the whole genus. I can

well remember that in my young days it used to be kept in the warmest corner of the East Indian house, but having received a fine importation of it in June, 1875, I thus learnt of its cool habitat, and have so advised everyone to treat it. Now I see the result in the plant becoming free-flowering and a general favourite.—W. H. G.

Camarotis purpurea.—This is a plant but seldom seen, and yet some years ago I used to grow it largely, having baskets, some 3 feet across, upon which I had hundreds of its spikes of flowers. It is a small-growing plant with distichous leaves and long spikes of pale rosy-purple flowers, somewhat resembling those of a small *Acridis* in shape. It thrives best in *Sphagnum Moss*, and it should be grown in a hanging basket near the light. It comes from Northern India, and is now in beauty in Sir Trevor Lawrence's garden at Burford Lodge.—W. H. G.

SOCIETIES AND EXHIBITIONS.

TEMPLE SHOW.

A SIGNAL success has been achieved by the Royal Horticultural Society. The exhibition held in the Temple Gardens on Wednesday and Thursday last filled four large marquees with flowers, a representative display, comprising an extensive range of Orchids from both the leading private and trade growers, hardy plants, Roses, Ferns, fruits, and bouquets. All were shown well, and this delightful exhibition was brought together without offering a single money prize—evidence that the society has, in spite of its chequered career, the sympathy of horticulturists in all parts of the country. It was opened by His Royal Highness the Prince of Wales, and an address setting forth the history and the advantages of the proposed hall for horticulture was presented by the Rev. W. Wilks, the hon. secretary. On both days the tents were crowded with visitors, attracted thither by the remembrance of the beauty of the two previous exhibitions in the same quiet and pleasant gardens and the May weather. The exhibition just held was more extensive, interesting, and better arranged than the others, and we hope that the society will have a substantial balance in hand through the efforts that have been made. It has certainly received remarkable support, as the schedule was only issued a short time ago; but the event has successfully helped, in spite of fears once expressed, to strengthen firmly, we believe, a society that has the power to make a show by merely offering silver cups and medals. The exhibits were arranged with far greater taste than last season, and each tent had its own particular flowers.

The Orchids were arranged in the largest marquee, and here was to be found a rich variety of rare and common kinds, arranged with taste, and not massed together, as they were on the last occasion. A lovely group came from Messrs. Sander & Co., of St. Albans, whose plants were disposed with rare knowledge of colour effects. The racemes stood out boldly from the groundwork of Ferns, and the large specimens were well brought forward, but not to destroy the elegance of the arrangement. There were many beautiful things, comprising a rich variety of *Miltonia vexillaria* of the well-known St. Albans type, in which the flowers are of a deep self rose colour; *Lælia purpurata*, *Cattleya Mossiæ*, *C. Mendeli*, *gigas*, and *Odontoglossums*. Of the *Miltonia vexillaria*, a variety named *Fairy Queen* was of interest. It is a lovely flower, white, with just a tint of rose at the base of the sepals and petals; the lip broad, with a central eye of rich yellow (first-class certificate). Another handsome novelty was *Cattleya Mendeli* Prince of Wales, in which we have superb colouring on the lip of the deepest magenta-purple, intensified by yellow at the entrance to the throat, veined in the centre; the sepals and petals are pale rosy-pink (f.-c. c.). Another charming thing was *Odontoglossum excellens* Albert Edward, supposed to be a cross between *O. triumphans* and *O. Pescatorei*, but we doubt this. It has something of the character of both, but scarcely sufficient to establish the parentage. Whatever its relations, it is a beautiful

flower; the raceme bore several blooms, each of good size and robust expression; the sepals and petals are rich yellow, blotched with deep brown, the latter being the broader; the lip is almost white, but with a central blotch of brown. Its decided colours and excellent rounded shape should make it a great favourite. *O. crispum* Rothschildianum is another gem; the raceme bore twelve flowers, each about 3 inches across, and of beautiful colour; the sepals are rich yellow, paler in the centre, the petals broader, frilled at the margin, and not so heavily blotched with brown; the lip has a large central blotch of brown, and shades off to primrose at the base. Besides these *Odontoglossums* and a rich series of *crispum*, there was a hybrid variety named *hybrida* Bleui splendens, which is of the *vexillarium* character, the flowers white, with a few radiating lines of brownish-crimson from the centre, and a suffusion of rose at the lower half of the petals (f.c.c.). *O. hastilabium* was fine, and of the *Lælias* it would have been difficult to eclipse the beauty of a specimen of *L. purpurata alba*, carrying fifty flowers; and a plant of *L. grandis* was also full of bloom. *Cattleya Wagneri ampliata*, a fine bold form, was conspicuous amongst this genus. There were several *Dendrobiums* exhibited, and of great merit were *D. densiflorum*, laden with spikes; *D. Griffithianum*, similar to *densiflorum*, but paler in colour; and *D. Dearei*, a charming gem, which remains many weeks in perfection. Besides the *Odontoglossums* mentioned above, a very fine variety of *crispum* named *Youngianum* was shown bearing ten flowers, white, blotched with brown; and, of course, the sweetly-scented *O. citrosimum* gave delicacy to the arrangement. A very striking Orchid was *Phaius Henryi*, of which there were several specimens one mass of lovely flowers; the sepals and petals are rich rose colour, the lip brownish in the upper portion, the lower rose, spotted in the centre with pink; it seems to vary, but is always pretty. Also very fine was *P. Humbloti*, which has robust foliage and handsome flowers. The sepals and petals are delicate rose, the lip of a reddish-crimson colour, becoming paler at the disc, which is enriched with a bold raised crest of soft yellow; the edge is lobed and fringed. It was introduced about ten years ago from Madagascar. Other things worthy of mention were: *Calanthe vestita oculata gigantea*, *Vanda suavis*, *Sanderi* variety, a fine form; *Aerides Sanderianum*, *A. roseum*, bright shining rose; the pretty little *Ornithocephalus grandiflorus*, and, although not an Orchid, it should be noted; *Anthurium album maximum*, the spathe white and large (award of merit).

Messrs. B. S. Williams and Son, Upper Holloway, had a bold group, containing a number of splendid species and varieties, the whole arranged on the ground with excellent results. There were several large specimens, and again *Lælia purpurata* was a leading feature, also the pure white *Calanthe veratrifolia*, *C. masuca*, and *Vanda Dennisoniana*, which may be described as the white *Vanda*, although the fleshy flowers are white, tinged with green, a not unpleasant mixture. The most charming Orchid here was *Oncidium concolor*, shown in large masses, a true way to get the full richness of the self yellow flowers. Then we had *Oncidium Marshallianum*, a large specimen carrying several racemes, *Cymbidium Lowi*, *Miltonia vexillaria*, in fine colour and variety; *Cattleya Loddigesi*, of a soft rose shade; *Vanda teres*, and several other Orchids well known in gardens (silver cup). A very fine collection came from Mr. J. Cypher, Cheltenham, in which there was an excellent specimen of *Lælia purpurata Empress*; the sepals and petals are ivory white, and the lip rich purple-crimson on either side of the upper portion, but veined with crimson in the front, the throat yellow; it is a richly coloured type. *Dendrobium Falconeri* has a freshness and delicacy peculiarly its own, but a variety named *delicatum* was much paler, the sepals and petals being white, tipped with magenta. A first-class certificate was given to this and also the *Lælia*. Another good form of *L. purpurata* was named *grandis*, the sepals and petals being white, and the lip rose-magenta, and in *magnifica* we had again fine colouring. Of *Cattleyas*, there were excellent

varieties of *C. Mossiæ*, one called *grandis* having a flower of great breadth, especially in the lip, which was rich purple, paler at the margin, the apex old gold colour—a rich combination. This group was conspicuous for its selection of *Dendrobiums*, as *D. thysiflorum*, *Jamesianum*, *Bensoniæ album*, the white and charming variety of the type. There were several plants of the latter in small pans, each specimen bearing three spikes on an average and carrying about six blooms. They were a picture of beauty (award of merit). *D. Bensoniæ splendens* is just as free, but has much larger flowers. Exquisitely pretty was a mass of the old, but delightful *D. Devonianum*, and there were also good plants of *D. Dalhousieanum* and *D. Parishii*. Besides these were the curious *Schomburgkia tibicinis* and *Masdevallia bella* (silver cup).

The collection from Messrs. Low and Co., Upper Clapton, contained a fine variety of things, well grown and arranged. *Cypripedium bellatulum*, which was introduced by this firm, was shown as finely as we have seen it. The flowers were broad, massive, and richly spotted, while those of *C. Godefroyæ*, the queen of Lady's Slippers, were much larger than usual; one form was exceptionally handsome. A large mass of *C. hirsutissimum* was exhibited, also of *C. caudatum*, and the pretty *niveum* was not forgotten; neither *C. superciliale ornatum*, one of the best of the Lady's Slippers, nor such rarer kinds as *C. Elliottianum*. Of *Phalenopsis grandiflora* and *Miltonia vexillaria* there were many noble racemes, and distributed about the group were plants of the lovely *Vanda carulescens* Boxall smothered with its charming blue flowers. *Dendrobium albo-sanguineum* was conspicuous with its buff flowers, enriched by crimson eye-like blotches on either side of the base of the lip. *C. Mossiæ* was most noticeable in this genus. In the centre of the group a break was made by a mass of *Anæctochilus Lowi*, which has rich bronzy-coloured and veined leaf, embedded in *Adiantums* (silver-gilt medal). Mr. G. T. White, Winchmore Hill, exhibited a group principally of varieties of *Cattleya Mendeli*, *Mossiæ*, and *gigas*, and amongst them were forms of splendid colours and bold expression. It was a rich assortment of a beautiful series of a few species. *Miltonia vexillaria*, *Anguloa Clowesi*, *Lælia Boothiana*, described in THE GARDEN (p. 475), and *L. purpurata* were also represented. The same exhibitor had *Hippeastrum solandri-folium* conspicuum, but we prefer the type (silver medal).

The groups from private growers constituted a show of themselves. We have never seen a finer assortment of Orchids, or represented by such noble specimens as in the collection from Baron Schröder, The Dell, Egham. The flowers were charmingly arranged to set off the beauty of each, and yet preserve the tasteful arrangement of the whole. The finest specimen was of *Cymbidium Lowi*, which carried twenty-nine spikes, bearing in all 600 flowers, a remarkable example even of such a vigorous Orchid as this. *Cattleya Skinneri* had twenty-nine spikes, some with ten blooms, others four and five, presenting a mass of colour. An interesting *Masdevallia* was the cross between M. Veitchi and Davis, named *Gairiana*; the flowers are rich orange with a stripe or two of red, the upper portion purplish in colour; it is a distinct and striking form. There were so many good things that only a few can be noted. Of the *Odontoglossums*, *O. crispum* was represented in variety, all good types, some of remarkable spotting; and *O. polyanthum*, *O. excellens*, an unusually fine variety; and *Odontoglossum ramosissimum*. *Cattleya Schroederæ* was delightfully coloured, as the variety of it was the best in cultivation; and very distinct was *C. Lawrenceana concolor*, a lovely form, the flowers rose-lilac, with pale lemon colouring in the lip (award of merit). *C. Mendeli* was finely coloured; also *Lælia elegans*. An interesting plant was *Sarcopodium Dearei* (award of merit); and very charming was *Miltonia vexillaria radiata*, a rose-coloured flower, with radiating lines of deep crimson in the centre. *Cypripedium præstans* and *C. Hycanum* are two rare kinds, especially the latter, which is of the *Lawrenceanum* type. The flowers display several shades of green, palest in the lip, deepest in the petals, and laid on

in lines on the white dorsal sepal. *C. Elliottianum* was shown, also *C. bellatulum* and *Epidendrum prismatocarpum*, the plant bearing six spikes of flowers. Of *Masdevallias* the most striking was a specimen crowded with flowers of M. Veitchi *grandiflora*, but the most charming gem in the collection was perhaps *Cattleya Skinneri alba*; the plant carried several flowers which are spotless white, except for a central stain of crimson at the extreme base of the lip, surrounded by pale lemon colouring. Mr. White, gardener to Sir Trevor Lawrence, Bt., Burford Lodge, Dorking, also showed a group of large extent and variety. There were many interesting little things for which this collection was noted, and amongst them the singular *Bulbophyllum barbigerrum* which has a curious hairy lip that moves with the slightest breath of wind. *Neottia Nidus-avis* was exhibited in large masses, and there were several plants of *Miltonia vexillaria*, *Cattleya Mendeli*, and a very fine variety of *C. Mossiæ*, conspicuous for the size and colours of its flowers; the lip was of great breadth, rich crimson in the centre, outside this old gold colour, then pale rose at the margin. *C. Warneri* was exhibited also in fine character. *Odontoglossum hystrix* carried a fine raceme of well-marked flowers, and *O. Pescatorei* was represented by an unusually fine spotted form, white with a central blotch of lake colour on each segment; *Lælia ensipatha*, rose, the lip rich magenta; *Thunia Marshalli*, *T. Bensoniæ*, *Dendrobium cretaceum*, the white-flowered *Cattleya Wagneri*, *Cypripedium Stonei platytænium*, one of the rarest Orchids in the exhibition, and *Ornithocephalus grandis*, added to the beauty of the collection. Mr. H. M. Pollett, Bickley, had several *Odontoglossums* charmingly set up and showing great variety. *O. vexillarium*, of rich colour, was present; also good forms of *crispum*, as *bickleyense*, richly blotched with brown; *O. Pescatorei*, the freely spotted *Ruckeri*, and *O. Pollettianum*. *Cattleya gigas* and a splendid variety of *C. Mossiæ* were also shown; the lip was nearly 3 inches across, rich magenta in the centre, the throat old gold colour; *C. Sanderiana*, and *C. orphanum*, a richly coloured form, were represented by good plants (silver cup).

A silver-gilt medal went to Mr. Salter, gardener to Mr. Haywood, Woodhatch Lodge, Reigate, for a beautiful collection, in which was a magnificent flower of *Cattleya gigas*, about 7 inches across, the lip measuring nearly 3 inches; the sepals and petals were rich rose, the lip deep purple-crimson, margin being of a paler shade; *Masdevallia Schlimi*, a fine plant, *Masdevallia Harryana*, and several other well-known kinds.

A collection came from W. H. Young, gardener to Mr. F. Wigan, Clare Lawn, East Sheen. *Vanda teres*, very bright in colour; *Phalenopsis Ludemanniana*, *Lælia majalis*, magnificent flower over 6 inches across; *Cattleya Mendeli*, and other well-known kinds were excellently grouped together (silver medal).

Mr. Wythes, Syon House Gardens, Isleworth, showed two handsome plants of *Oncidium ampli-atum*, excellent specimens of *Cypripedium barbatum*, an unusually bold and large variety; *C. caudatum*, and *Anguloa Clowesi* (silver medal).

Dendrobium McCarthiæ, from Mr. Cypher, gardener to Mrs. Studd, Bath, had a first-class certificate, but it is not a new species.

Hardy flowers filled one tent of great length, and throughout the arrangements of the various exhibits showed great taste, far more so than on the previous occasion. A lovely group of cut things came from Mr. T. S. Ware, Tottenham, the whole finely arranged and contrasted, especially the fine blue Iris, with the white Lupine, a happy blending of colour. A large number of the hardy flowers in season now were shown, comprising *Pæonies*, *Pyrethrums*, &c., and a fine mass of the large blue-flowered *Aster alpinus speciosus* (award of merit). *Hemerocallis Dumortieri*, rich yellow, the white *Lupinus polyphyllus albus*, and single *Pyrethrums* Major Edward Bartelott, rose, H. M. Stanley, crimson, were noticeable (silver-gilt medal). Messrs. Barr and Son, Long Ditton, had a similar exhibit, occupying a run of 60 feet, Irises, *Pæonies*, *Aster*

alpinus speciosus (award of merit); a single *Pyrethrum* Jessie, rose; *Ixias* in great variety, and *Ranunculuses* made up the group (silver-gilt medal). Messrs. Kelway and Sons, of Langport, had forty-seven boxes of cut flowers, principally of *Pyrethrums* and *Pæonies*. Of the first, Meteor, crimson; Carl Vogel, white (award of merit); Pericles, Aphrodite, white; and King Oscar, crimson, were the best of the double varieties; and a rich crimson single kind is Clemence, a striking colour (award of merit). *Delphiniums*, *Irises*, *Amaryllises*, grown in a cold frame and brought on late; *Lupinus Foxei* (award of merit), rich purple and white, made a great show of colour (silver-gilt medal). Messrs. Paul and Son, Broxbourne, had a delightful variety of hardy things, amongst them the *Ranondia pyrenaica alba*, which has its flowers tinted with pink, the rich orange-scarlet *Geum* miniatum, the white *Achillea mongolica*, *Ranunculus platani-folius*, white; *Pæonia conchiflora*, a charming flower, single, like a large Tulip, and shining salmon-rose in colour (first-class certificate); *Trollius japonicus plenus*, rich shining yellow, quite double, and a fine selection of tufted Pansies (silver-gilt medal).

Tufted Pansies were largely shown. Messrs. Dobbie and Co., Rothesay, had a number of kinds, both tufted and fancy. Of the first, Acme, rich purple-maroon, an exceptionally beautiful seedling, the lower half rich yellow, the upper paler; Mrs. H. Bellamy, deep purple; Gipsy Queen, striped with lilac; virginalis, white, were the finest; and a charming fancy is Miss Hudson, rich violet-purple, almost white at the edge (silver medal). Mr. F. Hooper, Bath, also had Pansies in great variety, and boxes of cut flowers of the white Pink Her Majesty. The same flower was finely exhibited by Messrs. H. Cannell and Sons, Swanley, in large bunches.

Cut flowers also partly filled another tent, and here a charming collection of hardy things came from Messrs. J. Veitch and Sons, Chelsea, comprising, amongst other flowers of the season, a rare selection of *Ranunculuses* and *Anemones* and such *Irises* as Celeste, Mme. Chereau, and the Mourning Iris (*I. susiana*). One of the most delightful flowers was *Anemone* The Bride, pure white (silver medal). Ten boxes of cut trusses of hardy *Rhododendrons* came from the Waltham Cross Nursery of Messrs. William Paul and Son, and *Pelargoniums* from Messrs. H. Cannell and Sons; the single zonal variety *Souvenir de Mirande* was remarkably fine. Messrs. J. Cheal and Sons, Crawley, exhibited *Rhododendrons* and hardy flowers; and Messrs. B. S. Williams and Son a collection of *Ixias*, showing the great variety of colour and gracefulness of these flowers.

GROUPS.—A large display of *Roses* was made by Messrs. Wm. Paul and Son, Waltham Cross, comprising twelve boxes of cut flowers and many specimen plants (silver cup); and a fine group also came from Messrs. Paul and Son, Cheshunt, including two immense plants, as we were accustomed to see in older days, of Charles Lawson (silver cup). Messrs. Sutton and Sons, of Reading, received a silver-gilt medal for a collection of *Gloxinias*, all seedling varieties of rich and varied colours, and including several of a netted strain, the flowers distinctly veined—a new departure. *Empress of India*, rich maroon; *Princess of Wales*, rose; and *Prince Wales*, crimson, were each given an award of merit. The *Gloxinias* from Messrs. J. Veitch and Sons were given a similar award; *Sunbeam*, rich scarlet, and *virginalis*, white, were conspicuous. A silver-gilt medal was also given to the group of *Anthuriums* from Mr. J. Peed, Streatham; the *Pelargoniums* from Mr. C. Turner, Slough; *Palms* from Mr. Icton, Putney; *Caladiums* from Mr. C. Simmonds, gardener to Mr. F. W. Wiltshire, Selhurst; *Clematis* from Messrs. Smith and Co., of Worcester, a grand group; and foliage and flowering plants from Messrs. Cutbush and Messrs. Veitch.

Begonias created bright masses of colour. Messrs. J. Laing and Sons, Forest Hill, had besides *Caladiums* and foliage plants a charming collection of *Begonias* Enchantress, Henshaw Russell, and Negro Boy, a fine double crimson flower, each

receiving an award of merit, and a first-class certificate was given for *Saxifraga Macnabiana* superba, the flowers large and prettily spotted. In Messrs. H. Cannell and Sons' group of *Begonias* the finest variety was the Rev. W. Wilks, a large double flower, of rosette shape, broad, and pale rose, with a deeper edge to the petals. The same firm also had a group of their well-known strain of *Calceolarias*. Mr. J. James had a silver-gilt medal for his display of *Calceolarias*, representing the flower in its fullest perfection, and Messrs. Veitch and Sons had a large bank of hardy *Azaleas*, early-flowering *Gladioli*, *Maples* and *Lilium Harrisii*.

Ferns were allotted almost the whole of one tent. Messrs. Backhouse, of York, had a large display of rare *Hymenophyllums* and *Trichomanes*, besides a fine specimen of *Disa racemosa*. Notes on these must be deferred till next week. Mr. H. B. May, Edmonton, had a beautiful group about 80 feet in length, comprising many kinds, some of them, as *Pteris nobilis*, raised by the exhibitor (silver cup). Messrs. W. & J. Birkenhead, Manchester, also had a large collection, but notes must be held over (silver cup). Messrs. Lane and Son, Berkhamstead, showed pot plants of *Rhododendrons* (silver medal), and a similar award went to Mr. Rumsey, of Waltham Cross, for a group of *Niphetos* Rose, a charming arrangement, one of the prettiest in the exhibition, while Messrs. Balchin and Son, Hassocks Gate, had a large display of *Leschenaultia biloba* major.

Other miscellaneous things comprised a noble spike, several feet high, of *Puya chilensis*, the flowers greenish, from the Tresco Abbey Gardens, Scilly, and *Carnation Ellen Burrow* from Mr. Charles Turner. Several plants bearing lovely flowers, full, and light salmon-rose, deepening in the centre—a charming shade—were exhibited. Mr. Perkins, Leamington, exhibited *Pelargonium* Prince Henry, a French variety with rich scarlet flowers, white in the centre and at the margin—a bold handsome flower (award of merit), and *Princess Beatrice*, white, with a spot of crimson on each of the petals; it is also very distinct. Messrs. Rupert & Miller, Shoreham, showed a group of regal *Pelargonium* Pearl, a distinct and handsome white variety, and also Ruby, rich crimson. Both are telling kinds for decoration, especially the pure white Pearl. It is a sport from Mme. Thibaut, and has much of its character. Not the least interesting features were the bouquets, sprays, &c., from Messrs. Perkins and Son, Coventry, Mr. G. Hippen, Reading, and the skeleton leaves from Mrs. Hodgkins, Withington.

FRUIT was not shown in quantity. A collection of forty-five dishes of Apples was shown by Messrs. G. Bunyard and Co., Maidstone (silver medal), and forty-two varieties from Messrs. J. Veitch and Sons, Chelsea, who also had a plant of Fig St. John, one of the earliest varieties in cultivation. A collection of Rhubarb and Radishes was brought from the Chiswick Garden, and Mr. G. Munro, Covent Garden, made an excellent display of Channel Island produce (silver-gilt medal). Mr. Weatherby, Gillingham, sent Black Hamburg Grapes; Mr. Miller, gardener to Lord Foley, Esher, Mushrooms and Peaches; Mr. E. Reed, The Gardens, Broadwater, Weybridge, a collection of fruit; and Mr. J. Hollingworth, gardener to Mr. J. J. Campbell, Uttoxeter, baskets of Black Hamburg Grape and bunches of Foster's Seedling. The Muscat of Alexandria Grapes from Mr. J. E. Peters, gardener to Mr. J. L. Mansell, showed good culture. In the case of Messrs. Weatherby, Reed, Peters, and Hollingworth, a silver medal was given. Mr. J. Maher, Stoke Court Gardens, Slough, showed excellent fruits of Stirling Castle Peach.

Early Peas. I read in THE GARDEN of May 17 an interesting article, signed "A. D.," on Pea culture, in which he complains of the difficulty of finding Peas sufficiently hardy to bloom and pod through April and May. I now forward you some pods gathered from two rows of Peas which I sowed in my garden on the 27th of November last, and which have never had protection of any kind save some chopped Furze to keep off mice. One row was William I., the other Ringleader. Special care was taken in preparing the ground and lime was freely used, and had the weather

for the last fortnight not been so cold and stormy, the pods would have been further advanced. I may add that the samples enclosed fairly represent the condition of the pods on both drills of Peas at the present time, and the crop on Ringleader is a very heavy one.—J. B., Cork.

The failure of Gooseberries.—It is difficult to account for it, but the crop, writing roughly, seems to have vanished; and yet it promised well, and no very severe weather came upon it. They have not fallen off, as they sometimes do—there are none to be seen on the ground. The buds were not picked off by birds. Currants (Black, White and Red) growing on the same border are fully laden with fruit, which makes the loss all the more provoking. That the loss is climatal, seems confirmed by the fact that the bushes on walls have escaped, while bushes of various forms and sizes in the open are all thinned off to virtual failure. This is the most decided failure I have noted in East Anglia for thirty years and more.—D. T. F.

Building an Orchid house.—Will any reader of THE GARDEN advise me in the following matter? I propose building a span-roof glass house 60 feet long and 12 feet wide, with central division for cool and intermediate Orchids, but from the exposed position I fear to use blinds. I propose to have this house glazed with Hartley's rolled plate instead of using shading. Under these conditions shall I be able to grow both cool and intermediate Orchids with any chance of success? I shall have extra piping so as to keep up the requisite degree of heat in both compartments in winter. The house will be built, staged and heated on the most approved principle. SCRUTATOR.

Plants for a grave.—I wish for your advice and suggestions as to the best plants for covering a grave in a country churchyard. The plants would have to be perfectly hardy and to retain their colour (of the foliage) throughout the year, and not to require very constant attention when once established. They should consist, if possible, of two kinds only—one very dark green, covering the chief portion of the grave, with another of light or silvery description, to be put in shape of a cross on the centre. Perhaps some of your readers may have had some experience in these matters. SOWERBY.

BOOKS RECEIVED.

"Orchids: their Culture and Management." Part 12. London: Upcott Gill, 171, Strand.

"Plant Organisation." A review of the structure and morphology of plants by the written method, with diagrammatic illustrations. By R. Halsted Ward. Second edition, revised. Green and Co., Boston, U.S.A.

Names of plants.—*T. M.* 1. *Spiraea palmata*; 2. *S. elegans*; 3. *Dielytra spectabilis*; 4. *Cypripedium Calceolus*; 5. *Orchis Morio*.—*G. P.*—1. *Boronia megastigma*; 2. *Chorozema elegans*.—*Heath.*—1. *Erica Wilmoreana*; 2. *E. Bergiana*; 3. *E. gracilis vernalis*; 4. *E. pyramidalis*; 5. *E. scabriuscula*; 6. *E. perspicua nana*; 7. *Lachenalia tricolor*; 8. *Pimelea Hendersoni*.—*Greenhouse.*—An excellent form of *Imantophyllum miniatum*; 2. an old and pretty plant (*Gnidia pinifolia*).—*P. B.*—Your two plants are *Eriosemum*, but the flowers were all shaken off. From their foliage, however, we should imagine 1 is *E. scaber*, and 2, *E. buxifolius*. *Filmy.* 1. *Hymenophyllum asplenoides*; 2. *Trichomanes pyxidiferum*; 3. *T. crinitum*; 4. *Hymenophyllum demissum*.—*G. T. M.* 1. *Selaginella inaequalifolia*; 2. *Callipteris prolifera*; 3. *Rhipidopteris peltata*; 4. *Amemidictyon fraxinifolium*; 5. *Davallia ornata*; 6. *Gymnogramma rufa*.—*F. G. T.*—1. *Gardenia citriodora*; 2. *Dracophyllum gracile*; 3. *Bouvardia Alfred Neuner*; 4. *Pentas rosea*.—*Fanny Fern.*—1. *Didymochlæna lunulata*; 2. *Adiantum excisum multifidum*; 3. *Todea africana*; 4. *Pteris semipinnata*.—*M. B.*—1. *Maddevalia bella*; 2. *M. ignea*; 3. *M. Houtteana*.—*Geo. Lee.*—1. *Dendrobium thyrsiflorum*; 2. *Miltonia* species; 3. shrivelled up; 5. *Elæagnus longipes*; 6. *Davallia* species.—*E. G. Loder.*—*Lycium barbarum*.—*J. Corbett.*—*Amelanchier botryapium*.—*J. E.*—1. *Pulmonaria officinalis*; 2. *Centranthus ruber*.—*W. G.*—Seems to be one of the *Leucojums*; send better specimen when in flower.—*R. Cross.*—The scarlet one is *Lælia cinnabarina*; the buff-coloured species, *Dendrobium Dalhousianum*, and the other *Lælia purpurata*. Please put numbers to the flowers another time.—*A. Jenkins.*—1. *Lanceolium verum*; 2. seed flowers.—*T. R.*—The *Magnolia* is *M. conspicua Soulangiana*; Meadow Rockfoil (*Saxifraga granulata* fl.-pl.).—*L. H. L.*—The Orchid is *Cattleya Lawrenceana*.—*Constant Reader.*—Repeat your *Roses* at once.—*W. M.*—*Calycanthus floridus*.—*J. T.* The Loquat (*Eriobotrya japonica*).

WOODS AND FORESTS.

THE REDWOOD FOREST.

IN size of individual specimens, the Redwood (*Sequoia sempervirens*) ranks next to its relative, the Big tree of the Sierra Nevada (*Sequoia gigantea*) and the Eucalyptus of Australia; but if we take the average size of the trees and the density and extent of the forest into consideration, the Redwood is the grandest of the world's forest trees. It belongs to the Coast Range of Northern California. A few straggling groves only are to be found below Monterey Bay, and it does not extend far into Oregon. The largest body commences at the mouth of Russian River and extends into Oregon. Another large forest lies south of San Francisco, in Santa Cruz County. The widest portion of the great or northern body of Redwood timber lies in Mendocino County, between Ukiah and the ocean. Here it is by air line twenty-five miles wide, a vast, unbroken forest with branches extending inward up the cañons. The peculiarity of the Redwood is its love of moisture, which means here fog. The fog banks rise from the Pacific and flow inland like a great level sea of vapour. The lower mountains next the coast are enveloped, and farther on it fills the cañons, leaving the high mountains to rise like islands out of it. Still further inland only the lower portions of the cañons are filled with fog. At times the sea of fog will rise so high that it engulfs nearly the whole section back to the high dividing range of mountains which is the watershed between the streams running directly into the ocean and those which flow into the Russian and Eel Rivers, which extend for a long distance parallel to the coast line. Then the fog goes pouring through the passes in actual rivers of vapour, which run down the cañons toward the interior. Strangely enough, it always returns as it goes.

Now, with this sea of fog in mind one can locate the Redwood belt most accurately. Near the coast on the lower mountains, and everywhere, the densest forest is almost exclusively of Redwood. Farther inward sweeps the same dense forest on the lower mountains and in the cañons at the same height. Redwood forest it is still on all the mountains, but of smaller trees, and the greater the elevation the more largely it is mixed with Douglas Spruce (*Pseudotsuga taxifolia*) and the Tan Bark Oak (*Quercus densiflora*). Still farther inland near the watershed spoken of before, Redwood only grows in cañons, and the mountains are either open grazing-land, covered with Oak and Fir, or with that dense low growth known as Chemical (*Adenostoma fascicularis*). Over the watershed, down those cañons where the fog pours over, there still are groves of Redwood, well confined to the moist banks close to the courses of the streams; while up the broad cañons of Eel and Russian Rivers the fogs roll and nourish the life of the grandest of all the Redwoods till they are held back by the heat of the interior.

The Redwood is not only a lover of moisture, but, to an extent hardly to be believed unless seen, a condenser and conservator of moisture. The tops reach high into the sea of vapour, and a constant precipitation from them like rain takes place. Last summer I was on the coast during a foggy time, and I remember that while the roads were dry and dusty, in the clearings under the Redwoods the water had been precipitated till it stood in puddles and formed mud holes. This abundance of moisture causes the densest of undergrowth, which only continual fires make passable. Hazels, Huckleberries, various *Ceanothuses*, Ferns of

large size in the greatest profusion, with large bushes of *Rhododendrons* and numerous other plants, make the forest floor a perfect tangle in the moister portions. The list of herbaceous plants here is not large, but they are delicate and beautiful. The glossy leaves of *Vancouveria hexandra* form dense masses; an Orchid, *Goodyera Menziesii*, is common; and in the spring *Trillium ovatum* and the *Erythroniums* are plentiful, and so is the lovely *Clintonia*.

Of small Ferns, only the beautiful *Adiantum pedatum*, the Maiden-hair, is common; but there are several species of *Aspidium* and the *Woodwardia*; and *Brake* is everywhere, making in the cleared forest a solid mass 4 feet or 5 feet high. I have seen acres of the *Brake* 7 feet or 8 feet high, where a man could only crawl through the tunnel-like paths. Every year or two forest fires sweep through this forest tangle, but it springs up again with renewed vigour. The Redwood, unless very young, is not injured by fire. Its thick bark protects it, and often trees will be seen which had every limb stripped by the fire, putting out a mass of foliage from top to bottom. No name could be more appropriate than *sempervirens*, for it possesses wonderful vitality. A tree cut throws up hundreds of strong sprouts, and a stump is only killed by repeated burning. Fallen trees will often grow along the whole length of the stems, and throw up sprouts from the upturned roots; and I have seen sprouts 6 feet or 8 feet high from logs. The commonest care would ensure the perpetuity of these grandest of forests.—CARL PERDY, *Ukiah, Cal., in Garden and Forest.*

Insects on *Pinus halepensis*.—With this I send a small packet containing mounted specimens of an insect in all its stages of growth. This insect has destroyed nearly all the *Pinus halepensis* planted within a radius of 15 miles of Sydney. This tree has been under my notice for more than 40 years in New South Wales, and I have planted it in large numbers, and recommend others to do likewise, as I believe it to be one of the best of its genus, both as regards appearance and permanence. In proof of the latter quality, there are in these gardens three magnificent specimens—fortunately yet untouched by this pest—which are at least 60 years old. Until about 2 years ago, when this insect first appeared, I had no knowledge of this Pine being diseased in any way. Whether this insect is new to science or not I am not entomologist enough to say, but I shall be glad if you will submit these specimens to a competent authority for determination and publish the result in your paper. It attacks both old and young trees alike, and no remedial measures have yet been discovered here to destroy it. It may, perhaps, be interesting to some of your readers to know that in this part of the world the Pines that succeed best are *P. pinea*, *P. canariensis*, *P. longifolia*, *P. pinaster* (with its varieties), and *P. insignis*. Many of the others merely exist; they very seldom become fine trees.—CHARLES MOORE, *Botanic Gardens, Sydney, New South Wales.*

* * In reply to the above, the insects you forwarded which had attacked *Pinus halepensis* are one of the aphides and belong to the genus *Chermes*. They are closely allied to *Chermes pini*, but they are not that species. The insects in slides four, five, and six are quite distinct insects from the *Chermes*. They are one of the Neuroptera and belong to the family *Psocidae*. They are perfectly harmless to the trees. At the present time the best hope of getting rid of many noxious insects appears to be by encouraging their natural enemies, which are probably various very small parasitic ichneumon flies, ladybirds and their larvæ, and the grubs of certain flies. When large trees are attacked it is useless to try and apply an insecticide, but small trees might be washed with one of the following recipes: Kerosene oil, 1 gallon; condensed milk, 1½ pints; water, 3 pints. Mix the milk with the

water, and then add the oil, and churn until the whole solidifies and forms a batter. This batter should be diluted with twelve times its quantity of water and be used immediately. Or 5 pounds of soft soap, the extract of 8 pounds of *Quassia* chips, and 100 gallons of soft water. Four pints of paraffin oil, or Calvert's carbolic acid No. 5, may be added if greater strength is desired. I should be glad to know in what manner the insect attacks the Pines. Our *Chermes abietis* attacks the young shoots, causing the leaves to form a growth very like a small Fir cone. If you would put some specimens into small test tubes or homœopathic bottles, filled so that there are no air bubbles, with one part of alcohol to twenty parts of water, I could probably name them for you. Send some of the winged forms if you can find them. They will somewhat resemble the *Psocidae* in slide six, but the venation of the wings is very different. The antennæ are much shorter, and the head does not appear to be separated from the thorax by a neck. There are, of course, many other less apparent differences.—G. S. S.

TIMBER OF FAST-GROWING TREES.

ALTHOUGH it is commonly considered that the timber of fast-growing trees is not so valuable as that of trees of slow growth, the theory does not hold good in all cases. Fast-growing trees are not always comparatively the most useless, nor do trees of the same species, like the Oak, for example, produce better timber when they are grown slowly than quickly. Lindley explains the matter physiologically in his "Theory and Practice of Horticulture;" the Admiralty Test Tables also prove that the fastest-grown Oak timber is by far the best as regards strength, toughness, and durability. Now as regards this, compare the different species of trees. Take the Beech, which in habit and rate of growth is very like the Oak. It is well known that it possesses neither strength nor durability, and hence is not employed for building; while the Spanish Chestnut, which grows about as fast again as the Beech, is hardly inferior to Oak for any purpose, and after a time hardly distinguishable from it. Take the Laburnum, again, which attains its natural height in less than twenty years, and is a comparatively old tree at thirty years of age, when it produces timber unsurpassed for hardness, heaviness, and fine, close grain, for which reason it is called the "Ebony of the Alps."

The common Elder grows up like a rush, but the old wood of the tree becomes both hard and tough, takes a fine polish, and is sometimes used as a substitute for Boxwood. I can testify from experience that a piece of Elder wood, some years of age, will take the edge off a knife about as quickly as any kind of wood with which I am acquainted. The Gum Tree, to go a little further from home, is about the fastest-growing tree in the world, but it is, nevertheless, tough, strong, and durable; hence it is becoming one of the most popular woods for ship-building; and the same may be said of Teak, which is preferred to Oak for similar purposes.

The quality of timber is commonly estimated by its rate of growth, which is but an indifferent guide either way perhaps, for much of the quality of timber depends upon the secretions formed by the tree and the mode of growth. The Scotch Fir in its native habitat and the Larch are not slower growers than some allied species, but their timber is far superior because of the resinous and other secretions which it contains, and probably the strength and durability of the quick-growing Gum Tree are explained in the same way. These and other examples prove that estimating the quality of the timber by the comparative rate of growth is fallacious. C.

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No. 968. SATURDAY, June 7, 1890. Vol. XXXVII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWERS FOR CHURCH DECORATION.

At the present day flowers have ceased to have any party significance in our churches. It is felt only right by all, that in an age when so much is made of the decoration of our homes by flowers of every kind and description, from the flowers of the field to the most delicate exotics, that it is only right to try our best to make the house of God beautiful also with the works of His own hand. When the church is a large one, as in my own case, and several vases have to be filled weekly, and sometimes renewed during the week, it is often difficult to get the requisite flowers. The most awkward time to keep up a regular supply of flowers is just after the new year, when the Chrysanthemums are over and other things have not come in. This year I found Arums most useful at that period. In former years I had not aimed at having them before Easter. This year I had them from Christmas to holy week, but unfortunately the consequence was that just at that most important time the supply failed. It is possible with ample room and with sufficient heat to have Arums all the year round. But they require a great deal of care and attention, and a different mode of treatment. The large plants, which will give us immense flowers in February, March, and perhaps April in the early vinery, are just planted out in trenches in the kitchen garden. Smaller plants, which will come in earlier, will be kept in their pots all the summer. They are kept in 6-inch pots, are not allowed much sun, and have plenty of water until September, when they are brought in, potted up if necessary, and well ripened in the autumn sun. These give very early flowers, but not so large, of course, as those in 14-inch pots.

I like, if possible, to see only white and red flowers in the vases. Hence, the chief things to fall back upon are Chrysanthemums, which take one on from October to Christmas; Arums, which give the supply till Easter; and after that during summer there ought to be no difficulty in keeping up the supply. Along with white Chrysanthemums and Arums, it is necessary to have the greenhouse well filled with scarlet Geraniums, which contrast beautifully with the white flowers.

Abutilon Emperor or elegantissimum will give a profusion of useful red flowers, and Tropæolum Ball of Fire, if there is room for it to trail near the glass, will keep up a constant supply of bright red flowers also. I find the only way to get a really good winter Tropæolum of this kind is to strike cuttings. Seedlings are most unsatisfactory. Chrysanthemum Cullingfordi is useful for a red flower, but nothing equals the brilliancy of scarlet Geraniums.

Henry Jacoby seems to flower very freely during the winter months, and its fine deep colour cannot be excelled. The other Chrysanthemums which I use for this purpose are Mme. Desgrange and Lady Selborne at the beginning of the season, followed by Elaine and Fair Maid of Guernsey, and finishing with Ethel. Hyacinths are almost too stiff for placing in church vases, but Christmas Roses are often very useful and last for a long time. Allium neapolitanum is light and graceful and, where no backs are used, extremely showy, and a good companion for Pelargonium Henry Jacoby.

On Palm Sunday, large plants of Phoenix dactylifera, fronds of which were strewed before our Lord on His triumphal entry into Jerusalem, are very suggestive. I always remove mine from the vinery to the chancel for that day. Otherwise the fan-leaved Palms, such as Latania borbonica, are perhaps more beautiful in a purely decorative point of view. There is surely no reason why we should not make more constant use of Palms in our churches than we do. At present they always form a conspicuous part of the decoration for a grand wedding at St. Peter's, Eaton Square, or in some other London church, but they are so accommodating in their strong constitution, enduring without showing any signs of injury the heat and gas of our large churches, and withal so graceful and beautiful, that Palms might well find a place frequently in church decoration. No drawing-room is well furnished without its spreading Palm, and by degrees no doubt, we shall become more accustomed to seeing the tall, graceful fronds of Seaforthia elegans, or the broad fan-shaped leaves of Latania borbonica giving tone and life to the beautiful architecture of our ancient gothic churches.

A GLOUCESTERSHIRE PARSON.

NOTES FROM FOTA.

As many trees and shrubs have flowered and are still flowering here more profusely than usual, it may be interesting to your readers to know the names of a few with the object of adding such to their collections if they have not yet tried them. The old *A. indica alba* for a centre, with large bushes of *Azalea amœna* around, forms a very pretty combination. These seem perfectly hardy, and well repay any little trouble that may be necessary to keep them in health.

CHOISYA TERNATA.—Large bushes of this are now covered with sweet-scented flowers which remain in good condition for a long time. When not in flower it is a very ornamental shrub with its trifoliate shining leaves, and in winter after a little frost it seems much greener than many of the more hardy Evergreens. It is a pity that it is not more generally known and grown. It is easily propagated from cuttings, and fine plants can now be bought at a cheap rate, thus placing it within the reach of all lovers of fine shrubs.

EDWARDSIA GRANDIFLOEA, known now under the name of *Sophora grandiflora*, is a most ornamental yellow-flowering sub-evergreen tree. This has been for a long time in flower. It is easily raised from seed.

EMBOTHRIUM COCCINEUM.—I mentioned this as being in flower several weeks ago, and as it is still covered with its beautiful orange-scarlet flowers, I refer to it again, as it has been so much admired. Its beauty baffles description, and it

should be planted in hundreds where possible. It grows freely in any good well-drained garden soil.

ASTER ARGOPHYLLUS.—This has now large heads of light flowers at the point of every branch. The leaves are agreeably scented, and plants may be easily raised from cuttings. In hard winters it should have slight protection, although it has been grown here for over thirty years without any.

RHODODENDRON FALCONERI has flowered more profusely than usual, and as we did not suffer from spring frosts it kept in flower for a long time. It generally flowers too early, when its fine waxy and white heads of flower are soon destroyed.

FABIANA IMBRICATA, a very pretty dwarf Heath-like shrub, is also in flower, every twig being covered with its white tube-like flowers. It is not very particular as to soil, but thrives best in a mixture of peat, loam, and sand.

ABUTILON VITIFOLIUM ALBUM.—This malvaceous shrub has flowered here for the first time. It has large white flowers, and is a most ornamental shrub. It may be increased by layers or from seed. It only lasts a few years, and consequently should be often propagated. Native of Chili.

EXOCHORDA ALBERTI.—This little known shrub, native of Central Asia, has flowered here for the first time. It is a pretty white-flowering shrub, not much improved upon *E. grandiflora*, but both are very desirable. One great drawback is that they last but a short time in flower.

PITTOSPORUM UNULATUM has been almost covered with its small solitary dark bell-shaped flowers, which contrast well with the light coloured leaves. It can be propagated readily from seed.

PITTOSPORUM TOBIRA.—This white-flowered shrub from Japan, unlike *P. undulatum*, has its flowers in umbels at the point of the shoots. It can be propagated readily from cuttings.

GRISELINIA LUCIDA MACROPHYLLA.—The flowers of this species being small and of a green colour are not very showy, but the leaves are most ornamental. This should be cultivated for the beauty of its leaves alone. It is a native of New Zealand, and the young growths are tender and liable to be injured by spring frosts.

FREMONTIA CALIFORNICA is now in flower, and will doubtless remain in bloom for several months. It is a most desirable shrub, with golden saucer-shaped flowers, each about 1½ inches across. It can be propagated by seed or layers.

CERCIS SILIQUASTRUM.—This, which should be found in every collection of flowering trees and shrubs, is usually thickly covered with its bright purple flowers.

SPIREA ROTUNDIFOLIA, which cannot be too highly recommended, is now quite a picture with its numerous small white flowers and small round leaves. Many varieties of *Philadelphus*, also *Escallonias* and *Weigelas* are also in bloom.

OLEARIA GUNNIANA AND *O. STELLULATA* are both covered with masses of white star-like flowers. The former is the better species, and both are most ornamental shrubs.

AZALEA PONTICA, which perfumes the air for a long distance, *Rhododendrons*, *Grevillea rosmarinifolia*, and numerous other shrubs are also now in flower. W. OSBORNE.

Fota, Cork.

Ramondias.—I should very much like to show disbelievers just now my white *Ramondias*. There are three strong plants of the white variety, the flowers as white as white can be, and two with a suspicion of very tender rose, the latter if possible still more beautiful than the former. These are growing with a very large *Saxifraga longifolia* and some small Ferns amongst about 100 *R. pyrenaica*, *serbica*, and *Natalie*, *Haberlea rhodopensis*, and the very rare *Tankæa Heldreichi* (Boissier)—a generous gift of M. Leichtlin—on a rocky slope, and produce a very charming effect. This long sought for gem has at last been introduced by M. Max Leichtlin, of Baden-Baden, at considerable cost and trouble. It was discovered thirty years ago by M. de Heldreich, of Athens,

and many attempts to collect it for our gardens have since failed. Most of my *Ramondias* are seedlings grown here, and amongst them are many varieties, some of them very superior in leaf and flower. A hybrid between *R. pyrenaica* and *serbica* would be very desirable, as the former is much better in colour, whilst *serbica* is very free-flowering. Perhaps a white variety of *serbica* may be obtained in time.—O. FORSTER, *Lehenhof*.

ORCHIDS.

ONCIDIUM ROGERSI.

I WAS much pleased at having a spray from a fine spike of this variety given to me by Mr. Woodall, of Scarborough, and at the same time equally surprised at the time of its flowering. The blooms are identical with those of the plant flowered by Messrs. Veitch and Sons in the autumn of 1870, and figured in "Select Orchidaceous Plants," 2, t. 31. Mr. Woodall's plant came from the Emperor of Brazil's garden only a short time before his deposition. *O. Rogersi* is one of the showiest and most beautiful species in the genus, and this is the second plant only which I have ever known to have been imported. It is doubtless a variety of the species known as *O. varicosum*, of which many were introduced a few years ago. I have received hundreds of it from San Paulo, in Brazil, amongst them being many bright and large-flowered forms, which were mostly selected and sold for *Rogersi*, the true form of which I have not seen for twenty years. The plant which bloomed with the Messrs. Veitch in 1870, when I saw it, had flowered previously in the gardens of Dr. Rogers, of East Grinstead, in Sussex, by whom it was introduced. It afterwards passed into the hands of the Chelsea firm. It was named by Professor Reichenbach *O. varicosum Rogersi*, in honour of its introducer. The plant produces a large paniculate, nodding raceme, some 2 feet or 3 feet in length, and has been known to bear 170 flowers, each measuring from 2 inches to 2½ inches across the lip. The sepals and petals, as in the case of all this section of the genus, are comparatively small, the lateral ones yellow, more or less spotted with reddish brown; lip large, flat, and spreading, three-lobed, the side lobes small and ear-like, the front lobe deeply notched in front into four segments, the whole being of a clear, bright golden-yellow; at the base are two or three bars of reddish brown, the crests being very small. In growth the pseudo-bulbs are stout, slightly furrowed, deep green, stained towards the apex with black, bearing a pair of lanceolate leaves of a rich, deep green colour, and measuring nearly 1 foot in length.

This plant is usually grown in the *Cattleya* house, but for securing a long continuance of its blossoms, and for making healthy, vigorous growth, I think this is too hot for it, and I have grown it (the species) successfully for many years in the warmest end of the *Odontoglossum* house. It should be potted in good fibrous peat, and the drainage have special attention, as the plant during the summer months, its growing season, enjoys an abundant supply of moisture to its roots, as well as in the atmosphere, and if it flowers in winter it must be carefully watered, or the bulbs will shrivel. The Messrs. Low, of Clapton, I believe, have imported some very fine varieties approaching very nearly to the present form. W. H. GOWER.

Lælia purpurata Russelliana.—Some flowers of an exceptionally good form of this plant came from Mr. Moss, of Winter's Hill, and also from

Mr. Howard, of The Grove, Teddington. This plant would appear to vary very nearly as much as the typical form, but the white sepals and petals, and the large lip of a soft mauve and lilac render it very pleasing.

Aerides Sanderianum.—Flowers of this species come from Manchester. They appear nearly related to those of *A. Lawrencei*, but are different in colour, and it does not flower at the same season of the year. The growth is vigorous, the leaves being rich green, bilobed at the apex, and the long raceme bears many flowers of large size; the ground colour is creamy-yellowish-white, tipped with bright magenta. It belongs to the odoratum section of the genus, and is undoubtedly one of the finest *Aerides* in cultivation. It is a great pity this fine plant is still so rare, as many others would undoubtedly like to add this plant to their collections.

Cattleya Mendeli Empress of India.—One of the most remarkably coloured forms of this species was shown me by Mr. White, of Arddarroch, at the Temple show last week, the colours eclipsing those of any *Cattleya* then in the exhibition. The sepals and petals were rosy-lilac, the petals being in addition broadly streaked with deep rose down the centre; lip large and full from the beautiful frilling round the edge, the colour being intense deep magenta, carried right back to the throat. Behind this superb colour there is a tinge of orange-yellow. The flower was somewhat small, arising no doubt from its having been cut from a small plant; other flowers of the same species were large and beautiful, and cut from plants bearing sixty blooms. With such plants, Scotland, and Arddarroch in particular, must still be said to carry the palm for grand *Cattleyas*.—W. H. G.

The Brown Man Orchid (Orchis fusca).—This is undoubtedly our handsomest native Orchid, but one that, unfortunately, is now almost extinct in the few places where it once grew. That it has not quite become a thing of the past I am, however, glad to say, as an unusually large and handsome specimen was found last week in a Kentish meadow by Miss Lotter, of Goddendene. On several occasions I have flowered this pretty Orchid, but I have never noticed the spike either so richly coloured or of so large size as that of the wilding referred to. The total height of the plant was 2 feet 2 inches, while the flower-stem was fully a quarter of an inch in diameter and surmounted by a head of sixty flowers. Individually the flowers were of large size and great substance, and of a pinky tinge, except the arching hood, which was of a distinct and purplish brown. That so fine a plant has been found augurs well for the non-extinction of so rare and handsome an Orchid.—A. D. WEBSTER.

Lælia Wolstenholmiæ.—Flowers of this form are sent me by John Marshall. It is usually considered a variety of *L. elegans*, from which plant, however, it seems quite distinct, both in its growth and in the shape of its flowers. The plant in question bloomed for the first time in this country with the late Mr. John Day, of Tottenham, after whose sister it was named. I do not know who first introduced it, but have little doubt that the late Mr. Stuart Low first had the consignment of plants amongst which it was found. *Lælia Wolstenholmiæ* is of strong growth, with large clavate bulbs, bearing at the top a pair of somewhat narrow, coriaceous, rich deep green leaves. The scape, "J. M." says, bears three flowers, but I have seen it with double that number, and the flower now before me measures 7 inches across. This measurement I do not remember to have seen exceeded. The sepals and petals have the ground colour white, the former narrowly bordered with rosy-purple, the petals being much the broader, and also having a wider and more deeply coloured marginal border; the lip is large, rolled over the column at the base, the shape of the front lobe resembling *L. purpurata*, in colour rosy-purple, with darker veins, the basal part being blotched with rich purple. It grows and thrives under exactly the same treatment as *L. elegans*.—W. H. G.

Dendrobium binoculare, as seen at the Temple show amongst the exhibits of Mr. Sander,

certainly does not agree with its name. Its flowers are very similar to those of a good form of *suavissimum*, but its growth is quite different. It is now over twenty years ago since the plant first came to this country from Burmah, having been sent to the Messrs. Veitch, of Chelsea, by Colonel Benson, who found it growing in the hills in shady situations. The stems are slender, 1 foot to 18 inches long and leafy, and the raceme bears several flowers about the same size and appearance as those of *suavissimum*. The sepals and petals are thick and fleshy, rich deep orange-yellow in colour, the lip pale yellow marked at the base with a large maroon spot. This is different to the colours of the typical plant, which are said to be coppery orange, with two spots at the base of the lip. As shown by Mr. Sander it is a very pretty species.—W. H. G.

ORCHIDS AT MR. BULL'S.

THIS is the tenth year of Mr. Bull's Orchid show, and certainly it is the finest which has been held. It is needless to dwell upon the thousands of blooms of *Lælia purpurata*, the hundreds of spikes of *Odontoglossum Alexandræ* in rich and marvellous variety, the gorgeous *Cattleya Mossiæ* and *C. Mendeli* which everywhere meet the eye, whilst the *Masdevallias* give a brilliancy to the show, which it would certainly lack were those plants to be neglected as they have been in most establishments. Again, *Oncidium Marshallianum* and *O. concolor* are beautiful. The plants are not only arranged in the most exquisite manner, but there do not seem to be the crowding and, in some instances, slight confusion which have appeared in former years. Amongst the noteworthy plants the following are a few of the best: *Lælia purpurata Russelliana*, the sepals and petals white, more or less tinged with lilac, and the lip rosy-lilac, the throat pale yellow. This until quite recently was a rare variety, but of late years it has been more frequently imported. Amongst the forms of *Cattleya Skinneri* may be noted the variety known as *oculata*, the flowers of which are very deep in colour, the clear white throat having a dark mark at its base. The pure white form *alba* was also in great beauty. *Dendrobium Dearei*, with its large pure white flowers tinged in the lip with emerald green, is very handsome, and the blooms continue a long time in full beauty.

Dendrobium Cambridgeanum aurosum is another distinct plant. It has every appearance of the typical plant in its growth, but the flowers are clear yellow throughout, with a few pencillings of crimson on each side of the base of the lip, so different to the deep blackish crimson blotch which is such a conspicuous feature in *D. Cambridgeanum*; the habit of this species flowering upon its leafy stems is also very pleasing. The long-tailed Lady's Slipper (*Cypripedium caudatum*) is also very fine, in superb varieties, and also the rare and distinct, but yet not particularly beautiful *C. Mastersianum*. This plant I here saw for the first time in bloom, the leaves, tessellated with pale green upon a deeper green ground, somewhat resembling those of *C. Curtisii*; the dorsal sepal is green in the centre, with a creamy white border, the lower one much smaller, pale green without any border, the petals spreading horizontally, bronzy-red, the upper edge towards the base bordered with a few black wart-like spots, lip large, of a bronzy-brown hue.

Calanthe oculata gigantea is another remarkable plant, the flowers resembling in form those of *C. vestita*, but much larger. It is also noticeable from its flowering through the summer months and for having the additional charm of the flowers and leaves at the same time. *Cymbidium Lowianum* is also conspicuous, being found here in great numbers and in superb and brilliant varieties. *Phajus tuberosus* is also to be found here. *Masdevallias* are very numerous and beautiful, yielding a brilliancy of colour which cannot be approached by any other Orchid. The most brilliant of these were *M. Harryana Electra* and *M. Harryana luteo-oculata*, bearing very brilliant crimson flowers, with a large deep yellow throat. Fine yellow forms of *Oncidium macran-*

thum, and beautiful flowers of the rare *O. superbiens*, *O. curtum*, and many others are also well represented. W. H. G.

SHORT NOTES.—ORCHIDS.

Cattleya citrina.—There have appeared but few variations of this species, and I was astonished when Mr. Woodall, of Scarborough, showed me a flower of *Cattleya citrina* which in size and colour far exceeded anything I have ever seen before. The flower was deep bronzy brown in the sepals and petals, the base of the lip being of the same colour, the front border frilled and white.—G.

Calanthe masuca.—At the Orchid exhibition held in the Temple Gardens I noted a plant of *Calanthe masuca*, a species well worthy of cultivation, could it only be made to produce the same richly-coloured flowers that it does in its home in the Himalayas. The rusty-coloured flowers on the plant referred to were probably the result of too much exposure to light. In the Sikkim Himalayas it selects deeply-shaded situations, where scarcely a ray of sunlight ever reaches its surroundings, and the deeper the shade in which the plant grows, the more richly is the lovely violet colour developed in its flowers. As often as not plants are found in wet, almost marshy ground at an altitude of 1–3500 feet, and, curiously enough, thrive as well as those growing in drier localities. The average height of the scape is 2 feet to 3 feet, the flowering part being 6 inches to 9 inches in length, and lasting a couple of months.—R. P.

The Rainy Month Flower of Ceylon (*Dendrobium MacArthurii*).—This was recently exhibited in its proper season by Mrs. Studd, Royal Crescent, Bath. This splendid Orchid is, unfortunately, very rare, even in its native habitat, and so eagerly is it gathered by everyone having the opportunity, that I cannot but dread its extermination. The flowers measure some 3 inches across, the sepals and petals being of a bright rosy pink; the large lip is rosy pink in front with darker veins, white behind, blotched with rich deep purple at the base. These flowers only half expand, and unless they are placed on a level with the eye, more than half their beauty is lost, as was the case at the Temple show. I sincerely hope that Mr. Cypher, the gardener to Mrs. Studd, will succeed in establishing the plant.—W. H. G.

PUBLIC GARDENS.

HAMPSTEAD HEATH AND PARLIAMENT HILL.

It was hoped that when the control of the open spaces of London passed from the Metropolitan Board of Works to the London County Council we should see the last of the wretched practice of dotting trees here and there over the beautiful undulating surface of Hampstead Heath. There are now with the new additions nearly 500 acres set apart for the public use, and already we are promised a conspicuous example of bad management, worse even than when this breezy open space was in the hands of the Board of Works. It is more than a year since we discussed "The Future of Hampstead Heath" in our number of May 25, 1889, and expressed our hopes that Lord Meath's influence for good would have its effect upon the County Council. Unfortunately, he went to America, and the Hampstead and Highgate members of the Board and Open Spaces Committee have proved their utter incompetence to understand or carry out the desires of the public, or the aspirations of artists. Hampstead Heath has a natural and picturesque beauty, easily destroyed by planting trees unsuited to its rugged character, much of which is retained and should be carefully preserved. To make the new additions agree with the old should be the object aimed at, but in this part the fields are dotted with Spruce and other trees, which will in time destroy pretty views of varied extent. In some meadows a single tree is planted in the centre and enclosed with an iron

paling—a terrible blot in the scenery. Nothing is worse than iron fencing for destroying the beauty of a fine open breadth of land, but here we already have much of this unsightly feature, with a promise of more to disfigure the most picturesque of open spaces near London. This new addition required very little planting. The old remains of the former brickfields, in the shape of a sloping bank made by the removal of earth, might be planted with Furze and Broom to harmonise with the Heath. This bank is without vegetation, while the undulating meadows are spoilt by trees foreign to the nature of the surroundings. The money wasted on such things might be used in planting Furze, Gorse, and Firs to replace the fine old clumps that are fast dying. At the bottom of one field a tree is planted to intercept entirely the sloping meadow on the other side, and in one instance what looks like a common Poplar is encased in wire netting from top to bottom, we suppose to protect its slender stem from injury. One can judge of the wretched system carried out by the fact that a Poplar, utterly foreign to the scenery, is stuck in the middle of a broad, open field. Then we come across a Spruce almost hidden by the Grass to show the reckless and thoughtless way the planting is carried out. It has been done anyhow, without a single thought as to the fitness of the things or their effect on the landscape. The trees and shrubs, too, seem the refuse of some nursery sale to judge by their decrepit condition. One specimen, apparently some kind of Poplar, was a single stick about 5 feet high, and also enclosed. The worst blot possibly is on the old Heath near the Vale of Health. The scenery here is wild, picturesque, and interesting, and as rich as the moorlands of Yorkshire with colour. In the open breadths, between masses of Gorse and Furze, trees have been planted to take away the effect of this sheet of rich colour and break up the rugged surface. In one open spot surrounded by Furze nine big Limes have been planted close together to make, we suppose, one large group. These trees already spoil the scenery; they are entirely out of place on a breezy heath covered with Gorse, Furze, and Pines, and cut out lovely views from several points. If the London County Council had planted Firs to take the place of those half dead, some good would have been done in preserving the natural beauty of the Heath. The famous clump near "The Spaniards" is fast dying out, and nothing has been done to make good the trees that decay. The effect of this miserable dotting system is not so evident now as it will be in two or three years time, when the trees have grown sufficiently to cut out views and hide the rugged surface of the ground. What is really wanted is some such comprehensive scheme as we sketched last year in the article to which we have already referred—a noble tree-planted road, ride, and footpath to form the boundary and make an ornamental screen, opening up the Heath to all London, preserving its picturesque beauty, and forming for driving, riding, and walking one of the most beautiful open spaces in England.

SHORT NOTES.—PUBLIC GARDENS.

Hardy Ferns at Kew are worth a note, as they are now in the finest possible condition. The Carboneil collection comprises splendid specimens of British species and varieties, and would well repay careful study by those interested in Ferns.

Open spaces for London.—We understand that the Board of Agriculture have under consideration several regulation schemes, which will, if passed, have the effect of dedicating about 2700 acres around London to the public as open spaces for ever. The

lands in question comprise Epsom Downs and Common Mitcham Common, Banstead Downs and Heath, Park Downs and Burgh Heath, and the Hackney Marshes.

NOTES OF THE WEEK.

Frost in June.—In some districts near London a frost occurred on June 1 of sufficient severity to blacken the Potatoes and Scarlet Runners, and in several cases many of the flowers of the Strawberry have been hopelessly spoilt.

Herbaceous Pæonies.—We are asked to state that at the meeting of the Royal Horticultural Society in the Drill Hall on Tuesday, June 10, a silver challenge cup will be competed for by amateurs for the best collection of herbaceous Pæonies.

Aquilegia Stuarti.—This beautiful flower is sent by Messrs. Cocker and Sons, Aberdeen. It is a form of *A. glandulosa*, but finer in colour and larger. A coloured plate of it was given in THE GARDEN, Oct. 13, 1888.

Cattleya gigas.—A splendid flower of this species is sent by Mr. Stewart, gardener to Mr. W. B. Greenfield, Haynes Park, Bedford. It is an unusually fine variety for colour, the lip intense crimson-purple, and the sepals and petals rich rose, which becomes of a brighter tone in the side lobes of the labellum.

Trollius Gibsoni.—I send you herewith a bit of bloom of *Trollius Gibsoni*, perhaps the richest coloured Globe Flower in cultivation. *T. napellifolius* is indeed rich, but not comparable with this. What do you think? I hope it will reach you in good order, as this class of flower is not of the best to travel.—JOHN WOOD, Woodville, Kirkcaldy.

*** Very bright and fine colour.—ED.

Chrysanthemum Grace Attick.—This variety, an American-raised seedling, was awarded a first-class certificate at the National Dahlia show held at the Crystal Palace last September. The award seems to have been well deserved. Having occasion to pay a visit on the 30th ult. to Mr. H. J. Jones (late of Messrs. Davis & Jones), at Ryecroft Nursery, Lewisham, I was surprised to see several small plants of *Grace Attick* in full bloom.—CHRYSAINTH.

Flowers from the north.—Amongst an interesting collection of hardy flowers from Messrs. Cocker and Sons, Aberdeen, there are the semi-double variety of the Evergreen Candytuft (*Iberis sempervirens* fl.-pl.), a fine mass of the alpine Windflower (*Anemone alpina*), *Ourisia coccinea*, unusually good, the yellow *Narcissus Bulbocodium*, and the rich orange yellow *Trollius Fortunei* fl.-pl.

Flowers at St. John's, Oxford.—A short time ago, St. John's College, Oxford, was worth a note for the profusion of hardy flowers that enriched the garden. The old *Wistaria* was coming into flower, and the white *Clematis montana* made a great show of bloom. In the borders were such things as the alpine Wallflower (*Cheiranthus alpinus*), Pink Napoleon I., the Snowdrop Windflower (*Anemone sylvestris*)—a charming May flower; *Celsias*, clumps of Gesner's Tulip, the common yellow Asphodel (*A. luteus*), *Pæonia tenuifolia*, and *P. officinalis anemoniflora*.

Aquilegias.—I enclose some flowers of *Aquilegias* very carefully grown from selected seed, and which I consider are very good and like those figured in the coloured plate in THE GARDEN, Vol. XXVI. (p. 221). I shall be pleased if you will kindly name them and give an opinion of them.—M. PERY, Coolcronan, Co. Mayo.

*** Beautiful things—varied and delicate in colour, but we have often expressed our opinion of hybrid Columbines. Beautiful as they are, they are less so than the true species *cærulea*, *leptoceras*, *chrysanthæa*. All the efforts of those who desire beautiful flowers should be to obtain true stocks.—ED.

Orange Ball Tree (*Buddleia globosa*) is in full beauty now in many gardens, and though apt to suffer in very cold exposed spots it is hardy in most places. There is a large spreading bush of it in the arboretum at Kew smothered with the small heads of flowers that are like miniature Oranges, as the colour is similar. It grows to a height of 20 feet under favourable circumstances, and though introduced from Chili as far back as 1774, it is absent from many gardens it would give rich colour to at this season.

Edwardia grandiflora.—The finest flowers of this we have ever seen come to us from Mr. Ryan, gardener to the Earl of Annesley, Castletwellan, Co. Down, Ireland. The curious bronzy gold of the calyx is in beautiful harmony with the deep yellow of the flowers.

Though introduced from New Zealand as far back as 1772, this beautiful shrub is still very difficult to obtain. We should be glad to know if the specimens sent were grown against a wall or in the open. A coloured drawing of it appeared in *THE GARDEN*, Aug. 1877 (p. 160).

Habranthus fulgens.—I send you again blooms of the brightest of all our spring Amaryllids. *Habranthus fulgens*, figured in *THE GARDEN*, December 7, 1878 (p. 514), is a hardy bulb not found amongst the many exhibits of spring and summer plants, probably owing to its scarcity and the fact that it is not satisfactory in every garden. Under the shelter of a south-west wall I have found it to succeed admirably and grow stronger each year.—J. T. BENNETT-POH.

Orchidists deceived.—A curious incident in purchasing plants occurred recently at a sale of Orchids in Messrs. Protheroe and Morris's rooms at Cheapside. A supposed "novelty" was put up for sale and fetched nine guineas. It proved to be a plant of *Philodendron cannaefolium*, which at a first glance might be taken for an Orchid. This plant has been known, however, in botanic gardens for many years, and is in the Kew collection. It is of little horticultural interest or value.

Fancy Pansies.—The best Pansies for bedding and massing are the tufted varieties, or *Violas* as they used to be called, but there are many admirers of the other groups. In the garden of Mr. Arthur Cobbett, Firfield, Weybridge Heath, there is a moist border of fancy Pansies of fine colours; many only of two colours, both deep, and not infused one into the other, as in many of the kinds. When we have good decided colours and the flowers not too big, we have a rich effect from a border of them.

Pancratium illyricum.—This South European plant is the only truly hardy species of the genus. We have seldom seen it finer than at Kew now, where a plant in the herbaceous ground is carrying four stout flower-stems, each bearing a large umbel of bold pure white flowers. A light loamy soil, warm, but open border, and protection to the bulbs in winter with litter are necessary to promote a fine growth. Transplant the bulbs once in every three years when the leaves are decayed in the autumn. At that time offsets required to increase the stock may be taken off.

—This, known in many gardens as *P. maritimum*, is one of the most beautiful hardy plants of this class we have ever seen; its large, broad, bright green leaves and bunches of fine white flowers seldom fail to strike one with admiration. Coupled with this is the fact that it is perfectly hardy, even in the most exposed situations. It should certainly be in every garden. A light sandy soil and left alone are about the best instructions that can be given in this case. As a rockery or border plant it has no equal at this time of year, and though slow of increase it does not take very many years to form a respectable clump.—K.

Tree Pæonies.—In reply to a question by the Rev. C. O. Miles, I can safely engage to grow either a grafted or a seedling plant of Tree Pæony to a diameter of 3 feet within 8 years. I have one here raised from seed some eleven or twelve years ago. This is now more than 6 feet through, though I must state that this particular plant is a hybrid between a Japanese and a Chinese Tree Pæony. The Japanese is a more robust growing sort, and seems to assume larger dimensions than the Chinese form.—MAX LEICHTLIN, *Baden-Baden*.

Flowers from Ireland.—We are having delightful weather here. Oriental Poppies are a blaze of scarlet; clumps of *Lupinus polyphyllus*, with 50 spikes on a plant, are a splendid sight. I send you a few spikes herewith. *Eurybia Gunni* ought to be called Snow in Summer; the plants are one mass of bloom, and an individual spray such as I send looks delightful in a small glass with a few twigs of *Prunus Pissardi*. *Iris pallida dalmatica* is opening its top flowers now, and scenting the whole garden. *Spiræa astilboides* with buds very forward is against a south wall; it will be a magnificent border plant if perfectly hardy. *Pyrethrums* were never so fine as this season, and *Roses* are looking very promising. I have had a magnificent crop of flowers on the old Tortoise-shell *Polyanthus*, with each flower expanded as large as a two-shilling-piece.—W. H. BLAIR, *Cork*.

Lithospermum Gastoni is a rare and little-known species. It has erect, fleshy, leafy stems

4 inches to 15 inches high, which are surmounted by a cluster of from seven to nine large, bright blue, erect, funnel-shaped flowers, more or less suffused with red. It should be grown in rich, but well drained stony loam on rockwork or in borders in sunny positions. It may be well to explain what is really meant by "well drained" and "stony loam." I do not mean well drained in the same sense as we speak of a kitchen garden being well drained. The compost should consist of one-quarter nodules of stone, one-half good loam, and one-quarter coarse sand, the whole well mixed. Then dig a hole 1 foot deep and 2 feet square; into this put 4 inches of rough stones or any rough material for drainage, fill up to above the surrounding earth with the above compost, make firm, and it will be found when the plant is cultivated in this way it will not "go off" in winter, and will not fail to flower in early summer. There is now a fine display of this beautiful plant at the York nurseries. They are growing in pots; consequently they are very dwarf, being only from 4 inches to 6 inches high. When planted out, however, they are taller.—R. POTTER.

The Cape Pondweed (*Aponogeton distachyon*).—As a water plant for large or small ponds, tubs, or basins this has no equal. It is the most accommodating plant we know, and wherever planted soon establishes itself by means of seeds. This is one of those plants that even when found out of place one never calls a weed, and this is often the case with the *Aponogeton*, as the seedlings spread everywhere, forming sheets of the loveliest green, dotted here and there thickly with the curious white flowers.—K.

Lotus peltorhynchus, growing up rafters in the alpine house at Kew, is very handsome just now. Its only fault in the neighbourhood of London seems to be its susceptibility to fogs, which are very hard on the leaves and young shoots during winter and early spring. Perhaps housing it in a warm, dry atmosphere would help it a little, but we are afraid that whenever fogs are prevalent it will prove difficult to manage; the large scarlet flowers in bunches are very effective, heightened if possible by the abundance of pale glaucous foliage as a background. It will make a charming greenhouse plant suitable for rafters or pillars.—K.

Ornithogalum latifolium.—A noble bulbous plant for rockery or border is the broad-leaved Star of Bethlehem (*O. latifolium*). It never fails to flower, and the stately stems with abundance of large white flowers make a handsome group. There is no bulb just like this one, and none, so far as we know, to take its place. It comes in between the *Narcissi*, *Fritillaries*, *Tulips*, &c., and the *Lilies* later on in the season. The species most nearly allied, and which are also excellent companions to the above, are *O. pyramidalis*, bearing a compact head of bloom, and *O. pyrenaica*, which, though worth growing, is the least attractive of the three.

Primula japonica, one of the grandest of the hardy Primroses, is at its best just now. It is one of the easiest to manage, and by far the most suitable for borders or beds, as it is quite able to take care of itself. Excepting the *Polyanthus* it is the only hardy species that seeds in the open air with any freedom, and from a few plants a large colony may be formed in one year. It forms such beautiful groups when left to seed itself, that we never touch it, and the effect is the most charming and natural arrangement possible. Another gem rarely seen is the new Snowdrop Primrose (*Primula Reidi*) in flower now at Kew. The drooping pure white flowers, delicately scented, are very charming when the plants are healthy. It does not seem to be a long-lived species, but it is so easily raised from seed that this is immaterial.

Eremurus himalaicus.—I send you a bloom spike of *Eremurus himalaicus*. You may perhaps not have seen it before. It is figured in Curtis's *Botanical Magazine*, but not as it should be; the flower-spike has been shortened and a back turn given to the leaf, which is quite wrong. The leaf might break back, but will not bend. I am a bit jealous over this plant, as I was the first to grow it from seed sent me from India nearly twenty years ago by

Major Lloyd (then Lieutenant Thos. Lloyd, 60th Rifles). I gave plants of it to the late Rev. Harpur Crewe and Mr. Gumbleton; both flowered it before I did. The entire spike measured 6 feet 5 inches; the plant is quite hardy, seldom dies out, so different from *Lilies*, &c., and when once it attains a flowering size it blooms every year. This, I believe, is the only white variety that has as yet been introduced; many of the others die out after blooming and get so enfeebled, that they do not recover for a year or two. *Eremurus himalaicus* is a grand plant to cut and stand in water. I think it is able at all times to speak for itself. It is rare, no more perhaps than fifteen or sixteen flowering plants of it in Britain. I have no doubt that when better known it will be appreciated. I hope it will travel safely, as I have done as much as I could to ensure its arrival in good condition.—JOHN J. SMYTH, *Rathcoursey, Ballinacurra, Co. Cork*.

* * A noble plant. We think the most stately bloom of a hardy plant ever sent to us.—ED.

A noteworthy Lily is one now flowering at Kew under the name of *Lilium longiflorum formosanum*; it is a native of Formosa, and is used largely, we believe, in Hong-Kong for decorations. There is a group of it in the temperate house, and several plants have been placed out of doors on the rockery, where the bold handsome flowers make an imposing show. They are not unlike those of *L. Browni*, quite as large, and white inside, but with the outer surface of each of the segments marked with a longitudinal band of deep rose. It is a strong grower, and is said to force remarkably well.

The white Indigofera floribunda is a pretty shrub, which will do well in all but very cold districts if given the shelter of a warm wall. The flowers are in racemes and pure white, unlike those of the typical plant, which are bright pink. There are few more beautiful things for a wall than the species, as it is hardier, we believe, than the white variety, and though generally seen against a wall may be grown as a bush in the open. It is a Himalayan shrub, densely clothed with feathery pinnate foliage, from which peep out the racemes of pink flowers. This is fairly well known in gardens; not, however, the white variety, to which we draw the attention of tree and shrub lovers.

Fraxinus Mariesi.—This is a beautiful species from the Chinese province of Kiu-Kiang, where it was discovered by Mr. Maries, after whom it is named, when travelling for Messrs. Veitch and Sons, in whose nursery at Coombe Wood it is now in bloom. It is quite at home there, and bears dense panicles of white flowers, peculiarly beautiful and fragile in texture. The whole plant is glabrous, with the exception of the petioles and panicle branches, while the individual flowers are larger than those of the common Southern European Flowering Ash. It is a charming tree and as yet rare in gardens. Those who want a beautiful Ash should plant it.

A beautiful shrub in many gardens now is *Viburnum plicatum*, and in the Coombe Wood Nursery of Messrs. J. Veitch and Sons the many plants of it were smothered with bloom a few days ago. It has not the delightful elegance and free growth of the common Guelder Rose, but it is second in importance in the *Viburnum* genus. The bush spreads out stiffly, and is clothed with deep green crimped foliage almost hidden by clusters of snow-white flowers, larger than those of the common Snowball tree. It is not difficult to grow, thriving well in most gardens, but in very cold places it is apt to suffer in severe winters, so that in localities of this character it should be given a warm spot. Some of the shoots bear over six clusters of bloom, and it flowers when quite small. The finest are on plants grown against a wall, as they are almost double the size of those in the open; but although we often see it nailed and tied in, this is not the best way to obtain the full beauty of *V. plicatum*. There are many things trained on walls that should be left to spread about in their own way unfettered by ties, and this dwarf Chinese shrub is of the number.

FERNS.

A FERN WALK.

THE engraving herewith is a charming spot devoted to the cultivation of strong growing Ferns under the shelter of the trees, but beautiful as it is, I should prefer the spot if the walks had been winding in and out, so that fresh beauties should be brought to the eye at every turn. This is not a situation in which to plant small growing and delicate Ferns, but for strong, robust varieties it is very well suited, and I often wonder that Ferns are not more frequently used beneath trees, the ground around which is often left bare. If water is abundant, the Royal or flowering Ferns might form magnificent groups. Not only the indigenous kind (*O. regalis*), but

more effective than in a straight line. There are many forms of exotic Ferns, however, which should be used, and I have already referred to two genera, viz., North American *Osmundas* and *Struthiopteris*. There is one plant, however, that I would highly recommend, and that is the Maiden-hair Fern of our American cousins, *Adiantum pedatum*; it withstands the severity of our winters well in our woodlands, and it is without exception the most elegant Fern grown. Another species from North America which can be planted with confidence is *Sitobium punctilobum*, a tall growing and beautiful kind, which will well repay a large space being devoted to it. *Anchistea virginica* is another beautiful plant from the same country, and so also are *Lorinseria areolata* and *Onoclea sensibilis*, whilst we must turn to

only species having a distinct fertile segment in addition to its barren shields and its usually accepted fertile fronds. The species is said to come from Borneo; it is also said to come from the Philippines and various islands in the Malay Peninsula.

Platycerium Willincki.—A plant of this was shown in very good form at the Temple exhibition by Messrs. Birkenhead, of Sale. I have, however, had larger plants of it myself, and can testify to its beauty; moreover, as *Platyceriums* are going out of fashion to a great extent, it is well to remind my readers that in this plant they have one of the very best bracket Ferns it is possible to grow, and as it produces suckers from its roots from amongst the old and barren shields, it soon forms a large and dense mass. The shields or sterile fronds are erect, rich bright green in colour; the fertile ones are usually produced in threes, pendent, from



Fern walk at Ashley Heath, Bowdon, Cheshire. From a photograph by F. Baden Berger.

all the North American varieties might be used with advantage; they should be massed, and not scattered about indiscriminately. Here also the Ostrich-feather Fern (*Struthiopteris*) would form noble masses; the strong-growing varieties of the Lady Fern and the typical plant would also form grand banks, but it is the only species in the genus *Asplenium* which I would recommend to be planted in such a place. *Blechnum Spicant* in its typical form I also would plant near the front: the varieties are, as a rule, too weak and slow growing. It is by the use of *Lastreas*, *Polystichums*, and the numerous varieties into which these have broken that the greatest effects can be obtained, planting each particular kind according to its stature. One more gem among English Ferns is all I can recommend, and that is the Hart's-tongue (*Scolopendrium*). This should also occupy a front place, and in winding walks could be made

Japan and China for such plants as *Polystichum setosum*, *P. concanum*, *P. ordinatum*, *Lastrea erythrosora*, *L. varia*, *L. podophylla*, and *L. Sieboldi* to give variety to the scene. Amongst these beautiful Ferns may be scattered seeds of the Foxglove of the woods, plants of which may be seen in the engraving. It is just the place for it, and once get it established it will take care of itself. W. H. G.

Platycerium biforme.—Whilst speaking to Mr. Birkenhead respecting these plants, he remarked he wished he could obtain *P. biforme* in the living state. For this plant, which by many is said to be in cultivation in many collections, I have invariably found a very dissimilar plant always substituted, this being none other than *P. Stemaria*, which has short and bifid fronds, whilst the true plant has fronds 6 feet or more long, the fertile division being reniform, stalked, some 6 inches to a foot broad. It is, as far as I know, the

2 feet to 3 feet in length, narrow, and divided into narrow segments. It is a handsome plant, which I think was introduced some sixteen or seventeen years ago from Java.

Gymnogrammas.—These plants were exhibited at the Temple show in great beauty by the Messrs. Birkenhead. The best amongst the varieties is the form of *G. schizophylla* named *gloriosa*, and which I have frequently noted as being so fine in Sir Trevor Lawrence's collection at Burford Lodge. There were also good examples of the Silver Fern (*Peruviana argyrophylla*). This is a very beautiful plant, having a thick coat of silvery powder on both sides. These plants vary somewhat in the colour of this powder, and those who have grown them know full well that they sometimes may be found with white, sulphur, and golden farina upon them. Knowing this, I was surprised to see a plant of this species bearing the name of Mayi in the collection of plants staged by Mr. H. B. May, of Edmonton. It is misleading, if nothing else. I have specimens

of *G. trifoliata*, probably the most un-Gymnogramma-looking Fern in the genus, which differ in nothing else than in one having golden, the other silvery farina at the base of the fronds.—W. H. G.

Platyserium Wallichii.—This is a species from the Malay Peninsula which has never yet graced our plant stoves. It is not well known. It has broad and erect barren shields, which are deeply lobed; the fertile fronds, mostly produced in pairs, are thick and fleshy in texture, the under side woolly.

Platyserium angolense is a singular species which I have only seen in the herbarium of the late Dr. Welwitsch, and I am not aware of its having been found by any other person; it had a broadly cuneate fertile frond. The barren shields were very similar to those of *P. Stemmaria*, which produces suckers from its roots and which has now become a common plant in our collections.—W. H. G.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

VINERIES.

EARLY Grapes now ripe must have more air and less fire heat, the latter being regulated by external conditions, which may necessitate warming the pipes, the better to counteract condensation of moisture, and to prevent the temperature from falling below 56° to 60° through the night. Allow all the laterals to run for the twofold purpose of shading the black varieties and keeping the roots in action, as we still have a summer before us, and cannot afford to have a leaf injured or prematurely ripened. Clear, if practicable, certain parts of the house or portions of each Vine when cutting is commenced, and well syringe the foliage every evening as the Grapes are removed. Also damp the floors once or twice on fine days, as Grapes at this season not only stand, but require a great deal more atmospheric moisture than would be good for them in the autumn, when the bunches are larger and daylight is decreasing. When black varieties are quite ripe their colour may be preserved by very light shading for a few hours on bright days, whilst white ones will be improved by moderate exposure to sun and light. Moderate, I repeat, as I have seen tender skinned varieties, like Foster's Seedling, badly scalded when the laterals have been suddenly removed before the berries were quite ripe.

Successional crops now changing colour should have plenty of fresh air through the first part of the day, with or without fire heat, to prevent sudden depressions when the sun is obscured by clouds. On bright warm days the fires may be stopped for several hours, but they must be started early in the afternoon, as it will be wise to maintain a brisk heat when the house is shut up for the remainder of the day. About this stage give the inside borders their last liberal supply of tepid liquid and add more light mulching to prevent the surface roots from becoming too dry. This watering may not carry the Grapes to the finish, but constant damping will be found a great help to roots, foliage, and fruit, which never colours well when the atmosphere is kept too dry.

Early Muscats, having stoned, should be looked over with the scissors for the last time, and if any berries are lagging behind, if practicable they must be removed. Allow the laterals free licence by stopping and tying down the strongest only and letting the weakest run. Give the inside roots generous liquid or weak guano water, also add a little when charging the evaporating pans, and aid swelling by closing early with sun heat and keeping the atmosphere moist. As this crop cannot be ripe too early, forcing may now be carried on in a temperature ranging from 70° at night with a chink of fresh air, 80° to 85° through the hottest part of the day, and 90° after the house is closed.

Late houses of Muscats, Lady Downe's and kindred varieties intended for autumn and winter use must be extra well thinned, not by devoting two minutes to a pound, but by going carefully over them three times at intervals from setting until they are stoned. Lady Downe's, Mrs. Pince's Muscat, Alnwick Seedling, and Alicante which set a profusion of tiny

berries should be well cleaned as soon as those properly fertilised begin to swell, when the expert may follow with his seven-league scissors at Jersey speed. Grapes should never be watered during the time they are in flower, neither should the laterals be hard pinched, but once the crop is thinned they may be well fed and generously treated with moisture and heat, care being taken that the houses are opened very early on fine mornings, allowed to rise steadily with increased ventilation until the maximum is reached at noon, reduced in the same ratio, and finally closed with a Muscat heat of 85° to 90° pretty early in the afternoon. When a bad season has been discounted by starting these Grapes extra early, the time is at hand for observing conditions which will moderate if they do not entirely prevent the tendency to scalding so prevalent when the days are catching and nights cold. Neglect for a few days often mars the best bunches, and yet scalding—hardly a disease—can be avoided by the maintenance of a high temperature which will prevent the berries from becoming cold through the night, and abundant ventilation through the day. The house, in fact, should be converted into a warm greenhouse throughout the stoning process which extends over about three weeks, and during that period the egress of moisture should never be checked by having the top ventilators closed.

CUCUMBERS.

When small compartments are devoted to Cucumbers and Melons, the provider for private families will do well to have fresh maiden plants in one or other constantly rising to a fruiting condition, whilst others worked at high pressure can be cleared out before they become infested with spider. Young plants are easily trained and manipulated; they give the finest fruit, always look fresh and creditable, and, being clean, one can move from them to other departments without becoming a migration agent. Their summer culture, moreover, is extremely simple, good loam, leaf-mould, and lime rubble thrown together in the roughest manner possible suiting them admirably; whilst tepid water for the roots and copious syringing are all that is wanted in the way of liquid, certainly until they get into full bearing. Fire-heat being objectionable, the less of this the better; hence the importance of paying attention to the preparation of fermenting material for keeping the roots warm, the atmosphere humid, and the air temperature at a suitable figure. Fresh stable litter thoroughly worked and Oak leaves harvested last autumn, in equal proportions, make the best of beds for giving bottom-heat, but being apt to become violent, they should be turned two or three times before they are taken in, and then excessive fermentation may be prevented by very firm treading and ramming. When satisfactory, thick sods, grass side downwards, should be laid longitudinally along the bed, a good distance from the top heat pipes, and upon this plateau the rough compost may be laid in lofty cones or narrow ridges. In planting, see that the balls are very moist and slightly broken by pressure in the hands to prevent the roots from retaining a spiral position; indeed, if at all root-bound, they should not be used, as younger plants raised on squares of turf will beat them in quicker growth and greater fertility. Twenty to thirty square feet of trellis is none too much for each plant to occupy, and shading being objectionable, as well as troublesome, this should be quite 18 inches from the glass at the outset, with convenience for dropping it still lower in July and August. Fresh air will then circulate freely above as well as below the leaves, which, by the way, should be well bathed with tepid water from the outside at least three times a week in hot weather. Started and treated in this way, summer Cucumbers will give very little trouble, as they will be fresh, free, and healthy—conditions opposed to insects and mildew.

THE STRAWBERRY.

Once more the plants which produce this wholesome and delicious fruit are in full flower, and never, perhaps, were they so abundantly full of promise. The winter, just cold enough to give them a decided check, has been followed by most genial weather, and although at the present

moment we are hardly out of the wood, the steady and much needed showers lead us to think the flowers will escape frost. If they do, the blossom being so plentiful and fine, growers enabled to test the new varieties against the old will be in a position to set at rest the opinion now gaining ground, that quality has been sacrificed to size and earliness. These two qualities of qualities, as they can be called, may be advantageous to growers for market, who will draw good prices from consumers living in towns, but owners of gardens who have tasted the finest Pines, Queens, and Hogs will place their veto on broad breadths of the new so long as the latter can be well grown. Very fine fruit all desire and all should have, indeed all might have, if the high culture given to the new were as carefully and systematically devoted to the older sorts. Mere size, indeed, is becoming quite a deteriorating factor in the fruit as well as the vegetable garden, as "A. D." some time ago pointed out in his article upon prodigious Onions, so useless for everyday use in ordinary households, so full of waste, and so difficult to keep when grown. But returning to Strawberries, there is, I suppose, a line which divides the mediocre from the fine, and that line, I venture to think, no grower should try to exceed, especially when Queens, Hogs, Paxtons, and Presidents can be grown to average an ounce each without becoming coarse, hollow and pithy. A dish of James Veitch or Noble made up of berries weighing 2 ounces each may fill ordinary visitors to shows with wonder, but the owners of private gardens who expect choice quality two or three times a day will none of these obesities, so long as they can get the sorts I have named twenty to thirty to the pound. This being so, hybridisers, without loss of time, should put to themselves the following pertinent questions: Are we working for the real and lasting improvement of the Strawberry? Have we yet raised anything to approach the British Queen? or, like raisers of Melons, are we making a third-rate hash from which good judges will turn with disappointment, and seek to restore the tone of the palate by feasting on good old sorts, which will stand when the froth has passed away? W. C.

PLANT HOUSES.

GREENHOUSE.—**HEATHS.**—Amongst the best Heath are the two yellow-flowered kinds, *E. depressa* and *E. Cavendishi*. The first-named, especially, is a long-lived plant, often lasting for twenty-five or thirty years. It is a slow grower and a free bloomer, provided the wood is well matured. Unless the plants are stood out of doors for the greater part of the summer, say from the present time up to the middle or end of September, they rarely bloom well. Choose a place where they will be fully exposed to the sun. A bed of sifted coal-ashes should be provided for the pots to stand upon. This is necessary to keep out worms, and in dry weather the moisture that rises from it will benefit the plants. This Heath seldom produces a full crop of flowers oftener than once in two years, but the length of time the bloom lasts fresh—eight or nine weeks—compensates for this. Plants that require more root-room should have a shift in September, when the weather begins to get cooler, or the work may be delayed until early in the spring.

E. CAVENDISHI should have the flowers picked off immediately they have begun to get shabby, and if there is the means of keeping the plants a little closer and warmer for six weeks than ordinary greenhouse stock require, it will help the growth. It should be stood out of doors. Young stock, or any that have not flowered much during the spring, and which have consequently already made a considerable amount of growth, may now be turned out in the open.

E. VENTRICOSA.—Of the *ventricosa* varieties, *v. coccinea* minor and *v. grandiflora* should be grown by everyone who has a greenhouse. They are profuse bloomers, and as the plants go out of bloom the flowers should at once be picked off. If allowed to remain, seed will form quickly, the development of which will tend to further exhaust the plants, which are already weakened by flowering. After-

wards keep them under glass till the end of July, when they could be stood out of doors.

LATE SUMMER AND AUTUMN - FLOWERING HEATHS.—Amongst the best of these are *E. Parmentieri rosea*, *E. Austiniana*, *E. Marnockiana*, and *E. Irbyana*. They grow freely and come into bloom when greenhouse flowers are not over plentiful. The plants should be kept well up to the glass in a house or pit, where they will be under the influence of full light, plenty of air being admitted both night and day.

CAMELIAS.—The bad condition of Camellias is brought on in various ways: Insufficient thinning of the buds, overcrowding of the plants in dark houses, especially during the time of growth; dryness of the soil in the lower part of the balls, and insufficient pot room. Any of these conditions will reduce the plants to the state in question. Where any plants are suffering from want of pot room, there should be no delay in giving them a shift. The time when repotting gives the least check is just as the season's growth has become partially firm, and the flower-buds are seen at the extremities of the shoots. The root-fibres are so delicate that it is impossible to remove the old drainage crocks without breaking many, and it is when the growth has reached the stage named that the injury has least effect on it and on the flowering. Spring potting, that is done just before the shoot growth begins to move, often ends in the loss of the ensuing crop of bloom through the injury that the roots receive. In potting Camellias, when the plants are in good health, it is well to give pots large enough to keep them going (with the help of manure water) for some time. Good rich turfy loam, with sand, more or less proportionate to the amount which the loam contains naturally, is the best soil for Camellias, except in the case of plants that have got out of condition at the roots. For such, a portion of fibrous peat may be mixed with the loam. Use the potting lath freely, so as to make the new material solid enough to prevent the water passing off through it and leaving the balls dry. After potting, keep the house a little closer than ordinary. This will encourage the roots to move freely. Continue to syringe the plants that have been repotted, daily for a few weeks, by which means it will not be necessary to give so much water to the soil for the time being.

CAMELIAS, PLANTING OUT.—Where the plants are to be put out in beds, there is no better time for the work than when the growth is in the condition such as advised for potting. In the case of these, the first essential is to ram the new soil all round the balls, so as to make it quite solid. The balls should be placed about 2 inches or 3 inches lower than the surface of the bed, so that the new material may form a dam round it. This will prevent any possibility of the balls getting dry. Camellias that have got into a weakly, feeble condition will be improved by being planted out. In this way they gain strength fast at the roots, and usually break new growth freely from the old wood the second or third year after being turned out. Afterwards, if need be, they may be taken up and put into pots or tubs.

STOVE.—GARDENIAS.—Old plants of *Gardenia* are apt to get thin and straggling if under-potted. This can be easily remedied if as soon as the spring flowering is over the branches are cut in freely. The plants will then break back from the old wood. To help them to do this keep the atmosphere close and moist and the temperature warm. In a few weeks they will have made enough growth to require potting. If there is any loose soil about the tops of the balls unoccupied by roots it should be got rid of. Any roots that have got into a matted state down in the drainage should be cut away, and pots two sizes larger ought to be given. In a stove temperature the plants will move rapidly. Let them have plenty of light so as to keep the wood strong and short-jointed. *Gardenias* treated in this way can be got into condition for flowering in the winter. Young plants that were struck last autumn or early in the spring should be shifted on. Do not stint them for root room. The greatest diffi-

culty that attends the cultivation of *Gardenias* is keeping down insects, especially mealy bug.

CLERODENDRON BALFOURII.—Not the least of the merits possessed by this *Clerodendron* is that it is quickly grown up from cuttings to a useful size. And, in addition, the plants last a number of years when properly treated. It is the most useful when grown as a pot specimen with the top trained to a trellis during the time of blooming. So managed the plants can be moved to cooler quarters when in flower. Whilst the summer's growth is being made it will not do to train the shoots to any support of the description named. So long as shoot-extension goes on they must be kept in an ascending position. As soon as the plants are out of bloom the branches should be cut back to within 6 feet or 8 feet of the bottom, after which they should be stood in an ordinary stove temperature, and be syringed overhead daily. As soon as the new shoots are fairly broken the plants should be turned out, have most of the old soil removed, straggling roots cut away and be repotted, giving pots proportionate to the size the plants have attained. A 16-inch or 18-inch pot is big enough for the largest specimen. As the shoots extend, train them to thin strings run up under the glass. In this way the plants give little trouble, as from their position they are easily kept free from insects by a daily use of the syringe. The soil should consist of four parts good loam to one of rotten manure, finely sifted, and sand enough to keep the whole in a sufficiently porous condition.

T. B.

THE KITCHEN GARDEN.

SUCCESSIONAL RUNNER BEANS.—On shallow, hot soils the earliest rows are liable to become exhausted long before the end of the season, and in order to be certain of a continuous supply of tender pods, a row or rows, according to the requirements of the place, ought to be sown about the first week in June. Where, however, there is a good depth of well manured soil for the plants to root down into, plenty of moisture being supplied during hot weather, the earliest rows may continue productive till cut down by frosts. In this matter cultivators ought to be guided somewhat by previous experience, but in any case it is well to be prepared for any emergency, and late-sown rows are generally serviceable. Either sow in shallow trenches with abundance of solid manure mixed with the soil, or give the Beans the benefit of freely manured trenched ground. If the soil is at all dry, well moisten previous to sowing the seed, covering the latter with not less than 3 inches of dry, fine mould.

STAKING BEANS.—Runner Beans have come up strongly and quickly commenced forming running growth. This appears to be the general experience, and unless the plants are freely thinned out there will soon be a thicket of growth, but only a light crop of pods. These crowded rows are the first to collapse in dry weather, those more thinly grown also producing larger clusters of fine straight pods. Whether the plants are in either double or single rows they may well be thinned to a distance of 12 inches apart, one strong plant being ample for each pole or stake. If there are any blanks, these may be made good by transplanting some of the thinnings, and we have frequently had to form whole rows with moved plants. They naturally experience the least check if transplanted when in a moist state at the roots and with the aid of a trowel. Stakes or poles of almost any length may be used. If short ones, such as may be obtained from fagot wood, are used, then must the running growth be frequently stopped after they have reached the tops, while tall stakes, or say any from 6 feet to 18 feet in height, ought to be strongly braced together with other stakes and tar twine, or a strong wind may upset the lot. Those staked early are the least liable to be injured by June frosts.

STAKING KIDNEY OR DWARF BEANS.—Dwarf Beans are not often staked or supported in any way beyond, perhaps, being rather heavily moulded up, but they well repay for a little extra trouble being taken with them. Especially is it advisable

to stake them if long clean pods are required for exhibition. Some varieties, notably *Canadian Wonder*, if stakes are placed to them will develop a semi-running habit, and attain a height of about 3 feet. This class of Bean again ought to be freely thinned out, the stronger growers if kept from 9 inches to 12 inches apart, or even still more isolated, becoming very bushy, and producing large pods in profusion. Each may have a short stake, or short Pea stakes can be placed thinly on each side of the rows. If extra straight young pods are wanted for the August shows, now is a good time to sow seed of either *Canadian Wonder* or *Giant Negro Longpod*.

BRUSSELS SPROUTS.—These require a rather long period of growth, and ought now to be got out where they are to remain. They should have a fairly rich, yet firm root run, this promoting a sturdy productive growth, while loose rich ground causes the plants to grow rankly, and to produce large loose sprouts. If they are put out on a clear breadth of ground, the rows ought to be fully 30 inches apart, 3 feet being none too much for the stronger growers, the plants being 2 feet asunder in the rows. In many gardens it is now the practice to plant Brussels Sprouts between Potatoes, the latter being cleared off long before the former require all the space. Only quick-maturing short-topped varieties of Potatoes are suitable for this method of double cropping, and the rows of these ought to be not less than 3 feet apart, another 6 inches answering still better. It is quite useless to plant between rows less than those distances apart, as the haulm is apt to smother all intervening crops.

AUTUMN BROCCOLI.—If *Veitch's Autumn Protecting*, *Michaelmas White*, or other good early Broccoli are planted now, these should give fine hearts in close succession to the *Autumn Giant Cauliflower*. We invariably plant the first-named very extensively, no other Broccoli affording such a long and valuable succession of superior hearts. Two or three large plantations are made, and from these we cut from October to January inclusive, the later batches being lifted and stored under cover of some kind. It is far from being a hardy variety; in fact, it will not stand much more frost than the *Autumn Giant Cauliflower*; nor will any method of culture much alter this character for the better. This being so, there is no great wisdom in giving it very firm clear ground, the better plan being to reserve this for the later varieties and to put out the *Autumn Protecting* between widely disposed rows of Potatoes. Plant them 2 feet apart in the row, taking care to fix them well, and water in, soot and lime dusted about them serving to protect from slugs.

BORECOLE AND SPROUTING BROCCOLI.—If the plants are large enough and the ground ready for their reception, these may well be planted at once. There is no likelihood of their being grown too large, and all are among the hardiest and most productive of winter green crops. As a rule, the *Green Curled* or *Scotch Kale* is most preferred, the hearting forms being especially good, but the *Cottager's Kale* is exceptionally hardy and productive, while the *Asparagus Kale* is both very hardy and late, this sometimes doing good service at a time when green food is often scarce. A row of the variegated or garnishing presents an attractive appearance, many of the forms being very handsome. Sprouting Broccoli is the hardiest form of Broccoli in cultivation, and is well worthy of being grown in every garden.

SAVOYS.—As a rule these are raised and got out far too early in southern districts, at any rate large and early heads being comparatively of little value. It is during the winter months when they are most appreciated, but if planted early in June there is seldom many fit for use then, the bulk of the crop probably having been wasted. Ours will not be fit to transplant for another month. If an early supply is needed, plant one or more of the *Tom Thumb* section, the quality of these being good quite early in the season. They may be put out 12 inches apart each way, and not being long on the ground are not particularly injurious if grown on fruit borders.

TOMATOES.—When these are first turned out of their pots and planted against sunny walls, fences,

or temporary shelters, they are usually in a much-starved root-bound state. In order to quickly recover them from this unsatisfactory condition somewhat liberal treatment is needed at the outset. Not only ought they to be firmly surrounded by a little fresh and fairly rich loamy compost, but care should be subsequently taken to prevent the old balls of soil and roots from becoming very dry, till such times as the roots have taken possession of their new quarters. After they are once got into a healthy vigorous condition, it may perhaps answer better to give no more water, comparative dryness and warmth at the roots promoting a sturdy, fruitful growth. A mulching of short manure or half-decayed leaves should be given early. W. I.

FLOWER GARDEN.

IRISES.

WHAT a wealth of beauty there is in this numerous and widely distributed race of plants, and how much in the early months of the year they tend to the ornamentation of our gardens, although it is only in tolerably large ones that they can be grown as they deserve to be. From the time that the charming little reticulata opens its Violet-scented flowers on to the later flowering Kämpferi section, they give us a succession of beautiful and in many instances very striking flowers—in some, such as susiana, of the strangest character; some very dwarf, some stately in their beauty, but all more or less commanding the admiration of lovers of flowers.

It would ill become one who professes to no botanical knowledge to enter into this portion of the subject, but I may look at them from the gardener's point of view, and in any notes on them that I may give I only relate my own experience, and suggest as useful those which I have found to be so in my own garden. My small garden is deficient in moist places, such as many of them love, but as far as my experience goes, many of them can make themselves quite happy even where their natural conditions of situation cannot be given them. Most of them are free flowering, and although the individual blooms are short-lived, yet as there are several produced upon the spike, they will last some considerable time. The skill of the hybridiser has been brought to bear on many of the classes into which they have been divided, and in most instances the children have outstripped in beauty those from which they have been derived. As many of them are now in flower, it will be a good time to look through the collections which are scattered over the country and make such selections as may either form the nucleus of a collection, or else such new varieties as may enrich those already possessed. As in many other cases, the same names are not to be found in many catalogues, and therefore it will be better and safer to select some one grower and obtain his flowers, adding only from other sources such as have been seen and noted, otherwise, as I know it is in Pansies and other flowers, you may get the same they saved, only under different names.

The greater portion of the members of this extensive family delight in moisture, and with some no more fitting place can be found for them than the margins of ponds, lakes, or streams. We all know where to look for the common Flag of our English meadows, and so no place suits so well the beautiful Japanese group of *I. Kämpferi* as the borders of a pond, where it can send its roots into the water, and thus be secure against any drought however severe. There are, however, several which thrive equally well in the open exposed to the

sun and not supplied with a large quantity of water. Some are of very dwarf character and take up little room in our gardens, while others are so large and vigorous, that a number of them can only be grown where the garden is large. Very early in the spring I find in a damp spot on my small rockery the lovely blue

IRIS RETICULATA, a native of the Caucasus, deliciously sweet-scented, perfectly hardy, and flowering in the open ground in March. The foliage is Rush-like, and when the plant is in flower is about the same height, but goes on increasing until it reaches 16 inches or 18 inches. This species is also excellent for early spring flowering in pots.

I. PUMILA, sometimes called the Crimean Iris, is very dwarf and often varying in its colours—dark purple, blue, flesh-white, &c. It flowers when in a very dwarf state, often at 4 inches, and even on very favourable soils not exceeding 10 inches. It does not seem to be particular as to the situation in which it grows. I have it in my garden in a very hot and dry place, where it flowers well, while I have it also in a damp spot on my rockery where it seems equally at home, thus showing itself, like many garden plants, accommodating in its character.

I. FLORENTINA.—A very beautiful flower, white, shaded with blue and yellow, very dwarf, and with a lovely satin-like gloss on the petals. It is not a difficult plant to manage, and when once established it will continue flowering from year to year. The well-known orris-root is prepared from its roots.

I. IBERICA.—A very remarkable looking flower; the lower petals are of a dark crimson-purple, spotted with black, fully 6 inches or 7 inches in length. I have not been successful in growing this very curious Iris in the open air. I asked Professor M. Foster, our great Iris authority, about it. He kindly sent me a clump and told me to plant it in a very hot and dry place on my rockery. This I did, but without much success. Even in pots I have not succeeded well with it. I can get it to flower the first year well enough, but after that, although it grows, it does not send up flowering stems.

I. SUSIANA.—This is one of the most remarkable of our hardy flowers. The colour looks almost black, so thickly is the white ground covered with dense lines of brown and deep lilac, while the centre of the lower petal is covered with a dense mass of brownish-black hairs, giving it a very singular appearance. This is sometimes called in the catalogues *chalcidionica*. I have found it by no means an easy plant to flower. Like *iberica*, it does very well for the first year, but after that, although it makes growth, it refuses to flower. There must be some treatment necessary for it which I have not been able as yet to master. I find the same difficulty is experienced by other growers.

I. HISTRIO.—A somewhat recent introduction from Palestine, similar in appearance and time of flowering to *I. reticulata*, purplish-lilac, with the falls striped with yellow and spotted.

These are some of the Irises which I have found suitable for the rock garden, but there are some other groups on which the skill of the hybridiser has been exerted, and of which large numbers are cultivated in our gardens. These are respectively known as the English, Spanish, German, and Japanese Irises, and all are very beautiful.

THE ENGLISH IRIS (I. xiphoides).—These are very showy border flowers, averaging about 18 inches or 20 inches in height; the colours have a very wide range; the flowers are larger than those of the Spanish Iris, and the colours are more varied; the foliage is small and Rush-like. It is hardly necessary to give the names of choice varieties, for almost every nurseryman has his own peculiar strain. The Dutch growers have been very successful in improving this class of Iris.

THE SPANISH IRIS (I. hispanica Xiphion).—Somewhat of the same character as the English

Iris, but flowering earlier; flowers of beautiful shades of purple, violet, bronzy yellow, and white. The plants are perfectly hardy, and the beauty of their flowers is equal to that of many indoor plants; indeed, some have compared them with Orchids, but there can be no doubt of their value. They will also grow in any part of the garden.

THE GERMAN IRIS (Iris germanica).—In May and early June these gorgeous flowers are the adornment of many a garden; their large, broad, sword-like leaves and their chaste and often brilliant flowers make them at that season noticeable objects. Their curious forms and beautiful markings make them alike conspicuous, ranging from pure white to deep purple with a marking of crimson, yellow, violet, bronze; they are really unsurpassed as hardy plants. Unfortunately, the flowers are not very persistent, but the spike contains several buds which open simultaneously. This class is able to successfully store up moisture in its rhizomes (roots) and broad thick foliage, so that they may be planted in any part of the garden, moist or dry. Here again we must say, trust to the nurseryman for selection.

THE JAPANESE IRIS (I. Kämpferi).—The Japanese, or, as it is sometimes called, the great Chinese Iris, is no doubt the finest and most imposing group of the family. Flowering later, of great size, with large, ample, and tall foliage, they are, when in a position which they like, simply magnificent; the broad, almost Clematis-like flowers, with their brilliant hues of purple-lilac, of rosy-salmon, red, bronzy-yellow, with pure white tints, stripes and blotches, forming an arrangement of colouring as remarkable as beautiful; and where there is a possibility of giving them the soil and position they like, they ought to be grown. They like a peaty soil and, as I have said, a damp situation. I do not say they would succeed otherwise, but this is what they like. A very good plan of growing them in a dry position is to make a trench like as for Celery. Plant them in peaty soil at the bottom of this, and then in dry weather flood the trench with water. This to some extent supplies their wants. Amongst some of the best of this group (which is not so numerous as the preceding ones), the following are fine varieties:—

ALEX. VON HUMBOLDT.—Snow white, narrow line of yellow in every segment, very large.

ALEX. VON SIEBOLD.—Crimson, striped with brilliant orange.

BACKHOUSEI.—White ground, purplish-blue stripes.

IDA.—Delicate rose, striped with satiny-yellow.

KRELAGEI.—Purple-scarlet, feathered dark blue, edged with snow-white.

REINWADEL.—Azure-blue, dark veins, centre yellow.

SOUVENIR.—Very large, colour delicate rose-pink, with canary coloured band in the centre.

There are besides several double and semi-double varieties, but in my estimation they are not to be compared with these fine single varieties. DELTA.

A neglected flower.—*Celsia cretica*, a coloured illustration of which appeared in *THE GARDEN*, Vol. XXII. (p. 314), like the smaller variety, *C. Arcturus*, seems to be little known, and though it ripens abundance of seed, from which plants are readily raised, yet I have been able to find it advertised in only one nurseryman's catalogue. *THE GARDEN* article treated it as an annual, and advised its being raised very early in the year that the plants might be ready to flower in June, but if cultivated as a biennial and the seed sown not later than July, it will occasion less trouble and its blossoming season will be of longer duration, and it will last till November's frosts put an end to its career. The plants when raised should be potted singly or two or three in a pot, according to their dimensions, and kept through the winter in a cold frame. Total exposure they are not able to endure, but all my plants, which had no other protection last winter except the glass above them and were

often reached by the frost, survived. Some have been in blossom since the first week in May. The plants can be transferred to the borders in April, but if required to blossom early they should be repotted and placed in a cool greenhouse till the flower-buds begin to show colour, after which they should then be removed to the places where they are to remain. The principal flowering spike should be made to give place to the others, and be cut away when its lower portion has dropped its flowers. *Celsia Arcturus* can be treated in the same way, but it is better for pot cultivation, and has a pretty effect when placed in the conservatory here and there among the other plants. In Johnson's "Gardener's Dictionary" these two plants are both called biennials, but *C. Arcturus* will last beyond the second year if carefully attended to and repotted at the proper season.—B. S.

CARNATIONS.

CARNATIONS both in pots and the open border are now making a free and vigorous growth, and promising well for bloom. Whatever may be said to the contrary, I have not yet been able to meet with a strain of Carnations so dwarf and stocky as to maintain their flower-stems erect without the aid of sticks. A strong and vigorous growing Carnation does not send up all its shoots erect, but many of them horizontally, and especially so in the case of two-year-old plants. I have some examples of the latter that have as many as ten or twelve flowering stems, and I have placed a stick to each two or three and brought them all into an upright position, and there will presently be a fine head of bloom. The soil has been loosened about the stems, and I have given a top-dressing of good loamy compost mixed with ashes from a burnt rubbish heap, with the result that the soil does not run together and harden, as it would if loam alone were used. The plants are clean and healthy, the recent showers have cleansed and invigorated them, and they are making a rapid growth and promise well for bloom. So far there are indications that the time of flowering will be an early one, but a change from warmth and sunshine to dull, cold, and sunless weather would have a retarding effect. As I grow my plants mainly for seed, taking a great interest in seedlings, I do not pinch out so many flowering shoots as a grower would who cultivates for exhibition. I leave all the main strong shoots, pinching out only those which are weak and spindling, and I do not pull these off as some do, but simply pinch them off, because useful stock can sometimes be had from the portions that are left.

This is a time of the year when vermin are active—snails, caterpillars, green-fly, &c. One needs to watch closely for snails. One completely ate out the hearts of the leading shoots of a new variety of a Carnation I was tending with the greatest care, and I shall be deprived of the chance or seeing it in bloom this season. It then passed on to a pot of *Tigridia grandiflora alba*, and away went four or five of the leading shoots. The caterpillar which attacks the points of the side shoots is a deadly enemy, and needs sharp looking after; but green fly can be brushed or washed off by the use of one of the many insecticides prepared for the purpose. The cuckoo-spit, as it is termed, is frequently on my plants, and it is well to capture the pale green aphid-like insect within the froth and wash it away. A top-dressing of good soil two or three times during the summer will be found of great advantage.

Plants in pots are also looking well. I know there are some who look upon the cultivation of Carnations in pots as a waste of energy and labour. Were I to trust some of my favourite varieties to the tender mercies of the open ground, they would have but an indifferent time of it. I grow seedlings and inferior varieties in the open, but choice varieties always in pots. One has the plants under perfect control; they can be attended to without inconvenience, and more refined blooms result. These are by no means all the advantages resulting from pot culture; they are simply some of them. Watering is a matter of great moment. When the weather is warm, sunny, and drying, water is much needed:

in dull and cold weather there is less urgency for the use of the watering-pot. A thoroughly soddened soil is as harmful as one over-dry. The latter can soon be set right; but it is not so easy in the case of the former, and it indicates imperfect soil and defective drainage. Mr. Dodwell puts a layer of oyster shells over the surface of the soil in the pots—a good plan, as it prevents a too rapid evaporation. The plants should be carefully staked, and the blooming shoots secured to them. Where necessary, some good top-dressing can be used with advantage. Any decaying foliage should be cut away, and if there is a tendency for the surface soil to run together it should be occasionally stirred.

R. D.

SNOWDROPS IN THE GRASS.

THOSE who have seen the Snowdrop at home in the copses and thickets of many parts of England must have felt a pleasure totally different from that of seeing it in gardens and shrubberies. There are hundreds of miles of woodland walks and drives in the kingdom, and how interesting might such places be made by freely



Snowdrops in the Grass at Dunrobin Castle.

planting Snowdrops as well as other bulbs. If the surplus stock of Snowdrops, Crocuses, Scillas, &c., were distributed in the woods and by the sides of walks a very pleasing feature would be added to them.

Mr. Melville, the gardener at Dunrobin Castle, who has made the Snowdrop his own, and who kindly sent us the photograph from which the engraving was made, writing in reference to the illustration here given says:—

The engraving gives a good idea during the early spring months of the appearance of parts of the grounds surrounding Dunrobin Castle, where spring flowers, particularly Snowdrops, have been planted in great quantities, and carpet the ground with a profusion of flowers. It shows part of a grove of very old trees, between the castle and sea, which has been carpeted annually with Snowdrops from time immemorial.

Most kinds of hardy bulbous plants do well at Dunrobin. Snowdrops particularly, when once planted, increase freely, and cover the ground with

a wealth of bloom every spring without further trouble.

WILD FLOWERS AT DOVER.

FROM Folkestone to Dover and on to St. Margaret's Bay, the chalky downs and cliffs are during early summer of particular interest to the lovers of our wild flowers, for go where one will, some new or uncommon plant is constantly turning up. Many a time have I longed to see the Spider Ophrys (*O. aranifera*) and the rare and diminutive Scorched Orchid (*Orchis ustulata*) flowering in their native wilds, and my search for these was amply rewarded, for in several places they almost ousted out other wildlings from cultivation. The pyramidal and fragrant Orchids, *Orchis pyramidalis* and *O. conopsea*, were, too, in great quantity, while the sweet little Lady's Tresses (*Spiranthes autumnalis*) could just be seen thrusting its diminutive, sharp-pointed leaves through the arid, chalky ground.

Samphire grows in great abundance on many of the steep chalky cliffs that rise almost perpendicularly from the shore for 500 feet or 600 feet in height. But it is not confined to such positions, for I found it in broad patches on the sea coast, and growing amongst broken chalk rock that from time to time falls from these stupendous cliffs. Side by side with the Samphire may be seen huge specimens of the Horned Poppy (*Glaucium luteum*), a plant that I have often tried to cultivate, but without success. The long, fleshy roots run deep in the gravel and chalk and almost defy one's best attempts to get them out uninjured. The wild Cabbage and Spinach grow in similar places and in great abundance. The former, from actual experience, is a vegetable that should not be despised, as when well cooked it is quite as tender and tasty as our cultivated plant. Of the Spinach I can as yet say nothing.

On ascending one of the gently sloping cliffs in search of plants I was surprised to find a whole tract of grassy ground—rather a rocky valley—almost carpeted with a dwarf Wall-flower that hardly reached a height of 6 inches and in full bloom, the flowers being of a rich yellow and deliciously fragrant. The dwarf, sturdy appearance of the plants and great wealth of sweetly-scented flowers induced me to get a few specimens, and should they when brought under cultivation retain their present characteristics, a good addition will be made to our rock plants.

Junipers and Privet, too, were abundant, neither exceeding 3 inches in height, but spreading laterally to a great extent. Silenes, Statice, the pretty blue Polygala, Thrift, Broomrapes (*Orobancha major* and *O. minor*), Tamarisk, the Bugloss, Sedums, and the wild Thyme all combined to make the chalky gorge one of peculiar beauty and interest.

Amongst birds I noticed the falcon and sparrow hawks, guillemot, and a great number of sand larks and divers.

A. D. WEBSTER.

The Hermitage, St. Margaret's Bay.

Oilcake for wireworms.—When pasture land is taken into a garden, there is usually trouble from wireworms. A Primrose bed at Wisley was much injured by them. A good gardener told me that if bits of oilcake were sunk in the ground, the wireworms would eat it and burst, and a great gardening authority said that it killed them. My gardener put a number in a box with some cake, but so far they seem none the worse, but it is a most effectual trap. Pieces about the size of a hen's egg sunk 3 in. in the earth, with a stick to mark the place, and

taken up after three or four days will be found to have wireworms imbedded in them, eight to twelve to a piece of cake. We have killed many hundreds. Old staggers know the use of oilcake, and gas-lime is said to be effectual, but with plants in the bed this would be dangerous. I think some of the readers of THE GARDEN may not know oilcake as a trap and be glad to try it.—GEORGE F. WILSON.

BULBOUS BORDERS AND BEDS.

SOME years ago I removed a number of overgrown Rhododendrons that had formed a bed of considerable size. In their place I resolved to plant chiefly bulbous plants in variety, more especially such as would, in my opinion, thrive in the rather light and peaty soil which had been provided for the Rhododendrons. The greater portion of these have now become well established, and yearly produce a quantity of flower, each in its season. No special preparation was in any way made, as I simply relied upon the soil to sustain the plants in good health, fully believing that, although one kind of plant may become eventually somewhat exhausted, yet others may be planted in the same soil with advantage. It does not often happen that any one kind of plant will extract all the virtue out of the soil, for what is not assimilated by one is by another, and that often with signal success. The following are the chief kinds that have been planted, and are given as nearly as possible in the order of their flowering: Crocus, large yellow, as an outside margin; Narcissus in variety, the best being Emperor and Empress with the poeticus section. The Squills follow the Daffodils very nicely, and the following flower most profusely, viz., Scilla campanulata alba, S. c. rosea, and S. c. rubra. Soon after these have gone out of flower the early-flowering Gladiolus byzantinus begins to make a show. This is followed by G. Ne plus Ultra, a hybrid of the ramosus type. Both of these are well worthy of more extended cultivation than they generally receive, and prove quite hardy. These early Sword Lilies are scarcely over when Lilium candidum unfolds its blossoms, soon afterwards to be followed by that grand Lily L. excelsum (or testaceum), so distinct and pleasing in colour, and a most vigorous grower with me. Ere this Lily is past its best the scarlet Turk's-cap (L. chalcedonicum) begins to open its blossoms. This splendid Lily makes a grand show; where only single bulbs of it were planted, I have now large clumps in the best of health. This latter is succeeded by the "hardy hybrid-spotted Gladioli" of the Lemoinei type, which last a long time in flower, the strong spikes often branching, and thus prolonging the blooming period. With these there are the Tiger Flowers (Tigridias), T. pavonia being one of the best and most showy. Tuberous-rooted Begonias raised from seed in the spring are planted in vacant spots in June, and make a good show the same autumn until cut down by the early frosts. There is thus something to interest the lover of bulbous plants from early spring until the autumn frosts spoil the Begonias. I have tried Anemone fulgens, but it does not succeed very well in moist spots. We have no difficulty with it. I hope to add with advantage the Montbretias, and fancy they will succeed. I have not room for many more things, or should further extend the collection. To form a background to the bed I have a few plants of the single Japanese Roses (Rosa rugosa and its white form). These flower well for a long time and seed with great profusion, being fully exposed to the sun's rays; the berries assume an intense and brilliant hue in the autumn, peat soil evidently suiting the plants very well. Beyond these, upon an ornamental fence, are trained several Tea-scented Roses; the best to succeed in this kind of soil are Gloire de Dijon, Rêve d'Or, and Cheshunt Hybrid. This season I propose to take up the Daffodils, divide and replant some of them, as they have exceeded their bounds. My only regret is that I cannot further extend this interesting bed, which with little labour is a source of attraction for many months, and in comparison with which the huge masses of colour so often seen congregated together just for the summer months (and that

with considerable more labour and expense) is not, to use a short expression, "in the running." I advise those who have not any such beds to give them a trial. J. H.

TUFTED PANSIES.

THESE are what the florists commonly call Violas. The garden from which they are absent lacks one of the freest, brightest and best flowers for adorning it during spring and summer. Our tufted Pansies are now glorious masses of blossom, especially the groups that were planted last autumn. Few flowers are better adapted for extensive use, and it is only when largely planted, each kind in a separate bold group or broad spreading mass, that we can realise the effect which these flowers produce. The autumn plantations were made from plants put in as cuttings in July. Such plants have plenty of roots, do not suffer from removal, and become established during winter. When spring arrives the suckers come up from under ground, the plants spread into healthy, handsome tufts, and soon they are sheets of blossom. In gardens generally it is more the practice to propagate tufted Pansies in autumn and plant them out early in the year. Although such plants flower as early as those put out in the autumn, they are not to be compared with these last for freedom and quantity of bloom; and especially upon light soils, those planted in spring are liable to suffer if the weather is hot and dry. The Pansy loves a cool, moist soil, in fact a cool atmosphere also; hence the greater success of Scotch growers of this particular flower. Still it is amenable to cultivation in most gardens, and a flower that can be thoroughly relied upon. In wet seasons it is a perfect host in itself, and goes on flowering with unwonted freedom, rejoicing in heavy downpours of rain. In hot seasons much can be done by mulching to keep the roots cool and moist. In many gardens there are cool shady borders, and no more delightful flower can be found than this. Such a border we had during the wet summer of 1888. The plants were put out in October of the previous year, they commenced to flower with the first warm days of spring, and had not ceased when October came again.

The great value of this section is that in them we can obtain the pure self colours. Blotched and belted show and fancy Pansies will doubtless always have their admirers, and I do not wish to decry them beyond saying that they have little value and produce less effect in the flower garden. But there are those who positively hate the show and fancy types, and call them coarse. To these I would commend the self-coloured tufted Pansies. A lady only recently remarked to me that she never liked Pansies till this year. Hitherto she had seen nothing but the spotted types, but now she goes into ecstasies over bold groups of such pure chaste coloured kinds as Quaker Maid, Ariel, Mrs. Gray, and others. Mrs. Gray is perhaps the most generally useful because the freest and hardiest kind in its colour. The flowers are of a pretty shape, and of a pure creamy white colour without spot or blemish, except a small orange eye, which is an additional charm. Countess of Hopetoun is of a similar colour, but much larger. I place it second because after several years' experience on heavy and light soils respectively it proves a little tender. By striking cuttings in autumn and protecting them with a cold frame throughout the winter, this kind may be had in perfection, and a group of it will be truly beautiful all through the summer. Quaker Maid, illustrated in THE GARDEN, Dec. 1, 1888, is as yet not much known. It is perhaps the most delightful of all the tufted Pansies, but is only seen at its best when the plants have been put out in autumn. In spring the flowers are of a French white or pale mauve hue, but as the days lengthen the colour of succeeding flowers deepens to what is a pretty tint, but not so beautiful as that of the earlier flowers. This kind is very hardy and very free blooming. Of all our groups the one of this kind (which, by the way, is a carpet to a bolder group of Gloire de Dijon Rose) has been admired the most.

Ariel, figured in THE GARDEN, Nov. 2, 1889, too,

is another lovely kind that does best when put out in the autumn. Curiously enough, whilst the colour in the flowers of Quaker Maid deepens with the lengthening days, that in those of Ariel fades, growing lighter and lighter till a plant that has produced flowers of a pale mauve-blue, the normal colour, will have blooms that are almost white, with only a delicate suffusion of blue visible in them. Archie Grant is the best among the deep violet-coloured kinds. It is a bold, hardy, free and effective sort, and remains unchanged under all conditions of growth and seasons of planting.

Many more kinds might be enumerated, but to do so would serve no good purpose. Those specially named are mentioned because they are by far the best, and to them may be added from the endless variety now existing such kinds as taste may direct or fancy desire. The variety in form, colour, and shape is extensive and pleasing enough to suit the most fastidious, but it is well to bear in mind that a few kinds grown in quantity are more effective and beautiful than the most complete collection, which entails so much labour to keep it intact and prohibits extensive multiplication of the finer kinds. Apart from their beauty in the garden, these self-coloured Pansies have a high value as cut flowers, and look very beautiful when cut with their own foliage and arranged simply by themselves in shallow receptacles. When any are desired for this purpose I invariably cut the shoot which bears the flower. The advantages arising from this practice are threefold. In the first place, the flowers so cut are more easily arranged and look more natural; secondly, they last longer in a fresh condition; and thirdly, below where the shoot was cut there will spring up several more shoots, which coming later will flower and prolong the season of blooming. I lately saw some flowers of Pansy Mrs. Gray cut in the way described and arranged loosely in a small basin; they stood up among their own foliage and looked as though a tuft had been taken up from the garden and planted in the receptacle which contained them. This arrangement will keep fresh for from a week to ten days. These Pansies have a beauty of their own in the garden, are very useful in the house, and last, yet not least, they possess a delicate fragrance which is pleasing and refreshing indoors or out, especially when the sun is bright and days are hot and dry.—A. H.

— The recent exhibition of these hardy flowers held at the Royal Aquarium, Westminster, whilst showing that we have plenty of good varieties in cultivation, hardly did them justice, as it is not possible to produce genuine effects with these flowers except when seen in big clumps or masses. When white, lilac, blue, purple, and yellow-flowered varieties are grown in very large masses, then the effect is surprising indeed. Such masses of plants and flowers are the product of early autumn planting in good soil, promoting strong growth before the winter sets in, and as a result early blooming in the spring. At the Aquarium the plants were, as required, shown in pots. The best were those just lifted from the open ground and dropped into pots. The worst were those which having been grown on in pots under glass were drawn out of all form, and the blooms were devoid of colour. The class for show Pansies at the Aquarium was not filled in the way anticipated. It was hoped that growers of the old florists' belted and self Pansies would have sent plants, but so much has the fancy Pansy, with its huge blooms, grand dark blotches, and wonderful variation of colours, taken the public taste, that the show or belted forms seem here in the south to have been almost lost. Just a few exist, but they are few indeed. As a result, the class was filled by what are more popularly known as bedding Pansies, although of the show or English section, but chiefly self colours. Thus in yellows of the bedding section there is no finer variety than George Rudd, the flowers of which are perfect in form, large, and of a clear bright hue, with a dense black blotch in the centre. A very good doer is George Rudd, blooming early, and in a mass producing a pleasing effect. For the production of a mass of yellow of a rather deeper hue, no tufted Pansy can equal Golden Crown.

This is a wonderful bloomer and early, the flowers large and erect, having on the upper edges just the least tinge of blue sometimes, but still not enough to detract from its value as a grand yellow bedding Pansy. The old Cliveden Purple has no rival of its colour in earliness, and its habit is all that can be desired. For the production of a heavier shade of purplish-maroon Annetta is capital; the two varieties seem to satisfy all requirements so far as concerns these deep hues. In blues we are much richer, but still no Pansy can excel Blue King, and it is doubtful whether any variety ever will, for it is a good effective blue, a wonderfully profuse bloomer, early, and of compact habit. Holyrood is a remarkably fine Pansy of deeper hue and first-rate constitution, but much later. Blue Beard is perhaps the truest blue Pansy we have, but it is not so free as some others. Bluestone is also a good blue bedder. The old Cliveden Blue, which was once so popular, is indeed a poor looking thing compared with the richer coloured flowers of today. The white varieties are the weakest in bedding Pansies. A year or so since Mr. Smith, of Newry, affirmed that he had a coming white in a sport from Blue King. As nothing has since been heard of it, I am naturally dubious, but still a really pure white, an exact duplicate of Blue King, would be a great boon. We have plenty of good white Violas, but not a single really good early bedding Pansy that can be classed with the best of other colours. Pirig Park, with its large flowers and dark line in the centre; Mrs. Gray, early and free, but with a tendency to come bluish at times; Vestal, a creamy white of good form and substance; Countess of Hopetoun, pure white, wonderfully free, and, perhaps, best of all; Snowflake, the purest white yet seen, and one of the best apparently, as it also is very early. Yellow Violas, too, are in profusion, but there are few prettier than the orange-yellow Sovereign, with its small dark blotch, or any earlier than the remarkably free Yellow Boy. Bullion, Ardwell Gem, and Golden Prince are also very good yellow varieties and showy bedders.

Tufted Pansies give various intermediate shades, such as mauve and lilac. Lilacina, Dawn of Day, and Duchess of Sutherland are charming in this class; whilst of parti-coloured or edged flowers, none are more beautiful than Countess of Kintore, white and violet; and Skylark, white, edged blue, a real beauty. There are some sulphur or primrose tints also, as seen in Primrose Queen and lutea pallida, both wonderfully free and pretty when used in proper combinations. There is not a great wealth of good purple or maroon colours in tufted Pansies, but the best seem to be Mulberry, the flowers of fine form and good substance; Trentham Purple, very effective; and Lady Diana, pale purple, and a good variety for massing. Blues give a wide range, for we have a grand form in Archie Grant for instance, a variety nearly allied to the Pansy, and yet a bedding Viola. The flowers are of the finest and best for gathering of all the blue section. True Blue has smaller flowers, but it is wonderfully free; Blue Beard is still another very effective Viola; and Blue Bell, though the flowers are pale, has never been excelled for hardness or freedom of flowering. There is still room for the production of a really bright blue in Violas; a flower of the Gentian hue would be a prize indeed. The old Queen of Lilacs and Peach Blossom present intermediate hues of a reddish tint. We have ample room for variety in this section, but somehow red or brown tints seem to be allied to loose, indifferent habits. Beyond what has here been mentioned there are many good tufted Pansies in cultivation. Of course, in raising a batch of seedlings from any recognised variety, there will always be found some evidence of variation, and if with good habit then these get saved and named. It is a pity both Pansies and Violas are not far more largely employed for garden decoration in the spring. From March to June is the season for this family; then they should be cut over to make fresh growth for the autumn and be top-dressed; then a fine bloom will follow in the autumn. Batches of plants produced from cuttings should every year take the place of the old ones,

and thus a constant succession of these charming hardy flowers is easily maintained.—A. D.

The wood Hyacinths or Squills (*Scilla campanulata* vars.).—These have with me been very fine this spring, having flowered most profusely, the spikes also being stronger than usual. Considering the ease with which they may be cultivated, not being over fastidious as to the character of the soil, it is a wonder that they are not grown more extensively. I have found them multiply most profusely, large tufts being now formed where only a few years ago three bulbs of a sort were planted. The first season or two they did not flower very well, but when thoroughly established with strong bulbs in numbers, there has always been a good return. Some of ours have now so much increased as to need replanting, which will have to be done as soon as the foliage begins to die off. I have found them to be most useful for cutting, the spikes having that valuable property of continuing to perfect their flowers until the last bud has expanded. They can thus be re-arranged in vases two or three times over, merely changing the water and shortening the spikes, which will become elongated; the stale flowers should also be picked off. Their own foliage associates well with the flowers, and nothing can be in better keeping. *S. campanulata* (the type) produces the strongest spikes of a beautiful pale blue, and is always the first to open. It is generally followed by the varieties in about a week, of which *S. c. alba* is most chaste and beautiful, almost rivaling the Lily of the Valley. *S. c. rosea* is a counterpart of the foregoing in every respect except in colour, which is a pale blush, quite distinct. *S. c. rubra* is hardly described by its name as to colour, being of the faintest shade of red. For woodland walks and shrubbery borders these Squills can be strongly recommended, and ought to be planted in quantity. The price at which they may be purchased, by the hundred even, cannot be any hindrance to their more extended cultivation. The early autumn is the best time to plant them. The bulbs should be covered with a good amount of soil, a depth of 4 inches not being too much for them.—J. H.

Clove Carnations.—In a garden of my acquaintance three sorts of Cloves used to be grown in the open air by the thousand where now hardly any of them will deign to live. The sites and the soil have been changed, but the culture and the sorts have continued the same. And yet instead of dense lines and masses of beauty, with hardly a blank among them, we have mere rusty survivals here and there, lacking the vigour and the beauty of the plants of from twelve to twenty years ago. Our three sorts were the grand old dark purple, the bright salmon, and the pure white. There were two varieties of the purple, one with larger grass and longer flower stems than the other, the variety with the smaller grass being perhaps the hardiest. The salmon or scarlet, as some growers called it, was the next hardiest, and the white the most tender. But all stood the hard winters in the open air either in the kitchen or flower garden, or under south or west walls. The mode of propagation was by layers or cuttings, the former being generally preferred, as the plants were most vigorous. But in those older times pipings rooted freely, and when planted out in the early autumn also wintered safely and well. Of course, they produced less bloom than strong layers, but this was of little moment, as the chief harvest of blossom was obtained from two and three-year-old plants, and also from those huge breadths of older Cloves and Carnations that very often spread out to 2 feet or a yard across, and yielded almost a sheaf of blossoms. These old giants very often lived and bloomed for a dozen years and more, and were at times divided in the most rough and ready mode with the spade. They were so full of life and vigour, that clumps of them planted anyhow, anywhere, lived and bloomed as well or better than before. What can have become of their lost luxuriance and vitality? Can no readers of **THE GARDEN** give a satisfactory answer? That many of these qualities have been grown, starved, or fed

out of our Cloves will hardly be denied. They are far more susceptible to climatal injuries and shorter lived than usual. The general mode of growing Cloves was a sort of three years course. Little bloom was expected from the first year's layers or cuttings. Two-year-old plants yielded fine crops of superior blooms. Plants three years old yielded more, but smaller flowers, and were generally cleared off into the mixed herbaceous or shrubbery border after blooming. Under such simple treatment Cloves in plenty were to be found in almost every garden. Now, similar treatment generally results in failure, as a rule. Among the exceptions, however, I am pleased to find the Crystal Palace, where a good many beds of the smaller-leaved purple Clove was one of the most attractive and fragrant features of those fine gardens last year.—CALEDONICUS.

HARDY EDGING PLANTS.

THOSE who are in the habit of visiting gardens in different parts of the country cannot help noticing the various kinds of edgings that are used for beds, borders, and walks. Some appear to be in favour of ornamental tiles, which at the best present a stiff, ineffective appearance; others prefer Grass verges, which in the majority of cases entail a considerable amount of labour, a matter of some importance in these days; and a few give preference to edgings of hardy plants. The latter, needless to say, are the most effective when used with discretion and judiciously managed, but, unfortunately, gardens with edgings of this kind are rather the exception than the rule.

There are numerous plants admirably adapted for the edgings of walks, beds, and borders. Walks, of course, which traverse lawns and pleasaunces have turf edges, and therefore nothing need be done in this case, but with regard to the edgings of kitchen garden walks, I think a revolution is necessary. Box, perhaps, is the most extensively used for this purpose, and no particular fault can be found with it other than that it is devoid of effect and requires no little trouble to keep it in good order. Tiles, bricks, or stones in various styles, I readily admit, give but little bother when once laid, but, as has been said, they, too, are ineffective, and, like all such work, masonry included, should be rigidly excluded from the garden. In selecting plants for edgings, it should be borne in mind that some regard must be paid to the general surroundings and position of the walks or garden. In some parts of the country the hardy Heaths make a very pretty edging, while in others I have seen them prove an utter failure. The same may be said in regard to numerous other commonly used subjects. The Ivy may be considered a fairly good edging plant, and when judiciously used produces a good effect. It should be planted and trained in rows from a foot to 15 inches in width, or less if preferable. If given a good start it will quickly form a compact edging, and requires no further attention beyond clipping once or twice during the summer. Although not generally used as such, *Mahonia aquifolia* makes a capital edging. The same may be said of *Euonymus radicans variegatus*, Golden Thyme, and one or two of the *Retinosporas*. Several other subjects of a similar shrubby nature may also be used.

It is among plants of a less shrubby character, however, that the best and most pleasing edging subjects are to be found. Take the common, though pretty Thrift (*Armeria vulgaris rosea*), for example. In cottage and old-fashioned gardens this forms a charming edging, being bright with pink flowers in summer, and refreshing with its tufts of grass-like foliage in winter.

Another plant that makes a pretty edging is the blue Gentian (*G. acaulis*), although it is very scantily employed for that purpose. A year or two ago whilst visiting a large establishment near Belvoir Castle I noticed that the whole of the kitchen garden walks were edged with this charming Gentian which appeared to thrive admirably. The soil was naturally of a light, loamy character, and, with one or two exceptions, a bare patch or vacancy in the whole of the many hundreds of yards of edging

was not discernible. Besides making vigorous growth the plants referred to bloomed profusely during the early summer months, and their deep azure-blue flowers were very striking. In addition to this kind, *G. verna* and *G. gelida* are also well adapted for edgings. Among the numerous mossy Saxifrages and Sedums a charming variety of edging plants may be found, but it is very rare that they are utilised to the best advantage. A small garden of my acquaintance has its walks edged with *S. Camposi*, and the effect is everything that could be desired. At the present time the edgings made thus are one mass of snowy whiteness, whilst even in the depth of winter they are green and effective.

Other kinds, from the well-known *S. hypnoides* to the equally popular London Pride (*S. umbrosa*), may also be put to a similar use with advantage, and the same may be said of the Sedums in variety. In establishing edgings of these plants, however, particularly to walks, it is advisable to construct a single or double row of stones, pieces of rocks or burrs, and plant the Saxifrages and Sedums in the crevices. If put in fairly good soil and judiciously watered for a time, when necessary, the plants will quickly cover the stones and thus form a most delightful edging. The white-flowered Rock Cress (*Arabis alba*), which produces such a mass of bloom in early spring, also makes a delightful edging when utilised in the same manner as advised for the Saxifrages and Sedums, and the same may be said in regard to the variegated forms (*A. a. variegata*) and the Aubrietias. Then, again, the Primroses in variety are subjects of no mean merit for this purpose, as many a cottage garden can prove, and the same with the Hepaticas, Daisies, dwarf growing Campanulas, Periwinkles, Veronicas, Oxalis of sorts, Funkias, *Cerastium tomentosum*, *Festuca glauca*, and others. Where edgings are formed with rock margins and planted with Saxifrages, Sedums, and similar subjects, as described above, a few Crocuses, Squills, Snowdrops, winter Aconites, and other dwarf growing bulbous plants may be introduced, for if judiciously employed they would produce a brightness not otherwise obtained in winter and early spring.

A variety of permanent edgings should, moreover, be seen in every tastefully disposed garden, and for this reason gardeners will do well to give the subject more attention than they have apparently hitherto done. C. L.

HUMEA ELEGANS.

THIS New South Wales Composite is a beautiful object when in flower either for the conservatory or turned out into the flower beds and borders during the summer months. From what I have heard of its proportions, it never attains the same size in this country as it does in its native home. Nevertheless, it is an elegant and most useful subject as grown in England. Well-grown plants make excellent objects when planted as centres to flower beds of a medium size or grouped together in larger ones, with room enough allowed between them for an undergrowth. I have tried them in both ways, and always make a point of having a few for the flower garden in addition to some for the conservatory when needful. In order to obtain good plants the seed should be sown early in June in a close frame, artificial heat not being essential. My practice is to well moisten the soil before sowing the seed, and to cover very lightly with fine sandy soil; afterwards the pot or pan should be covered with a pane of glass, over which paper should be laid when the sun is bright until the seed has germinated. It is somewhat difficult to raise from seed, but with close attention sufficient plants can generally be had, with occasionally an extra good crop. As soon as fit to handle, the seedlings should be pricked off into pans in a sandy soil of a light character and be still kept in a close frame. After they are well established in 3-inch pots more air may be given them to prevent a weakly growth. Every endeavour should be made to get them well established in 5-inch pots by the autumn. When colder nights and early frosts set in the plants should be removed to either a pit or

a house with a slight warmth, just sufficient to keep them growing steadily and to prevent any injury from damp which is very injurious to them. They should at all times be kept as near the glass as possible, especially during the winter season. Only sufficient water ought to be given to keep them in a healthy condition without any disposition to flagging. Early in the spring, when the conditions favourable to a freer growth are in prospect, the plants if well rooted may be repotted into pots one size larger, and later on another and final shift should be given them; this last shift should be into pots 9 inches in diameter, which will be found large enough for all general purposes. In the later shifts the soil should be of a more loamy nature, to prevent a too gross and sappy growth, which will often cause the plants to die off when looking to all appearance the picture of health. I had this occur some seasons ago, but I do not fear it with soil as recommended. In any case when the soil is found to be inducing an extra strong growth it should be modified in the next shift. Until the plants are well established in their blooming pots, care in watering is essential, but when they have well filled these pots with roots water may be given more liberally with occasional doses of liquid manure when the flower-spikes are developing. During the spring our plants find a congenial home in the late vinery until the temperature begins to attain to too high a point for their well-being, when they have to be moved into rather cooler quarters, avoiding any position much exposed to draughts. Treated in this way, the plants generally show their flower-spikes during May, the colour being discernible by the end of the month. For planting out into flower beds, it is necessary to get the plants thus far advanced, or they may with the extra inducements offered them be disposed to start into a more woody growth, when the prospect of an early display is remote. A careful hardening off when required for the flower garden, and also close attention to watering for some weeks afterwards until well established in their position, is necessary. Their beautifully light and feathery spikes look well waving to and fro with the light breezes, but for safety it is wise to secure each one with a very light stake. During favourable seasons a good quantity of seed may be secured upon fully matured spikes. For this purpose the darker coloured ones had better be chosen. Last year I ripened a good quantity without any trouble. The plants having served their purpose and the spikes become faded, were cut off and stood upright in a dry house until well ripened. The seed wants looking after closely, being very minute. In cases where there is no seed the spikes may be turned to a good account in larger kinds of autumnal decorations, as harvest thanksgivings and the like; used in this way they look very well and save more durable things. J. H.

SHORT NOTES.—FLOWER.

The white *Armeria* is used freely in the garden of Dr. Lionel Beale at Weybridge. The plant is just like the common Thrift, of which it is a variety, but the flowers are white.

Pæonia conchiflora is a fine single Chinese Pæony like a large Tulip, the colour shining salmon-rose. It was one of the most interesting of the hardy flowers at the Temple show.

Delphinium trollifolium is fine for colour. The flowers are rich blue—a none too common colour in May. A plant of it was in full bloom a few days ago at Kew. It is easily increased by seeds sown as soon as ripe.

A good variety of London Pride is *Saxifraga umbrosa* Covillei, which has larger leaves and flowers than the common kind, and a longer, more spreading raceme. It is planted freely in the garden of Dr. Lionel Beale, Weybridge.

Plants for a grave.—“Sowerby.” GARDEN, May 31 (p. 519), should plant around the grave in a country churchyard he wishes to cover with hardy plants a strong-growing Aubrietia such as violacea, and the centre should be of such a hardy enduring plant as the Silver-leaved Mouse-ear (*Cerastium tomentosum*). Both these things bear hard clipping well. They would cover the surface densely, keep down weeds, present

striking contrasts in colour both in bloom and in leaf, and also stand drought well. They will even endure some degree of neglect.—A. D.

—In answer to a question (p. 519), the cross might be planted with *Euonymus radicans* variegata, and the ground with Irish Ivy. Both are permanent and evergreen, and when once established would be very little trouble to keep in order.—G. J.

Ourisia coccinea appears to love moisture. A mass of this, fully a yard across growing on the edge of a bog bed and in a position screened from all direct sunlight, is now brilliant with scarlet spikes. Shade (but not deep shade) seems to be a necessity for this distinct and handsome plant, for although sunshine does not burn it, still the growth becomes stunted and it looks unhappy.—T. SMITH.

Festuca glauca.—This makes a pretty edging to the beds in spring, the colour harmonising so nicely with many subjects available where spring bedding is effectively carried out. This Grass grows about 4 inches high, and is easily increased by division either in spring or autumn. As an edging to a bed of *Viola Cliveden Purple*, for instance, it looks well. It is worthy of a place around the smallest pond, as in this position the growth is more free than in the flower beds.—E. M.

Libertia formosa as a bog plant.—A fine specimen of this planted on the edge of the bog bed in the gardens at Narrowwater Castle is by far the largest I have seen. The flower spikes are over 3 feet high, and some of them branched. The locality is mild, and this species does not suffer in the winter as it does in many places. Absence of frost and a deep, rich, moist bed of soil seem to be the conditions best suited for its full development, and given three or four years to become established, it is highly ornamental. T. SMITH.

GARDEN FLORA.

PLATE 756.

SINGLE CHRYSANTHEMUMS.

(WITH A COLOURED PLATE OF AMERICA AND LADY BROOKE.*)

FOR producing masses of flowers for decoration, either on the plants or for cutting, single Chrysanthemums are amongst the most useful subjects that can be grown. They require less space at all times than do those of the other sections, and the wonder is that many more are not cultivated. The incurved, reflexed, and Anemone sections cannot be compared with the single varieties for cutting, as the flowers of the latter are so light and graceful that they readily associate with other kinds of flowers. Although more single-flowered sorts are seen at exhibitions now than was the case three or four years ago, it cannot be said that they are as well represented as their merits deserve. The manner in which the prizes are offered for blooms at shows is not the best way to encourage the general cultivation of single kinds, for the reason that such an enormous sacrifice of flowers must be made to produce an exhibition bloom of the requisite size and quality. If societies could be induced to offer prizes for sprays of flowers cut from the plants without any disbudding the public would then have a much better opportunity of seeing how suitable are the numerous kinds now in existence for the production of masses of bloom, and which are much more valuable for decoration than the few large flowers produced to meet the requirements of the present method of class-making.

* Drawn FOR THE GARDEN by H. G. Moon from flowers sent by the late Mr. W. Wildsmith, Heckfield Gardens, January 24, 1890. Lithographed and printed by Guillaume Severeyns.



2.

SINGLE CHRYSANTHEMUMS 1 AMERICA 2 LADY BROOKE

During the last half dozen years there has been a large increase in the number of varieties introduced; as many as sixty kinds can now be named. Naturally there has been a like increase, not only in the formation of the flowers, but the habit of growth has also undergone a change. Both tall and dwarf sorts are now to be had, while the colours have also been greatly improved. At one time it was urged, and rightly too, that the colours of single Chrysanthemums were so dull and uninteresting as to cause them to meet with little favour. With such sorts, however, as Mrs. A. Le Mout, amaranth-crimson, Souvenir de Londres, rich crimson, and the buttercup-yellow Lady Brooke, no fault can be found with the range or want of colouring in single Chrysanthemums. The cultivation of plants to produce a quantity of blooms is simple, the best method to employ being that called "bush" growth, which consists in striking the cuttings during January, topping the shoot at 4 inches high to induce the formation of side branches, and repeating the topping of these when the same length of growth has been again made, once or twice, according to the size of the bushes required. No further interference with their growth should be attempted and the result will be in November sprays from 1 foot to 2 feet long, clothed with short side branches, each one thickly studded with blossoms. In this way single Chrysanthemums are seen to the best advantage.

The variety America, so faithfully portrayed in the plate, is naturally rather tall in growth. The blooms when disbudded are large, with a delicate pink shading on a white ground which pales with age to almost white. It is one of the best of the light-coloured varieties. Lady Brooke, as previously stated, is a bright buttercup-yellow, dwarf in growth, very free-flowering, and, on account of its colour, a desirable sort to grow where large flowers are not required.

E. MOLYNEUX.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS IN AUSTRALASIA.

THE note (p. 453) clearly shows a keen desire on the part of the antipodean Chrysanthemum fanciers to take something more than a passive interest in the work of the National Chrysanthemum Society. It needs but little inquiry to discover that love for the Chrysanthemum exists throughout the United States, in France, in Belgium, and, we have recently learnt, in some parts of Germany. It may, therefore, be concluded that whatever the cause, it is not attributable to any interest in the flower from selfish reasons, but that it lies in the flower itself. The evidence is pretty strong, that wherever the Chrysanthemum is introduced it is sure to take a firm hold. Hitherto it had been thought that our kinsmen in the Australian colonies were so taken up with their farming, sheep-raising, gold-digging, and other pursuits, that little, if any time could be devoted to the cultivation of florist's flowers for exhibition. But a little research has proved that this is a mistake, and that our cousins in Australia, Tasmania, and New Zealand have been developing symptoms of the Chrysanthemum

craze with considerable rapidity. One would think that the importation of novelties from the old country would be attended with great risk and often total failure; and without the constant introduction of new varieties the keenest interest would soon subside. We have been informed, however, that an excellent plan to adopt is to ship the young plants when just rooted in glass-covered cases, and to prevent them growing too rapidly on the voyage, to top them when about half-way out. Before they recover the check sufficiently to make excessive growth they will have arrived at their destination, and the percentage of losses is thus almost infinitesimal. This course can only be adopted when someone is going out with the plants, and in the case particularly referred to, 500 plants travelled the distance most satisfactorily. It matters little what system of transport is adopted so long as the Chrysanthemum grower on the other side of the globe procures what he requires. It is fair to assume that he succeeds, for in one of the New Zealand trade lists recently to hand, such modern varieties as Edwin Molyneux, Mr. H. Cannell, Avalanche, Sunflower, Mrs. Falconer Jameson, Mrs. H. Cannell, and others have been offered for sale eight or nine months ago, and at the moderate price of from 2s. to 2s. 6d. a plant.

The earliest information on the subject we gleaned from an article in the *Australian Town and Country Journal* of June 23, 1888, in which a lecture by Mr. Frederick Turner, of Sydney, New South Wales, is reported at length, the subject being the history and cultivation of the famous flower. Soon after that date, the fame of the National Chrysanthemum Society having reached the colony of Victoria, application from the Victorian Horticultural Society for affiliation with the National was received, and this was almost immediately followed by another from the Northern Horticultural Society of Tasmania, both of which hold Chrysanthemum shows at what seems to us to be a peculiarly absurd time of the year, namely April. It is, as the reader will remember, the latter society that has now contributed £2 2s. towards the Centenary Festival Fund, and is sending a lady delegate to the conference next November to read a paper upon the culture of the Chrysanthemum in Tasmania.

An old Chrysanthemum admirer, some time ago, in reply to inquiries about the popularity of the flower in the south of New Zealand, wrote:—

Since I came to this colony I have played a prominent part in developing the character of our favourite in the different centres of the colony, but the want of glass structures and the general depression of trade make the taste for the flower very limited.

Since those lines were written, and from the other extremity of the colony of New Zealand, the National Chrysanthemum Society received a communication from the secretary of the Auckland Chrysanthemum Society requesting affiliation, and so a third colonial society is now in correspondence with the National. Such results must perforce be a most gratifying reward to the executive of the National Chrysanthemum Society. Their efforts in the early days when they assumed the name "National," much to the displeasure of some who thought it an act of unwarrantable usurpation, are now reaping a rich reward.

The committee of the Auckland Society may be considered an enterprising body. Like genuine enthusiasts, they seem to allow nothing to stand in the way of success, and in their zeal for promoting a knowledge of Chrysanthemum culture they have compiled and issued a small twelve-page pamphlet containing directions for

the use of their members. It is the first work of the kind ever published in that quarter of the globe, and a further edition, with such emendations and improvements as experience may prove necessary, is likely to be issued at a not distant date. Among other headings in this little work are instructions on soil, situation, manure, propagation, planting out, watering, mulching, training, staking and tying, keeping the blooms, specimen plants in pots, and the characteristics of each section, as laid down in the official catalogue of the parent society.

As a compliment to our New Zealand friends, we may observe that they are so far ahead with the subject as to give a gentle reminder that the single varieties have not yet received proper attention with regard to authoritative definition, and they have drawn up one for themselves.

CHRYSANTH.

CHRYSANTHEMUM NOTES.

POTTING THE PLANTS.

A NOTE on potting Chrysanthemums may remind those who have not yet made preparations for the final potting of the plants that no time should be lost in so doing, for fear of them receiving a check in growth through being pot-bound. The greatest mistake is made in using pots much too large for any Chrysanthemum to flower in. I have seen pompon varieties growing in 11-inch pots, when a few branches only were allowed to each plant. The fault of unduly large pots is that the roots are apt to be kept too moist, which causes the soft and ill-ripened growth. It is much better to grow two or even three plants in one pot if a stock of large ones are on hand instead of placing one plant only in each.

Pompon, Anemone pompon, single varieties, and the smallest plants of those sorts which are grown and termed decorative subjects will succeed in 8-inch pots. Larger specimens for decoration will require more space for their roots. Pots 10 inches across will suit this purpose the best. Those plants which are set apart for the production of large blooms only, limited to three upon each as an average, will not need more root space than a 9-inch pot.

The soil is an important item not only in its character, but where a large number of blooms are required, of necessity a quantity is in demand. It often happens that a makeshift has to be resorted to in the shape of utilising some of last year's material to help out the present. I would caution the using of much refuse soil, for I have seen the bad effects of this. The amount of stimulant given to the plants during the season's growth and the time the flowers are developing tends afterwards to make the soil sour and stagnant after the living plants are removed from it. What is known as good turfy loam should supply the chief ingredients for the final potting, and should be in the proportion of three parts to one of horse manure partly decayed, the same quantity of leaf-mould if the loam is inclined to be heavy in character, sufficient coarse silver sand and charcoal to keep the whole porous—an important detail, seeing the enormous amount of water that must pass through the soil during the time the plants are in their flowering pots. The many kinds of artificial manures do away with the necessity of using so much animal manures as formerly. No doubt all are good in their way, but the great point to follow in their use is, not to give them in excess of the instructions given. Most cultivators know, or should do, that ample drainage should be used. Another point of importance in potting the plants I would draw the attention of beginners to is that of potting firmly. When the soil is put into the pots loosely around the roots, the growth resulting therefrom is proportionately soft, which is exactly the opposite to what is wanted. The worst formed flowers of any section are generally to be found upon plants which have made large, but "soft" growth, such flowers as these being devoid of substance.

After potting, the plants should have temporary protection for a time until the roots have commenced to run into the new soil and the fear of the foliage being injured by strong easterly winds, which often prevail at this time of the year, is past. Careful watering should be the rule, especially after the potting is complete. It is much better to refresh the leaves with water given through the syringe for three or four days than to soak and perhaps make sodden the new soil at first, into which the new roots will not push nearly so freely as they do when the soil is simply moist, as it should be when used for the final potting. If too wet it would cling together unduly when being pressed firmly into the pots, and if the reverse it would be difficult to ram it firmly enough, as also would there be some trouble in thoroughly soaking the whole through. All superfluous growth should be removed as fast as it is made. It is useless to allow a number of extra growths to extend for a time, knowing them to be of no service, and then to cut them all off at once. This cannot fail to give the plant a check. It is much better to regulate the growth as it proceeds, no matter for what purpose the plants are grown.

CHRYSANTHEMUMS ON WALLS.

Now is a good time to commence the training of the shoots of those plants growing at the base of walls, and which are now in some cases 1 foot long, some less. The strongest should be selected, fastened to the wall either by means of shreds and nails, or by a wire fixed on to the wall in front of the shoots, a space of from 4 inches to 6 inches apart being a suitable distance to train the growths, choosing the former for weakly growing sorts. If any varieties are known to be naturally taller in growth than the wall space will admit without their going above the wall, pinch out the point of growth when regulating the shoots which will induce them to grow more bushy. Any superfluous growths springing from the base of the plants should be removed at once to avoid crowding of those remaining, which not only tends to weaken the growth of those selected, but spoils their after appearance by the smallness of the leaves through want of light and air. Plants in borders of the early-flowering section, of which Mme. Desgrange is a good type, now need attention in the thinning of their shoots where they promise to be too thick for a free development of the growth afterwards. Some support must be given the shoots also by placing to each bush a stake, to which the growths should be loosely tied, not by the encircling of the whole plant in a broom-like form with a single piece of bast, but each shoot, or at the most two together, should be secured separately.

ORCHARD AND FRUIT GARDEN.

FRUIT PROSPECTS.

THE crops of hardy fruit within the past week have been heavily discounted—at least, in this part of the country—and, judging from present appearances, we have not yet seen the worst of the devastation. A notable fact throughout the spring has been the brief blossoming period, Plums, Cherries, and Pears having cast their petals in a few hours after their full development. This, however, did not matter very much, as in some seasons the flowers seem to mature so slowly, that all the organs, male and female, not only seem perfect, but lead one to suppose that they had performed this office before the enclosing petals begin to open. When this happens, and the trees continue clean, free, and healthy, the crops may be excellent; but this year green-fly, grub, and caterpillar are most persistent; so persistent, indeed, that one family, when within reach, is hardly attacked before a succeeding generation is in existence. This has been going on now for some time, and will so long as the wind continues in the north and east, points it is likely to cling to until the crops are greatly injured, if not quite ruined.

Only a week ago we congratulated ourselves upon having some scores of Peach trees quite free from fly, and, having made growths 6 inches to 10 inches in length, naturally thought them past danger. Not so, however, for all at once, as if by magic, myriads of green-fly sprang into existence. Our large cask, fortunately, was well charged with the mixture of soapsuds, tobacco water, and sulphur—old-fashioned, but familiar friends—and in a few hours these pests were treated to a composing draught which sent most of them over to the great majority. A remnant, as a matter of course, escaped the first volley, but their life has been short under repeated streams from a well-directed Read's syringe.

Cherries, Plums, and Pears considered fairly clean have come once more to the front, the number of folded leaves and points being truly appalling. Picking and pinching are the only modes of dealing with these snugly lodged grubs, caterpillars and rollers, when a smart douche bath through the hose follows in quick succession. Plums from a very early period we knew would be poor, for we had very little blossom; but a light crop or no crop at all does not absolve the fruit grower from incessant warfare with his enemies.

Apples, our staple crop, opened well, the Blenheims in this part of the country being simply magnificent; but, alas, within four days trees one mass of flower and good foliage suddenly changed, and close examination reveals the now well-known enemy which laughs at greasy bands and revels in Paris green and other dangerous poisons. The crop, it is just possible, may not be entirely destroyed, but the centre flowers, which produce the finest fruits as a rule, go first, and when this happens the pomes which escape and swell are more or less mediocre. The Oaks and hedges in some places are far from satisfactory, a sure sign that our fruit crops will be far from profitable. One gentleman with whom I am acquainted asserts that he already sees a loss of £300 in one orchard; what then must the loss be to a county containing more than 20,000 acres of fruit trees. Heavy rains followed, or better still accompanied, by soft, genial growing weather might handicap the enemy, but the air at the present moment is full of haze, what old people here term blight, always more or less prevalent in protracted springs following mild winters. British fruit growers, as a matter of course, will fight bravely, as the persevering owner of the Glewston orchards has done, and the small birds, including the robin which follows our men, will lend their aid, but I much question if our crops of hardy fruit will again be really good until the trees and soil have passed through a very severe winter. These plagues are by no means new, as many imagine, for years upon years ago they stripped our fruit and forest trees; they came, as it were, by magic, and as suddenly disappeared when climatal conditions were inimical, and so they will again. Meantime, no great harm can come of the application of Paris green, provided we do not poison each other.

W. C.

Tasmanian Apples.—It was stated in THE GARDEN of May 10 that these are disappointing, being "rotten in the middle and quite unfit for use." This is not my experience of them, and I have this day (May 17) tasted some that were of very good quality, sound and firm throughout, although not so juicy and crisp as those of our own growth. All consignments will probably not come to hand in the best condition, but it must be remembered that there has scarcely been time to perfect the arrangements for bringing these Apples such a long distance. These Australian Apples have been sold retail at about 2s. 6d. per dozen, which is sufficient

proof that the quality generally is good enough to recommend them to consumers of this fruit. I feel convinced that with improved methods of transit we shall eventually get these antipodean Apples almost as fresh as when taken from the trees. Whether the Tasmanian climate will allow of their coming to the high degree of quality that the best kinds attain in favourable seasons in this country is another matter, but the results appear to be so far good that Tasmanian Apples will henceforth, without doubt, be a feature of our fruit markets.—J. C., *Byfleet*.

FRUIT FARMING AT WISBECH.

THE prime essentials to success in fruit farming appear to be a suitable soil and a favourable climate, and it would seem, from the experience of the farmers at Wisbech and some of the surrounding villages, that soil stands before climate. Wisbech is situated at the extreme northern corner of Cambridgeshire, near the spot where that county touches Norfolk and Lincolnshire, close to the Wash, on land formerly submerged, and now only slightly raised above the surrounding fens. It is eighty-seven miles due north of London, and 150 miles from the sunny south coast. It lies not far from the seaboard of the coldest coast of England, and it is regularly swept by keen northern breezes from the sea without the interposing shelter of higher land. Wisbech cannot therefore boast of any special advantages of climate beyond those of many other parts of the country; and yet fruit growing has, during several generations, flourished at Wisbech, and has met with great extension in recent years. Before proceeding further, it will perhaps be right to state that the soil—which seems the most important factor in connection with the site of a fruit-farming district—is at Wisbech of a special character. It has been always understood that land reclaimed from an estuary by warping—an operation which is now going on at Lynn, in Norfolk—is usually of a very rich description. The soil thus obtained generally consists of the silt of a tidal and slow-flowing river, like the Humber and its tributaries. The deep soil around Wisbech is known by the name of silt, and consists of soft porous land without stones, and containing a much larger proportion of sand than of clay. The warping which produced it was the work of Nature, and the materials may have been obtained from some prehistoric river, for the action of the Nene in its present channel, which flows into the Wash at seven miles distance, rendering the town a port, could not have sufficed for the warping of the higher levels. But the banks thrown up by the Romans in the parish and neighbourhood were evidently intended as ramparts of defence against water; and as the tract now lies high and dry, its level must have risen—like that of many other parts of our coast—even since the historic period. The Wisbech fruit farms, then, lie on a rich, sandy silt, founded no doubt by the agency of water; and this is always found in the subsoil at the depth of a few feet from the surface. The soil, therefore, must be well watered from below in the hottest weather, and its texture must be favourable to the absorption and retention of heat. On May 19 I reached Wisbech from a well drained, but clay-land parish 100 miles nearer the south coast, and I then found the Hawthorn, the Apple, and the Horse Chestnut were more forward in their blossom at Wisbech than they were at home. Mr. John Cockett, farming at Walsoken, a mile from Wisbech, but situated in Norfolk, has 170 acres in this kind of culture, including 100 acres of Gooseberries, for the growth of which the neighbourhood has been long famous. He has besides 20 acres of Raspberries, Apple orchards (planted with small fruit below), and 15 acres of Asparagus. The total area of land in fruit immediately around this flourishing town is estimated at 2000 acres, and, in addition, Cauliflowers and Onions are largely grown for pickling. There are now probably 400 to 500 acres of Raspberries and 200 acres of Strawberries, and a still larger breadth of Gooseberries and Currants grown, either alone or in the Apple orchards. Mr. Bath has just commenced the culture of Plums, which have not hitherto been much at-

tended to here, although largely cultivated in Cambridgeshire, and they will no doubt be found to answer in his experienced hands.

The fruit growers may now be said to have generally two strings to their bow, since they do not rely entirely on the open market for the disposal of their perishable produce. Much of it is sent direct to the jam factories, and, fortunately for the producers of fruit, its consumption in the form of jam has enormously increased during the past seven or eight years, so that at present the extra demand for fruit has kept pace with its increased growth. It is an advantage, too, that the fruit should be despatched direct to the preserving houses, on account of the saving of intermediate profits and of market dues. In consequence of the suitability of the soil, Wisbech has become one of the largest of the Gooseberry-growing districts; and I was much struck in the course of my drives with the size of the bushes and the exceedingly healthful green colour of the foliage. A farmer who plants Gooseberries must be content to let his capital lie idle for at least three or four years. They are in their prime at ten or twelve years old. A tenant farmer with a long lease may see his way to the culture of Gooseberries, as of all the lesser fruits; but the planting of Apples or Plums requires ownership or special terms of compensation. It sometimes happens that an unintelligent man—generally a small grower—may be seen vigorously pruning his Gooseberry bushes with a bill-hook, but experienced fruit growers employ experienced men who use the knife and cut the bushes properly. Careless bill-hook pruning has spoiled the prospects of many a field of Gooseberries. One of the best varieties for market purposes is called Red Bob, yielding an excellent vinous juice, well adapted for imparting a good flavour to preserves, or for the more special object of producing a wine called champagne, the consumption of which is now enormous, and so rapidly increasing in these more prosperous times, that the growers of Red Bob will find probably an expanding market for years to come. As Gooseberries grow very well in the shade, they, as well as Currants, are usually grown in orchards so as to afford the chance of a top or bottom crop, or perhaps of both, though no doubt the taller trees diminish the yield of the bushes. A Gooseberry farmer should postpone forming contracts till he knows the weather of the first fortnight in May. I saw some good crops on the 19th, but the growers, not having completed their contracts perhaps, maintained that the crop had been much cut by frost, and would be a light one. In this part of the country a common maxim takes the form "Beware of counting your Gooseberries till they are in the basket." Besides the danger of frosts, there are the cold north winds of May, which will sometimes starve the berries. It is seen first that they are at a standstill, and presently they fall off, and the price of Red Bobs rises from £3 per ton to £11. Growers prefer, however, a moderate crop, with a range of price of from £11 or £12 per ton, to a very plentiful one and low prices. In very abundant years, from the enormous quantity of Gooseberries which are then thrown on the market, prices fall below the cost of production. Raspberries come into free bearing in about three years, and Strawberries in their second year, and the beds of the latter are soon replaced. It is said that Raspberry growing has a great future before it. The business certainly has a very successful past, and would assuredly take another leap, if, like Red Bobs, this fruit would produce something stimulating instead of that very cooling beverage Raspberry vinegar. In most kinds of jam, sugar, I believe, weighs more than fruit, and in order to give some idea of the usual cost of jam, we may estimate the sugar at 1½d. and the fruit at 1¼d. per pound. The reason the home-made jam is, or ought to be, far better than the purchased article, is that manufacturers for sale are obliged to saturate (and so spoil) their jam with sugar, which not only deteriorates its flavour, but impairs its wholesomeness. The trade growers cannot be sure how long the jam may have to be kept. The housewife or her cook can use as little as ¾ lb. of sugar to 1 lb. of fruit—at any rate,

for that part of the jam which is to be consumed by Christmas.

The culture of Apples is an older industry here than that of the fruits just mentioned, yet I do not think they are at present so skillfully managed. Many of the smaller sorts now in cultivation will have to be replaced by larger and better varieties in order to compete with the excellent Apples imported from America. It is of little use to mention the names of sorts, as those which suit one locality might prove undesirable elsewhere. The Blenheim Orange Pippin, for example, is not usually regarded as a satisfactory sort to grow for profit, on account of its coming slowly into bearing and cropping irregularly; yet at Wisbech the Blenheim is strongly recommended, the soil and climate apparently suiting it. The manure, which all fruit crops require in abundance, is brought largely from London. Much of the extra labour comes from the same quarter. Working by task, the women earn from 4s. a day downwards; but they must work cleverly and perseveringly to earn such extreme wages as 4s. daily. Day men in the district receive 15s. and 16s. per week generally.—H. E., in *Field*.

COMPOSTS FOR VINE BORDERS.

"THOMSON ON THE VINE."

UNDER this heading there is in *THE GARDEN* of May 24 (p. 477) a carefully prepared letter, which has attached to it the well-known signature of "J. S. W.," attacking the directions I give for making up Vine borders, especially the manure I recommend in the tenth edition of my book on the Vine. I claim the privilege of being a student in Grape growing, and I hope I have made some progress in the ten years that have elapsed since the ninth edition of my book was published. Not so "J. S. W." He stereotyped his experience years ago, it seems, for he "still believes it to be correct." I ought in justice to remark that he has made one step in advance, for he has arrived at the conclusion that the carrion Mr. Roberts placed in the bottom of his Vine borders "*did* for awhile produce extraordinary vigour and great crops of Grapes." Gardeners at the date were of opinion that the sudden collapse of Mr. Roberts' Vines took place when the roots came in contact with the fresh carrion. Be that as it may, the example has not been contagious, for we hear of no such folly as placing carrion in our Vine borders at this date.

"J. S. W." wishes his readers to believe that I exclude horn-shavings and ground bones from our Vine manure, because I found the former not sufficient of itself to restore the vigour of our Vines some ten years ago, when they began to decline, and that I found half-inch bones slow in their action as compared with that which modern machinery can grind much smaller. *Pretending* to believe these ingredients absent from the manure I recommend, he says:—

With regard to bones and hornshavings, it cannot be too much impressed upon both gardeners and farmers that their effect in permanently improving the quality of soils is established beyond all dispute, and for the Grape Vine there is probably no manure that can be applied so safely and with such certain effect as bones and hornshavings combined.

To this paragraph I am able to give my cordial assent, and to add that nearly half our manure consists of these excellent elements in various forms, and if ever "J. S. W." has seen our manure and has not at once detected by the naked eye both horn-shavings and bones, I advise him to consult his oculist. I will now quote two passages, first, one from "J. S. W.'s" article:—

In the last edition of the book on the Vine, how-

ever, just published, under the same heading, readers and those who have hitherto pinned their faith on Mr. Thomson's Vine compost will be astonished to find the bones, hornshavings, and horse manure dropped out bodily without any explanation.

I now give a short paragraph from the 10th edition of my book, which "J. S. W." professes to have perused, and I leave the case as between us to the judgment of my readers. At page 20 I write:—

Another mistake that up to the present date is not uncommon is that of mixing half-inch bones in Vine borders. They are of little or no value. I have seen them as whole as when mixed with the soil after being thirty years in it, and not a root near them. Bones are an excellent element in a manure for Vines, or any other fruit-bearing plant, but they should be ground as fine as possible. In this state they form a considerable portion of the manure I feel bound to recommend.

All that has been "dropped out bodily" from the present edition of my book on the Vine are the horse droppings and half-inch bones. Horse droppings, all sound practical gardeners know at this date, sometimes lead to the development of fungi, and the bones are so slowly soluble, that a decided preference is to be given to them when ground to the consistency of oatmeal, in which form they enter largely into our manure. W. THOMSON.

Chocensford.

GUMMING OF PEACH SHOOTS.

I SEND you a few shoots of Peach tree. Would you kindly inform me the cause of what appears to me to be canker. The tree in question is growing in a cool house (unheated) and trained on wire against the back wall; the lower half of one side of the tree only seems to be affected, while the other part and two other trees in the same house are perfectly healthy, and carrying good crops of fruit.—T. R.

* * This is a case of gumming, apparently of some standing, the wood of the past and present year as well as the fruit being badly affected. Reply to query as to cause at first sight may appear difficult, but judging from the fact that the disease is confined to the lower half of one tree, and that the two trees adjoining are healthy and fruitful, it is reasonable to suppose it is quite local. A blow with a hammer or any hard substance may have injured this particular branch, or, equally probable, the tree at some time may have been allowed to make very strong growth, which, in due course, was cut back to within a few inches of the union, where a bit of unripened, but now dead, wood may be the cause of the mischief. The foundation of gumming, indeed, may have been laid in the nursery, where the lives of thousands of trees of all sorts, especially stone fruits, are shortened by allowing a gigantic growth the first year and cutting it hard back the second, as the knife foreman would say, to form the head. Heads, as a matter of course, must be formed, but if the leaders were pinched when they have made a foot or 18 inches from the inserted bud, this bit of dead wood buried in active sap might be avoided. The nucleus of gumming from this or kindred causes may lie dormant and unsuspected for years, but change of management, notably to high feeding with too much manure or liquid, may induce sudden development in one particular branch, or in some instances over the whole of the tree. Another very common cause of gumming, mildew, and other diseases has quite recently been introduced by gardeners themselves, who possibly against their better judgment crowd their Peach houses and wall cases with Chrysanthemums at the very time the trees require all the light, sun, and fresh air that can be given to them. In October last I was invited to inspect and report upon an extensive range of Peach cases and vineries in which the Chrysanthemums of the life-guard-man build were magnificent, but the legitimate occupants were very unhappy indeed, and the owner at the time was buying his fruit. The Peach trees against the back wall, literally choked at the most important period for ripening their wood, might have produced the

shoots now before me, as they contained plenty of such. I do not infer that "T. R." has treated his trees in this way, but knowing that these monster *Chrysanthemums* often take precedence of and rob other things, I take this opportunity to say proprietors should blame themselves for failures where they insist on impossibilities and deny reasonable convenience and means.

CURE.—Without seeing the tree in question, it is hardly possible to suggest the best treatment, but guided by the fact that one part only is affected, the most simple remedy seems to lie in the amputation of the limb, not just now, but when the leaves have fallen and the sap is down. The border also should be examined, and if found unsatisfactory or the roots deeply seated, the tree worth the trouble, it might be lifted bodily and replanted in pure calcareous loam placed on good drainage. This course would induce moderate growth which would ripen properly, when the union being right gumming might disappear. If, on the other hand, it breaks out again on other parts of the tree, "T. R." may make up his mind to get rid of it, as there exists but little doubt that the disease is thoroughly ingrained in the system and incurable. In my experience, I may say the majority of cases of gumming under glass which have come under my notice have been clearly traceable to the baneful practice of cutting hard back in the nursery to "form the tree," when one stroke of the headsmen's knife has numbered its days and the Peach has been set down as a short-lived tree. When gumming commences at the union and becomes chronic, buds should never be taken from that tree for propagation, as the disease sooner or later is sure to show itself, no matter how healthy the stock or favourable the mode of culture. When, on the hand, it is due to accidents—bruises or rupture of the cells, as sometimes happens when strong trees are taken from walls and trained to curvilinear trellises under glass, a cure may be effected by cutting out the damaged parts and binding up in pure maiden loam tempered with cow manure. Prevention, however, being better than cure, the greatest care should be exercised in the selection of clean stocks furnished with medium-sized, nicely balanced shoots. All gross animal manures should be avoided in making up composts; and last, but not least, Peach houses should be kept for Peach trees.—W. C.

STOVE AND GREENHOUSE.

CANISTRUM.

THIS is a genus of E. Morren, for a set of Bromeliads which I see Mr. Baker makes his last sub-genus of *Æchmea*. They have somewhat the appearance and habit of *Nidulariums*, and require about the same treatment. All are natives of Brazil, and form handsome specimens when well looked after. This I consider is to pot them in light soil, and to water them only in the heart of the plant. They also enjoy stove heat and moisture in the atmosphere.

C. AURANTIACUM makes a handsome rosette of leaves, each of which is some 18 inches or 2 feet in length, the edges armed with teeth-like spines. The leaves are recurved and green, spotted more or less with a darker shade of the same colour. The spike is erect, about a foot in length, clothed with adpressed bracts, which below are greenish yellow, the upper ones bright red, the flowers being deep yellow. It would appear to be a native about Pernambuco.

C. EUBURNUM.—In this species the leaves are broad and spreading, each some 2 feet or more long, the marginal teeth-like spines small, the ground colour light green, spotted more or less with a darker green; the bracts are small, being shortened into a crown of ivory white leaves which enclose the numerous white flowers. This elegant species was introduced by M. Linden from Southern Brazil.

C. PURPUREUM is another beautiful plant introduced by Mr. Sander. The leaves are deep green, with small marginal teeth and large bracts, which

are bright red, enclosing a quantity of flowers. It comes from Southern Brazil.

C. ROSEUM.—This plant forms a spreading rosette of light green leaves, which are more or less spotted with darker green; the bracts are arranged in a cup-shaped manner upon a short peduncle; they are reflexed and of a rosy pink hue, enclosing a quantity of white flowers. This plant I saw two years ago in the collection of the Comte de Germiny near Rouen. It comes from Southern Brazil.

C. VIRIDE.—This is somewhat smaller in its growth than most of the others, resembling *C. aurantiacum* more in the shape of the leaves. The leaves of *C. viride* are about 2 feet in length, pale green, and more or less spotted with darker green; the foot-stalk of the inflorescence is some 9 inches or a foot long, the flowers green, surrounded with an outer row of bracts of a greenish hue. It comes from an island in the province of Santa Catherina, Brazil.

This is, I believe, nearly all the species known to belong to this genus. They are not a very showy lot of plants, but those forming a collection of Bromeliads will be pleased to add these *Canistrums* to their stock, as they form handsome rosettes, and when in flower are amongst the most singular of the order. I should like to see a collection of these plants treated with as much care as they receive in France and Belgium.

W. H. G.

Indian Lilac (*Melia Azedarach*).—This *Melia* is a native of the tropical parts of Asia, and under favourable conditions it will attain the dimensions of a tree, but unlike many other large-growing subjects it may be grown and flowered year after year as a pot plant. It forms an upright growing specimen, clothed with handsome bi-pinnate foliage, while crowning all are the large upright branching panicles of blossoms, somewhat like those of the Lilac, but rather more openly arranged. The flowers in the bud state are deep lilac, but some little time after expansion they become almost white, and then the dark violet-coloured stamens stand out conspicuously. This *Melia* is said to have been introduced more than two centuries ago, but it is now very rarely met with outside of a botanic garden, or in some very old-fashioned place. It is one of those subjects that are largely planted for ornament in the south of Europe, where it is perfectly hardy. Where seeds cannot be obtained cuttings of the young shoots taken just as they have lost their succulent character strike root readily with a little care and attention.—T.

Celsia cretica in pots.—This is well worthy of pot culture for conservatory decoration during the spring. This *Celsia* is classed as a biennial, but, as a rule, the seedlings are too forward when winter sets in, and many, if not all of them, perish. It is, therefore, best to raise the plants early in heat and get them forward for the open border, where they will flower grandly all through the latter part of summer and autumn. Last autumn I had a forward batch from seed sown in July on an open border, and I felt sure (as after experience proved) that they were much too forward to winter safely. Therefore I had a dozen potted up into 6-inch pots, and they were placed in a warm frame and kept close till established, when they were removed to another frame and given air on favourable occasions. At the beginning of the present year, they, having become too tall for the frame, were taken direct to a cool conservatory, where, having to stand upon the ground, they became rather drawn. However, when about 5 feet high they began to flower, and the spikes have gone on lengthening and flowering and still continue to do so, some of them being quite 9 feet high. They are arranged in a group with *Arum Lilies*, and the effect of the tall spikes of rich yellow flowers rising from among the bold broad foliage and pure white spathes of the *Arums* is unique. The size and purity of colour in the blooms under glass are very noticeable, and the scent is delightful. After the main spike has done flowering, if cut away lateral shoots grow out down the remaining portion of the stem, and these soon bear flowers as large and bright as those upon

the main spike. By pot culture with treatment as described, one can easily prolong the season of a truly beautiful flower for probably ours will keep flowering till the spring raised plants are rendering the open border bright. Even plants that have been flowering in the open border may be potted up, as if the main spike is cut down laterals will be thrown out which will flower.—A. H.

HERBACEOUS CALCEOLARIAS.

It is twenty-four years since, that at South Kensington, and in connection with the International Horticultural Exhibition of 1866, that Mr. James, then of Redles, Isleworth, made such a mark with his beautiful strain of herbaceous *Calceolarias*. The group of plants then staged (and I remember them well as though it were but yesterday) evoked the warmest admiration, so rich in colour, so compact habited, and so clean and well grown were the plants. At the Temple show the other day, Mr. James, now of Farnham Royal, where flowers can be grown under more favourable conditions than they at present can be at Isleworth, exhibited a batch of his inimitable strain of *Calceolarias*, and as it were took the onlookers by surprise at the marvellous dimensions of the blooms found on all the plants. There was even more compact habit than before seen. The clusters of bloom were so fine and the flowers so large, as to lead to wonder to what dimensions *Calceolaria* blooms would come. Many of the blooms were some 2½ inches long, and must have measured nearly 6 inches round the outer edge, and in spite of size they were in all cases fully developed also. There were none of those flabby indented flowers so often seen, but fully expanded, rotund blooms, which if so large were also perfect as to colours and markings. Perhaps none were more beautiful than the rich selfs, whether clear yellow in the one case, or intense maroon-crimson in the other. A small collection of but twenty-five plants could hardly do justice, however, to the wondrously varied assortment of hues and markings found in a big lot of some hundreds of plants such as may be seen blooming any spring at Farnham Royal. A good deal has been written from time to time with respect to the culture of herbaceous *Calceolarias*, but after all there is not much that is new nor striking to be said about it. At Farnham Royal seed is sown in shallow pans on fine sandy soil during August. If stood in a cool house or frame, and lightly shaded during sunshine with thin tissue paper, the seed germinates in a few days. It is unwise to water too freely; indeed Mr. James is at all times rather sparing of water than otherwise, as the roots are so minute and tender that they soon suffer from excess of moisture. Not only the pans, but the pots later should be well drained. The seedlings are, when large enough, pricked out into 6-inch pots, thence potted into 3-inch pots, and shifted on, the largest plants finally getting into 9-inch pots. By keeping the plants cool, near the glass, clean, and never over-watering, success may be assured. To keep free from aphids, the plants are often mildly fumigated, and thus prevention is found better than cure. A. D.

Mackaya bella.—Until the last two or three years this *Mackaya* was regarded as shy flowering, but since the profusely bloomed specimens were seen at Kew about that time its culture seems to be better understood. Grown in a warm house, treated liberally, and shaded from the sun, it will make rapid progress, and remain throughout the year in a flourishing condition, but so treated flowers may in vain be looked for. The greatest measure of success is attained by encouraging the plant to grow freely during the spring and early part of the summer, and towards autumn the supply of water should be somewhat lessened, and the plant induced to rest by keeping it in a structure somewhat cooler than that in which it has been growing. An intermediate house is suitable for it when making its growth, but in the winter the cool end of the structure or the warmest part of the greenhouse just meets its requirements. When the plants have been thus wintered they will

be by no means as fresh-looking as those which have been kept in heat throughout the year, but on those that have wintered in a cooler structure being put into heat in the spring they will start into growth and quickly push forth their flowers, which are somewhat bell-shaped, nearly a couple of inches in diameter, and of a deep mauve, beautifully veined with purple. They are borne in racemes, each consisting of a dozen or more flowers, so that when in full bloom a plant of it is very beautiful. Like most of the Acanthads, it is easily increased by cuttings of the young growing shoots taken at any time when available, and under ordinary treatment they strike root quickly and grow freely. This Mackaya is a native of Natal from whence it was introduced about twenty years ago, but it is even now a very uncommon plant.—H. P.

Ericas at Covent Garden.—Looking through the Covent Garden flower market during the afternoon of the recent Orphan Fund fête day, I had opportunities, which were not available later, of noting plants. Still, beyond seeing the ordinary stock plants, with which we have so long been made familiar, I met nothing more remarkable than *Erica Cavendishi* and *E. candidissima* on one stand. These plants certainly, as slow-growing, hard-wooded plants, appear to me to be singularly meritorious. The plants of *E. Cavendishi* were of varying sizes, mostly four years from the cuttings, some 18 inches, some 24 inches, but all forming dense cones of bloom and foliage. They were truly perfect plants of their kind, and would have evoked the warmest admiration anywhere. *Erica candidissima* seems to be a much less known variety. The plants of this were two years old, and in the regulation $4\frac{1}{2}$ -inch pot. They were about 12 inches in height, each one carrying from four to five flowering branches, erect, and literally smothered with the long trumpet-shaped flowers. Dwarfier and stouter than *E. hymenalis*, the flowers longer, and almost pure white, this *Erica* seemed to me to be the gem, if not the novelty, of the show. Gardeners should see how it is done for market work and thousands of them would require plants.—A. D.

CLEMATIS LANUGINOSA.

In the great family of *Clematis*, *lanuginosa* and its varieties play a great part. They are as valuable as the purple Jackmanni itself, and now adorn with flowers of rich beauty many a porch, arch, and trellis in English gardens. The illustration that accompanies these remarks represents a plant of the variety *Lady Caroline Nevill*, which is of a French white colour marked with mauve bands, clambering over a porch, and in all good gardens there should be features of this kind—delightful breaks of delicate colours that give lasting pleasure. Such a variety as this points to the energy of the hybridiser who has raised a large number of varieties, distinguished by the size of the flowers, some as large as small plates, and the softness of the colours. The shades are mostly of white, lavender, and with stripes of mauve or violet, but these require contrast to bring out this softness of hue, and to achieve it plant with the dark-flowered types as Jackmanni. The species was introduced from China, and will not, like our own Traveller's Joy, thrive anywhere. Its constitution lacks vigour, and will only in warm light soils attain perfection. The hybrid varieties do not fortunately show this evil trait in the same degree, and when planted in good soil will soon make great progress, sending out strong shoots laden with the big saucer-like flowers. Treat them well at first, and do not put them against trees or shrubs, as one would the stronger-growing *C. Jackmanni*, *Viticella*, and *patens*. If the soil is naturally sandy, it is best to enrich it with manure and loam to promote a healthy growth, and during the growing season keep the plants well mulched

and watered. If the reverse is the case, then mix plenty of sand and brick rubbish with the staple to make it free and porous. Plant carefully, and in early autumn to give the *Clematises* time to become established before winter. Unless this is done failure will result. It is bad planting and pruning that have prevented this race of climbers from developing the beauty they are capable of under good management. Use the knife cautiously, removing only the weak shoots, and remembering that it is on wood of the previous season that flowers are produced. In many gardens *Clematises* are planted, but either weakly bits are put in, or the plants never receive proper treatment, or there would



Clematis Lady Caroline Nevill.

be brighter pictures than now prevail. There is nothing troublesome in the culture of the *lanuginosa* varieties, and a mass of bloom tumbling over some bold piece of rockwork, or adorning a pillar, post, or arch has a beauty essentially its own. The illustration that accompanies these remarks shows the kind of thing that should be aimed at to get the full richness of this section. Of the many varieties, very useful is *candida*, white, which looks well not only as a climber, but permitted to spread about over the surface of a large bed. Then we

have *Lady Caroline Nevill*, previously described; *Otto Froebel*, which has very large greyish white flowers; *Mrs. Moore*, mauve and white; *Gem*, lavender-blue; *La Mauve*, and *Mrs. Hope*, which are of a mauve tint.

TREES AND SHRUBS.

THE MANNA ASH.

(*FRAXINUS ORNUS*.)

NEVER before have I seen this handsome tree so crowded with flowers as at the present time. Looked at from a distance, the appearance is striking and effective, the hundreds of panicles of gracefully drooping, *Spirea*-like flowers rendering this Ash one of the most ornamental and desirable of hardy deciduous trees.

Within a radius of twenty miles of London, if we leave out public nurseries and parks, I would be safe in saying that there are not a dozen specimens of this Manna or Flowering Ash. And yet, so far as hardihood, ease of culture, and ornamental appearance are concerned, I question if this tree has an equal. Unfortunately, like several other small-growing half shrubs, half trees, the Manna Ash is not well known, for it is rarely present in nursery lists, and so it is passed by unnoticed. For planting where space is confined, it is a valuable tree, being of neat habit, rarely over 20 feet in height, and well able to stand full exposure, a great matter the latter, for its beauty is not half shown off when the tree is crowded among others. Here at Hollydale it stands almost in the centre of one of the parks, and, probably accidentally, right in front of a clump of Scotch Firs when viewed from one side, and a massive Lebanon Cedar on the other.

That it is quite at home will readily be inferred from the following dimensions, to which it has attained in little over thirty years: Total height 35 feet, with girths at 3 feet and 5 feet from the ground level of 4 feet 8 inches and 4 feet, and with a branch spread of fully 27 feet in diameter. Soil would not seem to be a matter of much importance, and most probably it will be found to do best in that which suits our common species.

The largest specimen on the Holwood property is growing in rich yellow loam overlying gravel, and in a position where it is almost fully exposed to every wind that blows. Generally the flowers are fully developed before the leaves, so that the tree at a short distance away has more the appearance of a bank of white drooping flowers than anything else that I can think of, and being produced so early in the season and before those of most other trees, they are all the more welcome. Seeds have never been produced here, but I have noticed that some of the vessels swell, although the seeds are abortive. To this want of reproduction by seed, as also owing to the fact that cuttings are difficult subjects to deal with, and that layering is rarely practicable in old and standard trees the present scarcity of the Manna Ash may to some extent be attributed. Last autumn I tried a number of cuttings, and in various ways, but although several, indeed the majority, burst into bud, yet roots were never freely formed, and the whole have been lost. Grafting and also layering of young and branching specimens might be performed with good results.

The Manna Ash is a tree of slow growth, it requiring about fifteen years to produce a specimen 10 feet in height, and this too when the tree is grown under suitable conditions in this

country. It is, however, always bushy and twiggy in proportion to the height, indeed, in nine out of every ten specimens the spread of branches exceeds the total height by several feet. Round-headed may well be applied to the Manna Ash, but the whole contour is remarkably pleasing in most instances. To those in search of a beautiful small-growing and uncommon tree I would suggest the planting of a specimen or two of this Ash. It looks best when planted in front of a dark-foliaged clump of trees, such as the Pines, Yews, or Evergreen Oak, for then the ornamental and almost pure white flowers are shown off to advantage. For a small lawn or where space is confined the Manna Ash is just the tree, being neat in form, of slow growth, and bearing pruning in should such be found necessary. That it is perfectly hardy I am quite convinced, while soil would not seem to be a matter of great import, though thorough drainage must be attended to. So valuable a tree as the Manna Ash should be planted on every estate and lawn of even moderate dimensions.

A. D. WEBSTER.

Taxodium distichum (deciduous Cypress).—This handsome tree does best in a light moist soil resting on a substratum of gravel and a sheltered position. The Fern-like foliage of this coniferous tree is very pretty during the summer and early autumn months. There are two specimens of *Taxodium distichum* growing in the grounds here in the description of soil and conditions indicated and within two dozen yards of the river Avon. One stands about 100 feet high, having a straight trunk free from branches for about 30 feet, and a circumference of 8 feet 10 inches at 4 feet from the ground. The other is a smaller and more symmetrically growing tree, having a bare stem about 7 feet high, at which point it branches regularly all round the girth of the trunk, being 6 feet at 4 feet from the ground. This tree, standing alone on a piece of lawn, always commands attention from visitors during the months indicated. There is also a grand specimen of this tree growing on the banks of a stream in the grounds at Broadlands, Romsey, Hants, and the one at Sion House is well known. It is hard to say why this beautiful tree is not more extensively grown. H. W. WARD, *Longford Castle, Salisbury*.

Laurels in gardens.—The common Laurel has claims to admiration, for when allowed to grow naturally it is a handsome shrub, especially when in bloom, but the way in which it is used in gardens of moderate size makes one almost wish that it did not exist. It is no exaggeration to say that thousands of acres of valuable space are occupied in small gardens with this shrub that might be the happy home of many beautiful things that are rarely seen outside of large gardens. When shrubberies are planted with a mixture of hardy shrubs and trees, in the course of time strong growing things like the Laurel crowd out of existence their weaker neighbours. A little timely attention would prevent this. Not long since I saw a garden that had evidently been planted with due regard to the great variety of hardy flowering shrubs in cultivation, but it was sad to see such fine things as Darwin's Barberry, Andromeda, &c., completely ruined by the coarse-growing Laurels, Limes, and other rank growing trees with which they were associated. Similar instances are continually to be met with.—J. C. B.

Hardy Azaleas at Kew.—Not the least interesting feature in the Royal Gardens, Kew, at the present time is the break of hardy Azaleas in the wilderness or pleasure grounds, where on the left hand side of the vista leading from the Palm house to the river there is a rich colony of some of the finest varieties backed by a group of Beeches and other trees to bring out the soft and rich colours of the Azaleas. This happy bit of planting to ensure such an effect should be copied by those who have large gardens without the hardy Azaleas. Few features are so brilliant as a mass of these in

the late days of May and early June, when the Rhododendrons are in full beauty. The Azaleas at Kew have grown into large spreading masses, sheeted with bloom which gives off a delicate fragrance. A few of the finest kinds are Gloria Patria, rose with a deeper band down each of the petals; Emperor, yellow, with here and there bushes of *A. nudiflora*, and other species. We saw recently in a Surrey garden splendid plants of varieties of *A. mollis* in full bloom and rude health. They made a fine colour picture, just the kind of effect that could be repeated in many good gardens.

RHODODENDRONS AT DUNEEVAN.

THERE are a few gardens scattered through England that may be called "Rhododendron gardens," for the reason that this shrub is their chief glory. Duneevan, the residence of Mr. McIntosh at Weybridge, is one of those places in Surrey where the Rhododendron has made itself a home, and presents at this season a rich picture of varied colours. The shrubs this year, quite a fortnight earlier in bloom than usual, are already somewhat past their best here by reason of the strong sunshine and sharp easterly winds. When we had the pleasure of seeing them the majority were in full beauty, and as the garden is laid out so as to conceal its real extent we have charming surprises in colour combination and effect. The house stands on a terrace, and the garden descends sharply to a lake at the bottom, this broad slope giving many opportunities for creating pretty effects. It is essentially a garden of Rhododendrons, relieved by ponderous old Oaks, remnants of the once famous Otlands Park, and many fine Conifers. *Abies Albertiana* is over 60 feet high, and there is one of the largest specimens in the country of *Cupressus Lawsoniana erecta viridis*, while *Picea magnifica* has attained fine proportions. The whole place is just suited for such shrubs as Rhododendrons, which are massed together in large beds, irregularly disposed to prevent formality, and surrounded by well kept turf. Besides large masses of plants, there are several standard Rhododendrons. One of the rich crimson variety Michael Waterer carried about 500 trusses of bloom—a blaze of colour; this is somewhat weak in growth, and as a standard needs support. A plant of *Brayanum* was between 9 feet and 10 feet high, very handsome and stately. One of the finest standard specimens was of the lavender or mauve-coloured *fastuosum fl.-pl.*, distinguished by the size of its trusses. *Barclayanum* had also made a noble standard; this, *Brayanum* and *Blandyanum* are amongst the finest of the crimson-coloured varieties. Facing the lake is a winding walk, planted with the best varieties, and here in partial shade, away from the fierce sunlight and cutting winds, the flowers are finer than in more open positions in the garden. One of the prettiest of the light kinds was *Stella*, rose blotched with deep chocolate, and still more delicate was *Purity*, a showy type, pure white with a pale yellow eye. Revelling in the shade were such varieties as Joseph Whitworth, very deep crimson, and Mrs. John Clutton, a lovely Rhododendron, possibly the most beautiful of the white kinds. From this walk by the lake up to the house there is another leafy path, concealed from view by the same shrubs. Here the variety James Marshall Brooks was in full bloom; it is a fine kind, the flowers rich scarlet with a bronzy spot. The richness of the collection justifies the enumeration of a few of the finest kinds, and amongst the white and rose shades conspicuous were *Fair Helen*, *Minnie*, just tinted with blush; Mrs. W. Agnew is a lovely variety, white tinted with rose, but in

Mrs. T. Agnew the flowers are quite pure, except for the yellow blotch on the upper petal. A very beautiful Rhododendron is *Vivian Grey*, the colour bright cherry-rose distinctly spotted, but more intense is *Kate Waterer*, a brilliant rose colour, with a yellow blotch; there was also a fine standard specimen of it. Some varieties occurred more than once, and of these was *Lady Eleanor Cathcart*, one of the finest amongst rose shades, an excellent kind. Sir Arthur Guinness is rose, and Mme. Carvalho white; it opens blush, but becomes pure with age. The Queen variety was exceedingly fine a few days ago; its colour is blush, passing to white, and it has a bold, handsome truss of bloom. Mrs. Russell Sturgis, Princess Mary of Cambridge, Duchess of Edinburgh, rose, deeper coloured margin; *Lady Grey Egerton*, blush; *Sappho*, white, conspicuously marked with maroon, a striking and telling flower; and *Marchioness of Lansdowne*, rose, were also conspicuous. Of the list of dark coloured kinds, one of the best for colour is Mrs. John Waterer, and another excellent variety is John Waterer, rich crimson. Three of the deepest are Joseph Whitworth, nigrescens, and Old Port, of intense shades of purple-lake. Sigismund Rucker, deep crimson; Mrs. Henry Ingersoll, purple-rose; Frederick Waterer, shining crimson, very showy; Mrs. Holford, bright crimson; Meteor, brilliant scarlet; Lord J. Russell, violet-purple; Sir Colin Campbell, mauve, deeper blotch on the upper petals; Mary Stuart, rich lilac; Sir Thomas Sebright, brilliant purple; *Pelopidas*, rich shining crimson, fine truss; Mrs. Fitzgerald, rose-scarlet; Brutus, very fine, bright crimson; Doncaster, one of the brightest of the scarlet shades; Bluebell, lilac; Vauban, mauve, yellow blotch, late; Alexander Duncan, rose; and Lord Ongley, deep crimson, were also in full flower. Planted amongst them are hardy Azaleas, which make rich breaks of colour, intensified by the leafage of the Rhododendrons.

Viburnum plicatum.—This is by some people considered inferior to the common Guelder Rose. The contrary is, however, most decidedly the fact. I shall shortly send you a photograph of a very perfect specimen of this beautiful May-flowering shrub. It measures 12 feet in diameter, and stands about 8 feet high. It is in most perfect health, and laden with pure white Hydrangea-like bosses, set in pairs along the branches so closely together as nearly to touch each other. There are many specimens of the common Snowball Tree in the same garden, but not one of them so good as this. It may be that in some gardens *V. plicatum* does not succeed so well as the common kind, but my experience is that in every case it does better. Its habit is so compact and free, that as a lawn specimen it has no equal.—T. SMITH, *Newry*.

Cotoneaster horizontalis.—This Chinese species of *Cotoneaster* is very different from *C. microphylla* and *C. buxifolia*. It bears, at certain stages, a considerable amount of resemblance to *C. buxifolia*. Apart from its distinct habit of growth, *C. horizontalis* is almost, if not quite deciduous, and the flowers, which are borne in considerable numbers at the present time, are of a bright rosy red, while in the two above-named species they are pure white. It forms just now a very pretty flowering shrub, and the several distinct phases of beauty through which it passes during the year are all great points in its favour. The great feature of this *Cotoneaster* is the peculiar formation of the branches, which are quite flat and arranged in an almost horizontal manner, the minor branchlets and the leaves being also regularly disposed. The rich green, freshly expanded foliage is now studded with bright tinted blossoms, which are later on succeeded by berries of a vermilion colour when ripe, and in autumn the foliage is of a glowing hue. In the bolder arrange-

ments of rockwork, for planting as a foreground to larger shrubs, or as an isolated specimen on the grass, this *Cotoneaster* is well suited. No other class of shrubs surpasses the small-leaved *Cotoneasters* for furnishing a sloping bank, or for crowning the summit, as they resist drought better than many other subjects.—H. P.

Double-flowered Currant.—This is a very singular variety of the Flowering Currant (*Ribes sanguineum*), and though at a little distance it is not showier than the common form, yet on close inspection it will be seen that the blossoms are both curious and pretty. There is another feature too in which it differs from all the other Flowering Currants, and that is, it does not bloom till they are all over, and consequently it is very useful to prolong the season of that beautiful class of flowering shrubs. Like all the others, it will succeed almost anywhere, and on that account is especially valuable. I am not aware of the origin of this particular variety, but it has certainly been grown here for many years. It is easily increased by cuttings put in the open ground during the autumn, as indeed are also most of its numerous relations.—T.

Good and bad Laburnums.—An inspection of the Laburnums now at their best, which are scattered about plentifully everywhere, reveals the fact that there is considerable difference among them, and that there are more bad than good varieties. It is such varieties as Parkesi or Watereri which should, if possible, be chosen when planting, as they can be thoroughly depended upon; whereas in obtaining the common Laburnum, represented perhaps by unflowered seedlings, many of them may turn out disappointing. Besides the true varieties mentioned above, there are also several well marked forms, one of the most pleasing being pendulum, which is a tree of a more decided drooping tendency, and is very pretty when in bloom. Foliage distinctions are also represented by quercifolium (Oak-leaved), aureum, and variegatum, but none of them possess any very decided recommendation. The finest varieties can be readily increased by grafting, while seedlings yield very mixed results; therefore where there is room only for a limited number it is far better to plant a tried variety or two than to experiment with seedlings, most of which will probably be inferior to their parents. That known as the Scotch Laburnum (*alpinus*) differs but little from the common kind, except that it flowers somewhat later. Few trees are more indifferent to soil or situation than the Laburnum, and, like many other of the Leguminosæ, its long roots enable it to hold its own, even in light sandy soils.—H. P.

The Guelder Rose (*Viburnum Opulus*).—To many the typical native form of this pretty flowering shrub is preferable to that which we call the Snowball Tree in gardens, in which all the flowers are sterile and disposed in a roundish or spherical head. Certainly the wild form is more attractive, as, whilst being less formal with its flattened cymes of both sterile and fertile flowers, there is the added charm of its berries, which are extremely effective in late summer and early autumn, and whether yellow, red, or black, the last being the final colour they take on after exhibiting a variety of rich and changing hues. A. D. Webster in *THE GARDEN* (p. 481) says, "that it evidently relishes a warm chalky bank," and this might lead some to infer that the shrub was a little tender, and liable to suffer in low-lying or damp situations. To me, however, this remark comes as a further convincing proof of the value of the shrub and its special adaptability to a variety of conditions. It may interest Mr. Webster to know that the finest specimens I have ever seen were in damp low-lying situations, and I never knew them to suffer. Some were growing in heavy clay upon the margin of a lake in Sussex, and the branches dipped down into the water. Moreover, from now onwards for some weeks and again in autumn this shrub is quite a feature along the margins of some of the Oak woods in Sussex, where it occurs in spreading masses or huge, tree-like bushes, which are annually laden with flowers and fruit, although often in winter their roots are under water for a long time, as the

woods are low-lying and springs abound in them. Where this shrub does not occur abundantly in a wild state, it should certainly be planted in the garden.—A. H.

Philadelphus Lemoinei erectus.—This *Philadelphus* has been distributed by M. Lemoinei, of Nancy, who two years since sent out *P. Lemoinei*, which was then announced as a cross between the common European Mock Orange (*P. coronarius*) and the singular little *P. microphyllus*, which has been introduced from New Mexico within the last eight or ten years. *P. microphyllus* is a very pretty little shrub, forming a much-branched specimen, and the flowers are the size of a shilling. In growth the variety *Lemoinei* and its upright form are, as might be supposed, more vigorous than *P. microphyllus*, and much less so than *P. coronarius*, but in one feature they greatly resemble their American parent—viz., in perfume.—H. P.

Amelanchier oligocarpa proves to be a garden plant of great beauty, and the size it attains in cultivation, the vigour of its growth, and the abundance of its flowers are surprising to those persons who have only seen this shrub growing in its home in our far northern forests. Specimens in the Arnold Arboretum are now nearly 3 feet high, and 3 feet or 4 feet across, forming perfectly symmetrical compact bushes, which this year have been covered with their handsome solitary white flowers, which, however, like those of the other species of *Amelanchier*, are of short duration. This is certainly one of the most desirable of our native plants to introduce into the garden, and when it is better known and its beauty recognised, it is certain to become popular.—*Garden and Forest*.

SHORT NOTES.—TREES AND SHRUBS.

A bed of *Kalmia angustifolia* edged with the little Sand Myrtle (*Leucothymum boxifolium*) is very pretty at Kew on the turf. The two make a charming bed.

Rosa sericea, of the Himalayas, is in full flower now on the wall facing the herbaceous ground at Kew. Its single, creamy white blooms and small dark green leaves make a pretty picture.

Dwarf Spanish Broom (*Genista hispanica panicula*) makes masses of rich yellow colour on the rockery at Kew; it is quite dwarf, just the thing for covering the unsightly rootwork.

Alpine Rose (*Rhododendron hirsutum*).—This dwarf shrub is very pretty at Kew in a peaty bed near the arboretum. Each twiggy branch is crowned with an umbel of rich rose flowers, very bright in the mass. It is a charming dwarf shrub for a bed.

The Judas Tree (*Cercis siliquastrum*).—"A. H." has done service to the owners of gardens in bringing under their notice in *THE GARDEN* for last week (May 31) the beauty and suitability of this free-flowering and by far too seldom met-with tree. The tree is a good grower and, as already stated, a free and profuse flowerer, and young trees may now be obtained at a very cheap rate. The Judas Tree will do well in any fairly good soil of a light rather than heavy texture resting on a gravelly subsoil, and in a situation sheltered from the north and east winds. In such soil and situations are growing here two trees, each about 30 feet high, and with a girth of main stem of 4 feet 10 inches and 4 feet 4 inches respectively at 4 feet from the ground. They are now, as is their wont every year during the month of May and the two first weeks in June, covered with their rosy purple flowers.—H. W. W.

The Persian Lilac.—On entering the gardener's enclosed garden at Syon, the sight which meets the eye just now is indeed a beautiful one. Away to the right, and shutting out effectively the high wall which borders the kitchen gardens, is a huge bank of the Persian Lilac. So free of growth and bloom is this, that whilst the turf is bedecked with the flowers from the bottom, bloom rises up and overhangs the high wall behind, so that a very remarkable and beautiful floral bank is presented. So pleasing an effect as this could only be created by the free and somewhat loose-growing Persian variety, for the common Lilac is too stiff in habit and refuses to clothe itself with flowers to the base as this Persian form does.—A. D.

Wistaria sinensis.—When visiting Syon House the other day I was much struck with the *Wistaria sinensis* which thrives so well and flowers so freely on the front of the gardener's house. How well this fine

climber repays cultivation and training when seen as in this case. How is it that the white variety is so rarely seen? Can it be difficult to obtain? I have found it only in one garden—that of Glen Eyre, Southampton, where it charmingly intermixes with the mauve-coloured form. Very charming is the *Wistaria* when it is made to form festoons running from pole to pole along the walks of a garden. Somehow we have fallen into such formal methods of gardening that much natural beauty presented by climbers has been ignored. A. D.

KITCHEN GARDEN.

RABBIT-PROOF CROPS.

IN very many places the pleasure grounds form part of the game preserves, and although the kitchen gardens do not share in this distinction they very frequently pay the penalty for their nearness to coverts. It is an easy matter to keep the rabbits out of the walled-in portion of the kitchen garden, but, as a rule, there is a considerable amount of garden ground not so protected, and it is in connection with this that I will make a few remarks. We have long since given up all attempts at systematic rotation of crops in these outside quarters, as what we have to study is how best to defy the rabbits. For the past nine years we have devoted one large breadth of ground solely to late Potatoes, and although the manures, special or solid, are by no means very liberally applied, we yet obtain crops nearly or quite as heavy as we did during the first two or three seasons in the series. The varieties that give the best returns under this treatment are Magnum Bonum, Scotch Champion, Laxton's Reward, and Chiswick Favourite, other early or less vigorous sorts not doing so well. If we omit burrowing under the rows, rabbits never interfered with the Potatoes till last season, when they cut much of the under haulm to pieces, without, however, greatly injuring the crops. This season has been exceptionally favourable to the increase of rabbits, and with such extra large numbers to reckon with I should not be surprised if they again amuse themselves between the rows of Potatoes. Globe Artichokes rabbits never touch, and these with us are always grown outside of the garden walls, fresh ground being prepared for the new plantations. Jerusalem Artichokes are not exempt from attack, the young growths being frequently gnawed off close to the ground. We yet prefer to keep them outside the walls, and with a little extra trouble in protecting them from rabbits at the outset, good top-growth and heavy crops of tubers are obtained. Rhubarb is very rarely interfered with, and this again is a crop that might well, in most cases, be kept where heaps of forcing material will not be an eyesore. Nor do the rabbits much care for Seakale, ours suffering more from field mice and rats, both of which are usually very numerous in the vicinity of game preserves. Horse Radish is perfectly safe outside garden walls, and this is the proper place for it. It is a curious fact that rabbits have no liking for any member of the *Allium* tribe. With us Leeks, Onions, Garlic, Eschallots, and Chives are all perfectly safe, beds of Leeks not being touched even during the prevalence of severe frosts or when the ground is deeply covered with snow. We have two long north-east borders, and on one or the other of these several hundred Leeks are grown every season. Nor are Turnips molested in other but very severe weather, and we often grow a supply in one of the most frequented rabbit quarters.

The question may occur to some readers, who perhaps have not had the same difficulty to contend with, Why not enclose the outside quarters with galvanised wire netting? In some few in-

stances that have come under my notice this has been done in a thorough manner, and answers fairly well. I repeat fairly well, as it is very certain no system of netting in a garden will long remain perfectly effective. Either the rabbits will burrow under the netting, or else holes will be found in it, while in extreme cases rabbits will jump over netting of ordinary width. Then, again, all the various paths, roadways, and gates have to be reckoned with. No matter how carefully these are crossed with netting, someone will neglect to close them after going through, and in a few hours hundreds of Broccoli, Cabbage, Beans, and other plants may be eaten off. Rabbits have a great partiality to plants newly put out, the flavour of these evidently proving more attractive than is the case when they are well established. We cannot afford to devote the whole of our outside quarters to rabbit-proof crops, nor is there any possibility of their being effectively netted in. The difficulty has to be surmounted in some other way. We have tried enclosing crops newly put out with bands of gas tar, and if these are frequently renewed rabbits do not care to cross them, though I would not trust to this remedy when rabbits are so numerous as they are now. Rags fastened to short stakes and soaked in petroleum prior to being set about a yard apart round a newly-planted crop also answer fairly well at times, but this again is a doubtful remedy. The best and most effective plan is to carefully enclose any crop liable to be interfered with by rabbits with galvanised wire netting. This, with the aid of a few moderately stout stakes and some strong pegs, can be put down or taken up quickly, and if done properly rabbits will not get under nor, if it slopes outwardly, often jump over it. If Runner Beans are not so enclosed they are eaten off as fast as they come through the ground, but after they are well up the stakes, rabbits rarely touch them. Vegetable Marrow plants in a small state are not safe, and these we protect for a few weeks. There are so many enemies to Peas that we rarely grow them outside the garden walls, but Broad Beans are sometimes sown in these positions and protected for a time. We have also been under the necessity of planting large breadths of Broccoli in the outside quarters and a north-east border just suits a few hundred Savoy. In both instances the young plants have to be closely protected, the netting being so carefully fixed as to exclude quite the smallest rabbits, or otherwise the greater portion of the plants would be eaten off in one night. Nor is it safe to remove the netting after the plants are of good size. They are seldom interfered with in the summer or autumn months, but during cold, wintry weather they would fare badly, rabbits being very fond of the hearts as well as the stems. No gardener who has had charge of a place where rabbits are numerous has a good word to say in their favour, but if proper preventive measures are taken, vegetables, at any rate, may be preserved from them.

W. I.

Hardy early Peas.—"J. B. Cork," does not seem to have caught my reference to the need for hardier early Peas. His experience is of Ireland, where the climate is, as a rule, softer than it is here, and also of an enclosed garden. Peas under such conditions are in very different case from those huge breadths of some 10 acres to 20 acres found in Middlesex, and on rather cold soil, in wind-exposed places, and where late white frosts are common. Even with the comparative absence of late frosts this spring, yet so low generally has been the temperature, that Peas pod very slowly, and the prospect of an early picking seems yet remote. The Pea season is thus greatly shortened, and the prices for early gatherings are low because so late. If we had hardy Peas

which would stand the winter well, bloom freely in April, and pod well in May, then a wonderful gain would result to market growers. It is in that direction we need hardier early Peas, and yet we need good, soft, sweet-flavoured ones, as produce as hard as bullets and as dry would be of advantage to no one.—A. D.

TOMATOES IN AMERICA.

As most things can be judged only by comparison, I was led last spring to obtain all the varieties of Tomatoes. In many cases it was found that the so-called new varieties were only new names for old friends. After much correspondence and inquiry I obtained what were presumably eighty varieties. Some varieties when ripe could not be distinguished from those obtained from other sources under different names, and in many cases the fruit, when shown all together, might not be easily distinguished, but the same while growing, in habit, bearing, quality, flavour and solidity were readily separated. My experience in growing Tomatoes has been that the earliest fruit is obtained on light soil with but little manure; the crop will be less and sooner over, although the first few pickings for market may bring a price that will overbalance the larger crop which may be raised on heavier and highly manured soil.

The results of my experiment are as follows: All the plants were put out on the same day, the 9th of May. The ground was slightly rolling, a sandy loam, one with sandy depression, and one quite heavy loam. The sandy depression seemed to force the fruit, and the latter to retard the ripening. Our past summer was one of successive rains and the temperature was below the average. August was mostly dry and rather hot. That seemed to crack many varieties. September 10 was opened with a five days' rain and very high winds, blowing the plants about and whipping the leaves almost off some of them. The day before the rain, a small box of each kind was secured and placed on shelves to try their staying qualities. It is certain that with drier weather different results would have been shown. To determine the longest time fruit would keep, I should pick green fruit earlier in the season, but fruit of each lot, in this case, was as nearly alike in all respects as could be had. It is a noteworthy fact that all of the purple or Acme colour were the first to rot.

HORSFORD'S PRELUDE.—First blooms, June 11. First ripe fruit, July 20, 122 days from seed. Smooth, free from cracks, quality good; fruitful; too small for general market, but desirable as to earliness and long continuance in bearing. Kept 12 days.

LIVINGSTON'S PLATO LEAF.—Ripe in 134 days. Large and solid, some wrinkled, cracked and yellow at stem, badly rotted in rain; productive. Kept 5 days.

EARLY NEW JERSEY.—Ripe in 128 days. Bright crimson, a good bearer; large, smooth, solid, and of good quality; some cracked. Kept 7 days.

EARLY RICHMOND.—Not desirable. Not early.

IMPROVED YELLOW.—Ripe in 128 days. Good bearer; a distinct orange colour, mild and insipid flavour; no cracking. Kept 12 days.

IVORY BALL (White Apple).—Ripe August 9—140 days. Small, creamy white, mild flavour, great bearer, and the longest keeper of all. The rains had no effect on it. Kept 34 days. Of no great value, but mentioned here because of its great staying qualities.

EXTRA EARLY ADVANCE.—The same as Horsford's Prelude, so far as I could see.

VOLUNTEER.—Ripe in 125 days. A heavy crop of fine, bright coloured fruit; quality first-rate, solid; bore a long time, cracked a little in rain. Kept 19 days.

PEACH.—Ripe in 128 days. Small fruit borne in great abundance and a long time. Has somewhat the colour and touch of the Peach; flavour mild and sweetish, but no Peach flavour. Of little value, except as a novelty; never cracks. Kept 14 days.

CLIMAX.—Ripe in 125 days. Good bearer, smooth and solid; cracked but little until the rain came, when all cracked and rotted, as all of the same colour did. It kept 7 days, the longest of any of its colour.

LIVINGSTON'S FAVOURITE.—Ripe in 128 days. Large, fine fruit of red colour, very smooth and fine; cracked a little at stem, bore a long time; among the best. Kept 8 days.

LIVINGSTON'S BEAUTY.—Ripe in 128 days. Of good

size, smooth and solid, free from cracks until the rain came, when all badly cracked and rotted. Kept 5 days.

CARDINAL.—Ripe in 138 days. Good size, bears well and keeps for a long time, stood rain without cracking. Kept 7 days.

ACME.—Ripe in 128 days. Medium size, round, smooth and solid, yellow and hard at stem—a bad fault—and cracked badly in rain. Kept 5 days.

TROPHY.—Ripe in 128 days. Large size, some wrinkled, heavy bearer, solid, free from hard core, quality good; cracked but little in rain. Kept 7 days.

MATCHLESS.—Ripe in 128 days. Good crop, bright red, solid, good quality, stood rain well. Kept 14 days.

PARAGON.—Ripe in 131 days. Had black rot before ripe; bright red, solid and smooth, productive and long in bearing, free from cracks in rain. Kept 9 days.

LORILLARD.—Ripe in 128 days. Good size, bright, glossy red, smooth and solid, good in quality, bearing well and for a long time; cracked a little during the rain. Kept 15 days.

DWARF CHAMPION.—Ripe in 138 days, not keeping its reputation for earliness. Fruit similar to Acme in size and colour; shy bearer, badly cracked. Kept 6 days.

FRENCH TREE (Upright).—Ripe in 155 days. Useless.

STATION.—Ripe in 115 days. This is a cross of the Alpha and French Tree, grown by Mr. Goff at the New York State Experiment Station several years ago. It was the first to ripen of all I had; of medium size, round, smooth and solid, of good flavour; some cracked at stem, was free from rot, has very few seeds—one of good size having only fifty-five. Some of the plants were literally covered with fruit, it standing along the stem as though tied on like Onions. The plant has the habit of its parent, "The Tree," in no other respect resembling it, however, as it was first early. When killed by frost, it was still full of green and ripe fruit. It would seem to be good for greenhouses, although I have not tried it there. I would not recommend it for general crop; still I think it may become a favourite in small gardens and for its earliness. It may be found not to ripen as fast as some varieties, but its earliness and good quality will make amends for that. In small gardens it may be planted only 2½ feet apart.

PURITAN.—Ripe in 134 days. Large, smooth, well ripened at stem, bright red, quality good; large crop, lasting a long time. Kept well in rain. Kept 8 days.

MIKADO.—Ripe in 130 days. Very like Turner's Hybrid, though not so smooth and not so well selected. Kept 5 days.

SHAH (White Mikado).—Like Mikado, only light, and, like all yellow sorts, very watery and thin when cooked; cracked badly. Kept 6 days.

NEW JERSEY.—Ripe in 126 days. Very fine, large, solid, bright red, of good quality; bears well and cracked but little in rain. Kept 6 days.

EARLY WASHINGTON.—Ripe in 125 days. Badly wrinkled and worthless.

HOVEY.—Ripe in 125 days. Bright red, smooth, solid, good. Kept 15 days.

HUNDRED DAY.—Ripe in 129 days. Wrinkled and cracked; worthless.

GARFIELD.—Ripe in 134 days. Large size, smooth, fine red colour, solid; light bearer, cracked in rain. Kept 7 days.

CONQUEROR.—Ripe in 134 days. Fair size, good quality, light bearer; cracked in rain. Kept 19 days.

EXTRA EARLY ADVANCE.—Ripe in 126 days. Medium size, medium quality, wrinkled, good crop; rotted in rain. Kept 7 days.

CANADA VICTOR.—Ripe in 125 days. Gave a moderate crop of somewhat wrinkled fruit, of good size; rotted badly in rain. Kept 6 days.

EARLY CONQUEROR.—Like Canada Victor in all respects.

ESSEX HYBRID.—Ripe in 141 days. Large, smooth, solid, bright red, good crop and long continued; cracked but little in rain. Kept 7 days.

NEW QUEEN.—Ripe in 130 days. Fair size, smooth and solid, fine red colour, large crop, long time in bearing, cracked but little in rain. Kept 5 days.

HATHAWAY'S EXCELSIOR.—Ripe in 128 days. Medium size, rather rough, bright red; did not rot much in rain. Kept 5 days.

COOK'S FAVOURITE.—Ripe in 131 days. Good crop, smooth, fairly solid, well ripened at stem, though cracked in rain. Kept 21 days.

JUBILEE.—Ripe in 128 days. Large, wrinkled, yellow, very acid for its colour, not equal to Golden Trophy in any way; cracked much, and rotted in rain. Kept 5 days.

GOLDEN TROPHY.—Ripe in 126 days. By far the best and most solid yellow sort grown; light yellow, with slight blush on some fruits. Kept 5 days.

EXTRA EARLY CLUSTER.—Ripe in 124 days. Good

crop, bright red, somewhat wrinkled; stood rain well. Kept 18 days.

WINTER IMPROVED TREE.—Ripened with Dwarf Champion, which it resembles in growth, but gave a larger crop of fine, smooth, Acme-coloured fruit; solid and good, like all of the colour. Did not keep well.

FINCH'S ESSEX HYBRID.—This is an improvement on Essex Hybrid in bearing and size; fruit large, bright red, well ripened at stem, and solid; cracked but little in rain. Kept 19 days.

THE IGNOTUM deserves more than a passing notice. It ripened in 116 days from seed, and kept 18 days in the trial with the rest. It was a sport from a German variety. It was a second early, and should be placed at the head of the list for all purposes, family, market, or canning. It is large, bright scarlet, very solid and mealy, free from hard core, of best flavour for eating raw. It is a very heavy Tomato, although I do not consider weight a true test of a Tomato's merit. Water is heavy, and very many Tomatoes when cooked are but little else than water; but not so with this one. As soon as done it is very thick, as was proved in several instances when tested with other good kinds, and it was thicker when "done" than others were after two hours' evaporating. The season was the longest of any grown, being from July 24 until October 12, when the vines were killed by frost, though still loaded with fruit in all stages.

As a summary of my experiment, I would recommend for either family or market use the following, in the order named:—

FOR FAMILY USE.—Ignotum, Horsford's Prelude, Station.

MARKET: Red.—Ignotum, Volunteer, Livingston's Favourite, Matchless, New Jersey, Paragon, Lorillard, Finch's Essex Hybrid. Purple, Acme, Turner's Hybrid, Livingston's Potato Leaf, Livingston's Beauty, Climax. Yellow, Golden Trophy, Golden Queen.

For my own growing, I should strike from this list the last sixteen named and think I had enough; growing so many varieties has only confirmed my impressions in respect to the uselessness of their multiplication.—N. HALLOCK, *Long Island, in American Garden.*

Rhubarb Scott's Crimson.—Some few years ago I received from Mr. Divers, at Wierton, a very small parcel by post containing four eyes of the true Scott's Crimson Rhubarb. I duly planted same, and the way in which they grew completely surprised me. The third year after planting I lifted and parted the crowns, making a long row containing about forty-five plants. This variety is not early, but may be termed mid-season. In a young state it cuts red right through and has a most delicate flavour, so that with Champagne, which I grow for early use, no other varieties are required.—R. GILBERT, *Burghley.*

Thinning out vegetables.—Could we always ensure an even and sufficient plant of any kind of vegetable, roots especially, from thin sowing, how much of labour would be saved, and how much of seed also. But experience shows that even with the best of seed it is always safer to have too many plants in a drill than too few, for whilst filling up is very unsatisfactory work, and rarely productive of a good crop, it is much better to have too many plants, so that with hard thinning there is still enough and to spare left. In the case of roots, Onions, Carrots, Parsnips, Beet, Turnips, and similar things, as a rule we sow ten times more seed than we can properly find room for plants. The thinning process must be productive of tremendous sacrifice of good vegetable life; but it is made, all the same, for the obvious reason that crowding would be productive of starvation all round. We too often find, however, the work of thinning seedling plants too long deferred. Really the labour should be performed so soon as possible after the plants are well up. The loosening of the soil through using a small hoe is conducive to growth, as is the giving to each plant early ample air and room. Throughout our market garden districts the work of thinning seedling vegetables is usually performed by women, who use small hand-hoes with wonderful expertness, cutting out tiny plants with remarkable exactness. The practice of drilling nearly all seeds facilitates thinning and hoeing. It does not seem to be so many years since that drilling was a sort of novelty, and sowing garden seeds broadcast was a common method.—A. D.

Big Cucumbers.—Only as proving the skill of

the grower can the production of big Cucumbers be justified. It is false economy to grow them as large as possible, for one big Cucumber will lower the bearing powers of the plant more than several that are cut before they come to full size. In some places Cucumbers come on to the table whole, but in the great majority of cases they are sliced up, so that only the cook and the grower are able to admire the fine proportions of the long straight specimens. Cucumbers are commonly regarded as the least wholesome of all vegetables, many medical men indeed interdicting their use. I know of one that will not allow Cucumbers in any form to come on the table. My impression is that Cucumbers are not nearly so indigestible as is commonly supposed when cut at the right time, *i.e.*, when about three parts grown. I have not a strong digestion, but I never find inconvenience from eating Cucumbers of my own growing out at this stage of growth, and I make it a rule not to use them in any other way. It is folly to let Cucumbers get so large that they cannot be eaten the same day they are cut. They lose in crispness and flavour, and if allowed to lie about a couple of days are only fit for pigs. One of the best kinds for small households is the old Lord Kenyon's Favourite, a nice crisp variety, and the fruit of which does not come to more than half the size of that of Telegraph. This used to be popular, but it is of course not large enough now-a-days, when quality has to give way to appearance. It is a capital kind for the one-light frame that is a feature in many small gardens. The white spine Cucumbers are not popular, but some of them are tender and good in flavour. A friend has a seedling white spine that is, I think, the best flavoured Cucumber I ever tasted, but that would not get a second glance from the judges if exhibited.—J. C. B.

GROUPS ARRANGED FOR EFFECT AT THE MANCHESTER SHOW.

Mr. FINDLAY, the curator of the Botanic Gardens at Manchester, finding there was a serious falling off in the contributions of large specimen stove and greenhouse plants to his great Whitsun show, has recently extended, with the most satisfactory results, the valuable feature of groups arranged for effect. At the recent exhibition there was one class for a group of Orchids with Ferns and suitable foliaged plants shown by amateurs, and there were five of these staged in the exhibition house, a considerable space being allotted to each on the ground level. Two of these groups stood out from all the rest for the artistic skill shown in the grouping. One—the group awarded the first prize—that from Mr. Blair, Trentham Gardens, Staffordshire, was a perfect triumph of the decorator's art. There was a background of elegant Palms of suitable height, then came mounds of exquisite Orchids, the latter rising out of a ground of dwarf Ferns, each mound surmounted by a handsome Palm. In the foreground was a series of dot plants, mainly composed of Orchids and small specimens of highly developed ornamental-leaved stove plants, the whole edged with an admirably executed margin of bright green Moss. Conspicuous among the dot plants were some admirably bloomed examples of *Masdevallia rosea* and the distinct *Cypripedium bellatulum*. There was nothing of crowding; the individuality of almost every plant was displayed. Surely the day will soon come when such a delightful method of arrangement will be adopted in conservatories. The second group, from Mr. Craggs, gardener to Mr. A. Heine, Fallowfield, Manchester, was composed of Palms and other suitable plants, especially Orchids. The plants were admirably displayed, but the group lacked the superb finish seen in the arrangement made by Mr. Blair. On the other side of the building, Mr. James Cypher, nurseryman, Cheltenham, arranged in another class a beautiful group.

In the annexe were other groups of plants arranged for effect to cover a space of 200 feet. These occupied a considerable space, and were a most valuable feature in so large an exhibition. The slightly-raised sloping banks in the annexe are admirably adapted for the display of groups of this

character. In the amateurs' division, Mr. Wilkes, gardener to Mr. S. Baerlin, Didsbury, was placed first with an arrangement having a groundwork of Fern; and rising from this were various flowering plants, sparingly used because of the richness of the foliaged plants, and elegant Palms, brilliantly-coloured Crotons, gay Dracænas, &c., the variegated Basket Grass and similar subjects being used as an edging, which was admirably finished. An admirable group, arranged on much the same lines, by Mr. W. Elkin, gardener to Mrs. Gurney Pease, Darlington, was awarded the second prize; this, though highly creditable, lacked the fine finish which characterised Mr. Wilkes' arrangement. On the opposite side, Messrs. R. P. Ker and Son, nurserymen, Liverpool, who had done much in former years in the way of educating the Manchester gardeners in the art of effective grouping, were first with a group in which beautiful Crotons were largely used as dot plants on a groundwork of Fern—Palms, Dracænas, &c., being also employed. It was thought there was too much yellow about the group, but it was arranged in excellent taste and with a superb finish. These groups were the talk of the city, and the Orchids found themselves in danger of having to take second place in the popular favour. If there was, as was generally admitted, an absence of the large specimen plants for which Manchester has been famous in past years, the beautiful grouping more than compensated for their loss, as they added to the exhibition, features of grace and elegance which the most gigantic examples of plant culture could not supply. R. D.

The Gardeners' Orphan Fund.—The monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, on the 30th ult., Mr. John Laing presiding in the absence of the chairman, Mr. George Deal. A report from the trustees of the Wildsmith Memorial Fund was read, from which it appeared that the sum of £140 18s. had been raised, and after deducting certain necessary expenses, the sum of £138 14s. 9d. has been paid in, and Walter Hyde, aged 3 years, nominated by Messrs. T. Turton and J. S. Jones, on behalf of the trustees of the Wildsmith Fund, has been added to the list of orphans receiving 5s. weekly. The hon. secretary reported that Mr. Shirley Hibberd had kindly consented to preside. The voting paper and circular announcing the dinner were approved. Several sub-committees were appointed to carry out the arrangements of the annual meeting and dinner. A meeting of the Covent Garden Fête committee will take place on Friday, the 14th inst.

The sparrow in America.—Michigan is one of the States in which a bounty is paid for the extermination of the English sparrow. But according to a late bulletin from the Experiment Station of that State the bounty too often helps forward the destructive work of the sparrows by killing other insectivorous birds. Too many of the county clerks cannot distinguish the head of an English sparrow from that of a linnet or a thrush, and money is actually paid for the destruction of such valuable birds as the song sparrow, the red-pollled linnet, and the evening grosbeak—birds which are protected by the State, under a law which makes their slaughter a misdemeanor to which a penalty of £1 is attached. The bulletin gives such illustrations and descriptions as will enable the officers to distinguish between the native birds and the foreign nuisances. Nevertheless, the law should be amended, so as to make it the duty of county clerks to inform themselves and to collect a fine for every native bird offered for a bounty. It is to be remembered that the English sparrows destroy fruit, grain, and vegetables. They attack blossoms, young fruit, and grain at harvest-time. They eat some insects, but they protect more than they feed upon by driving away native insectivorous birds. Wrens, martins, swallows, blue-birds, and even robins and wild pigeons suffer from these marauders, who destroy nests, young birds and eggs for no other apparent purpose than to drive these birds out of the neighbourhood.

Names of plants.—*Anon.*—*Trollius europæus.*—*F.*—Send specimens in flower.—*Salop.*—1, *Cypripedium*, send fresh flowers; 2, send when in bloom.

WOODS AND FORESTS.

THE CORK OAK.

THE Cork Oak produces the most valuable bark of all trees, with perhaps the exception of the Cinchona, and the money value of the world's product of cork is greater than that of the quinine it consumes. It is a native of the Mediterranean basin in Northern Africa, in Corsica, Sicily, Southern France and the Iberian peninsula, across which it extends to the shores of the Atlantic in Portugal and of the Bay of Biscay. It is an evergreen species, very much resembling some varieties of the Ilex or Evergreen Oak of Southern Europe. It rarely attains a greater height than 25 feet or 30 feet, and trunks more than 2 feet in diameter are exceptional. The value of the tree is in its bark. The outer layer becomes, through annual additions on the inner surface, after the tree has attained a certain age and size, a thick, soft, homogeneous mass possessing the compressible and elastic properties upon which its economic value depends. Cork is, in a certain sense, an artificial production, as the bark naturally developed by the trees is of comparatively little value. This last is called "Virgin Cork," and is stripped from the trees when they are from fifteen to twenty years old. It is rough and woody in texture, and is only valuable as a tanning material or for the coarsest kinds of rustic work. The removal, however, of the natural bark causes the development of another growth of much finer and more compact quality. This is removed every eight or ten years, the quality of cork improving with each successive stripping, and the trees continuing to live and thrive under the operation for more than 100 years. The bark is stripped during the months of July and August. Two cuts are made around the stem, the first above the ground and the second directly under the forking of the main branches. These cuts are then connected by three or four longitudinal incisions which thus divide the bark of the whole trunk into as many divisions. Only the outer coating can be removed without destroying the tree, and the greatest care is taken therefore not to injure the inner bark. The cork is removed with the aid of the wedge-shaped handle of the tool used in making the incisions. The outer surface of the bark, as soon as it is stripped from the trees, is scraped and cleaned, and the pieces are then flattened, heated slightly and pressed under stones on a flat surface. The heating chars the surface and closes the pores, giving to the bark what is technically called "nerve." In this state it is ready for manufacture or exportation. The amount of cork used in the world and the number of uses for it are increasing enormously. The available forests of Cork trees are already relatively extensive, although hardly sufficient to supply the demands now made on them, or which as the world grows in prosperity must be made on them, for there is hardly any end to the uses for cork, and none of the substitutes for it which have yet been tried are very satisfactory or promise to take its place to any great extent. The wood of the Cork Oak is heavy, coarse-grained, and of a yellow-brown colour; it shrinks and warps badly in seasoning and decays rapidly when exposed to the action of the atmosphere. It has little value in the arts, but furnishes a useful fuel and makes good charcoal. The inner bark is rich in tannin, and trees too old or unfit to produce cork are cut for the sake of the inner bark.

The Cork Oak is an interesting tree to Americans, as its cultivation now seems destined to

become an important industry in California, where the climate and the soil in many parts of the State are admirably suited to it. This is not a mere theory, as trees have been growing now for several years in California and have already produced crops of cork of excellent quality. It is probable that the tree will grow rather more rapidly in California than it does in its native country, although the quality of the soil, the exposure in which the trees are placed, local climate and the treatment which the trees receive will influence, of course, the rapidity with which the bark is developed. In Africa it is found that the trees which grow the most rapidly produce bark of the poorest quality, and that within certain limits the more slowly the trees grow the more valuable the product, provided the growth is not too slow, in which case the bark loses some of the elasticity which makes it valuable. The conditions which influence the development of cork are so numerous and complicated, that the product of all the trees in a grove or forest can never attain the same uniformity of thickness or quality in any given time. This is so well understood in the countries where cork is grown that the best method of harvesting has been found to be to go over the forest every two or three years and remove the bark from such trees as are covered with merchantable cork, and not to strip all the trees at the same time. All these matters must, of course, be considered in connection with planting forests of the Cork Oak in California. The planting and care of such forests in Portugal and Spain have long been important industries, and there is no reason why they may not be made so in California, where the local consumption of cork is already enormous, although the wine industry there is hardly more than in its infancy.—*Garden and Forest.*

MIXED PLANTATIONS.

TREES of the same species and growing under similar conditions in the same forest often exhibit great variety in size, shape, and colour of foliage. This difference in many cases cannot be easily accounted for, while in others it can be traced to the difference in the texture and composition of the soil and the exposure. There is a close and intimate connection between trees and the class of soil in which they prefer to grow; some species send their roots down and extract a great deal of their food from the inorganic subsoil, while other species extend their roots in a horizontal direction near the surface, where they find food more in keeping with their requirements. This in a great measure explains the utility of planting trees in mixed groups, and, as far as the soil is concerned, it affords all the advantages of a rotation of crops. Another point of importance is that the planter can use the hardiest species of trees on the most exposed points of the plantation as a protection to others of a less hardy type, and thus form a combination of colours for the embellishment of woodland scenery. In the natural forest we occasionally find the Oak, Mountain Ash, Aspen Poplar, Scotch Fir, and others all growing in happy combination where they strike their roots into chinks and fissures of rocks, where the only loose material in the shape of soil is the abraded particles of the rocks. Now as the stems, branches, and leaves of trees are nearly all combustible matter, only about 3 per cent. being mineral, it follows that the great bulk of their combustible or organic matter is derived from the atmosphere. This, again, in a great measure explains the reason of trees and many kinds of shrubs making such tardy progress when planted about towns where the air is contaminated with smoke and noxious vapours. No trees suffer more in this respect than Coniferæ; the terminal points of their twigs and branches exude a resinous substance which attracts and retains sooty particles floating about in the air, so that they gradually exhibit a dirty blackish colour and their further pro-

gress is all but arrested. Examples of this may likewise be seen here and there in mining districts of the country, where in some cases whole plantations of trees have been killed and others damaged to such an extent that they had to be cut down. All kinds of trees, however, do not suffer alike nor prosper alike in the same plantation, even when growing under the same conditions as regards soil and atmospheric influence, but where there is a mixture there is a choice, and the woodman can gradually cut out the worst and leave the best for a full crop. Grouping trees of one kind in masses by themselves is best suited for outlying districts of an estate, and in some cases where there is a demand for any particular kind of timber it may prove an advantage, but the principal woods upon an estate should always combine utility with ornament. J. B. WEBSTER.

Raising covert shrubs.—Nothing strikes one more than the difference in the state of the woods on some estates. One estate will have abundant undercover of Hollies and the like, and another just adjoining will perhaps be destitute. I have seen extensive woods that the proprietor had been grumbling about to his woodman and neighbours for half his lifetime so bare of bush, that they would hardly have sheltered a rat in the winter, and somehow or other the proprietor was always planting, too, but sparingly for want of the means, while no effort was being made to raise trees at home; whereas, on the other estate, the woodman had been supplementing his stock with good trees of his own nursing at the same time. I am a great believer in the extensive planting of the common Holly and English Yew as underwood in deciduous plantations which are moderately well thinned. There are no kinds of Evergreens to equal these, and I am acquainted with estates where the desire to plant them is only limited by the means of procuring them. It is not creditable to woodmen that in such cases they should even be short of Hollies, because they might procure sufficient berries for nothing, or next to nothing, as would raise plants to stock any estate, and their employers would not grudge them a field to sow them in, if they did not sow them where they were to grow. The best Holly hedges are raised from seed. If berries are collected in autumn and prepared by crushing and mixing with fine soil, and buried till spring, then sown, they will make nice plants the same year or the year following, and in this way an inexhaustible supply may be provided. Yews may be treated in the same manner. Rhododendron seeds are sown in pans in fine soil in a cool frame kept close and moist, and they generally come up thickly; afterwards they are planted out in beds and kept free from weeds. Here are three Evergreens, therefore, that are wanted for planting about woods and parks more than all others put together, and that can be easily raised at home, but seldom are, and hence the reason that when anyone wants in these days to set up a Holly or a Yew hedge quickly, it costs him about one guinea a yard to start with, and thousands of pounds to furnish his preserves.—Y.

Wood of the Yellow Pine.—The wood of the Yellow Pine (*Pinus ponderosa*) of California is generally highly resinous, and, though heavy, is brittle and less valuable than that of the Sugar Pine. Like the Pitch Pine of the Eastern States, it is, however, sometimes of excellent quality, containing little resin, soft and tough. The Yellow Pine exhibits a tendency to twist, which is very noticeable in a forest of these trees, the grain of trunk and branches being often seen coiled into the closest possible spiral. The bark of the Yellow Pine affords one of its most noticeable and distinctive characters.—A. L. S.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

AMONG THE ROSES IN JUNE.

ASSUMING that all has gone well with the Roses, June should be a month of pleasure. Waiting for rather than reaping the harvest has come more and more of late years to be the fruits of June among the Roses. The seasons as well as the Roses have robbed June of its fame and supremacy as the month of Roses, until most of the shows have been shifted into July. But this is anticipating. The most urgent duty of the Rose exhibitor in June is prompt and vigorous disbudding. Two considerations will mostly control this process. The first is, time; and the second, the strength of the plants. Few but skilful exhibitors have so learned to calculate time as to be able to select buds in June to be in perfection, say, in the first, second, or third week in July, and even these often get thrown out of time through a flush of warm or a spell of cold weather. It is, however, no uncommon thing to meet with disbudders of Roses who profess to be able to select buds that shall be perfection to a day or month in advance. Nothing but careful observation and a very wide experience will endow anyone with such special knowledge. Some of the most successful exhibitors leave but one, and that the most central, largest, and best placed to a shoot. Others prefer a bud of secondary size and position, the final choice being often determined by considerations of time rather than of mere place or size of the selected bud. And yet others select two or more buds to a shoot as different in age and size as possible, so that when the bloom has arrived at the highest perfection it may be accompanied with a tiny well-formed green bud to add its charm by its contrast to the open flower. The Rose exhibitor, however, must note the word "green" attached to the bud, for not a few jurors disqualify Rose stands if any of the buds accompanying the flowers show colour. Such buds are counted as Roses, and two of them in a stand of forty-eight may count fifty Roses, and hence the stand may be disqualified.

In disbudding Roses for exhibition, good foliage must be selected as well as promising, shapely buds. Hence buds should not be selected unless they are supported with clean, healthy leaves; as, given two sets of Roses, with the bloom of equal merit, the flowers supported with fine foliage on clean shoots will win in a canter. Roses, too, are infinitely more enjoyed on the plants on which all the leaves are perfect and the shootlets clean and healthy. Hence, in disbudding Roses in June, it is good taste, as well as sound, safe culture, to rub off or stop back to their base any or all shoots with disfigured leaves or stunted, unhealthy growth. These prematurely-stopped shoots often break specially early and vigorous, thus re-establishing the health of the plants and affording welcome pickings of bloom at the season of special scarcity of Roses, viz., the interregnum between the summer and autumn blossoming. But there are frequently heavy crops of insects as well as of buds on Roses in June. The fierce droughts of June seem to wrap Roses round in sheets of mildew, or fill their green leaves with red rust.

Swarms of saw and mining flies devour or eat out the middles of their leaves, while honeydew spreads and sweetens a feast of good things for flights of hungry aphides, that drain the Roses of their vital juices at every pore. There are those who contend that healthy Roses are insect-proof and well nigh invulnerable to disease. The healthier Roses can be kept the better, mayhap also the cleaner. Still, insects will at times come in like a flood, and it is safer, if the rosarian being forewarned, be also forearmed with all sorts of killing nostrums against them, for prompt application early in the attack is our only hope of victory over our insect or other enemies. Seize the insects by the forelock, that is their first fruits or symptoms, the victory rests with the Rose growers; fail to do this, and the victory will be with the Rose destroyers.

D. T. F.

MARÉCHAL NIEL ROSE.

DESPITE the fastidiousness which characterises this charming Rose, and the efforts made by some to disparage amateurs and others from growing it, it still remains the most popular variety in cultivation. Other varieties may be equally good, or even better, for general decoration or for supplying cut blooms in quantity, but for all that, no variety is so universally grown or more admired than Maréchal Niel. It may be found in every gentleman's garden throughout the land, either indoors or out, and the same can truthfully be said in regard to amateur establishments. During the past year or two I have visited many amateurs' gardens in various parts of the country, and found that in fully three-fourths of them one at least fairly good specimen of this fine Rose existed. Even in small back town gardens scarcely a greenhouse could be seen without its Maréchal Niel, and it is with pride that the owners of these small gardens show the results of their handiwork to the visitors, especially when the tree is in good health and laden with golden-yellow blooms. Notwithstanding its popularity, however, it is, as has been said, fastidious and perplexing in its behaviour. It is no uncommon occurrence to see a fine specimen of this Rose in the best of health one week and dead the next, and, according to some writers, little or nothing can be done to prevent this undesirable state of affairs. In some cases the cause of this is undoubtedly exhaustion—the result of a heavy crop of flowers, but to the majority of failures and sudden deaths of the Maréchal Niel canker may be attributed. This is unquestionably the most deadly enemy it has to contend with, and it behoves all who desire good Maréchal Niel Roses to fight against the disease as much as possible. As a rule, this makes its appearance at the junction of stock and scion, and should this be close to the ground a mound of earth placed over it will be found a good preventive, inasmuch as in nine cases out of ten, new roots will be emitted above the junction, and thus the vitality of the plant restored. This I have done several times and with the most satisfactory results. When canker appears higher up the stock, however, this mode of averting it cannot be conveniently practised, and in this case cutting the bark from the junction downwards will sometimes have the desired effect, but as far as my experience goes "the game is scarcely worth the candle." When once canker is seen to have taken a firm hold of the plant, it is better by far to root the latter out and replace it with a young and vigorous specimen. This is particularly so when the rapid growth of the Maréchal Niel and the easiness with which good plants may be raised are considered. At the same time it is as well to avert a catastrophe if possible, and this can best be done in the manner indicated above. Another mode which I saw tried in a northern garden a few years ago may also be worth recording. In this instance the plant was growing upon its own roots and had made vigorous growth, but owing to injudicious tying it had cankered badly. For mere experiment, one or two circular incisions were made in the bark on the main stem, with the unexpected result that the following year the tree began to

grow out of canker, so to speak, and as far as I know might be in good health at the present moment. Whether the same results would accrue in every similar case I do not know, but such it was in this instance, and I merely mention it for the benefit of those whose Maréchal Niel Roses suffer much from this dreaded disease.

STOCKS.

There appears to be a diversity of opinion, too, in regard to the most suitable stock for the Maréchal Niel. Some prefer it budded on the Manetti, while others cling to the Brier, and in the latter case bud them as half standards. Both of these are good in their way, but what is there to prevent the Maréchal Niel being grown upon its own roots? Many a fine specimen have I seen growing thus, and have been equally successful in that direction myself, but one good grower of my acquaintance informs me that when upon its own roots the Maréchal Niel is too slow in growth, and will not cover so great a space in an allotted time as when budded upon the Brier. That may be so, and it may not, but as far as my experience and observation go, plants on their own roots are, under good management, equally as vigorous and free-blooming as any that are budded.

Apart from canker and other similar causes, many fine specimens grown under glass are victims of bad management, such as careless watering, injudicious pruning, &c. Water must be given according to the drainage, state of the soil, and conditions under which the plant is growing. Whether planted in borders, boxes, or in pots, an established Maréchal Niel Rose should be most liberally watered during the growing season. In winter, of course, less will suffice, but on no account is it advisable to allow the soil to become dust dry, as it is in some cases. At the same time keep somewhat on the dry side at that period, and also for a week or two after being cut back. When in good health, too, liquid manure may be applied with discretion, this doing most good just as the flower-buds are swelling, as well as when making its wood for the following season, as the majority of trees under cover are, or should now be, doing. Soot water, guano, and liquid cow manure will be found beneficial, and in early spring a dressing of some concentrated manure may also be applied with advantage.

PRUNING.

This, simple though it be, appears to be somewhat imperfectly understood by gardeners and amateurs alike, and this is the reason so many trees fail to bloom satisfactorily. It should be understood that this Rose is not a "perpetual flowering" kind, under glass at any rate, and it therefore requires to be pruned on a totally different system to other varieties. Young plants especially should be pruned with an unmerciful hand, cutting the growths back immediately after flowering to within 1 foot or 9 inches of their base. To some this may appear extreme measures, but it is undoubtedly the royal road to success, as far as the laying of a foundation for ultimately producing a good tree is concerned. Trees of an older growth, of course, need not be pruned quite so hard, but even these must have all lateral growths cut back to the main stems, and the latter shortened to at least one-third their length. If this is done in May or June, as soon as the flowering period is past, it will induce the growth of long, vigorous shoots, which, when well ripened, produce an enormous crop of fine-shaped blooms.

VENTILATION.

This is another item that requires strict attention. I have seen many Maréchal Niels in a most deplorable condition through negligence in this, it being conducive to mildew, one of the worst pests that Roses of all kinds under glass have to contend with. This, too, is chiefly brought on by thoughtlessly opening the ventilators as wide as possible during a hot day, thereby causing cold draughts, which, as every gardener knows, or should know, is incidental to mildew. Therefore, to avert this pest, the structure in which the Roses are growing must be judiciously ventilated, especially during the growing season, when

the wood and foliage are soft. To assist in maintaining rather a cool temperature during the summer months, nothing is better than frequently damping the floor and walls of the house, as well as thoroughly syringing the foliage when closing in the afternoon. When growth is nearly completed or has become firm, then ventilate more freely, and, unless infested with green-fly, discontinue syringing. Treated thus, the shoots, if exposed to the sun, will not fail to ripen properly and produce a fine crop of handsome blooms. C. L.

SHORT NOTES.—ROSES.

Gloire de Dijon Roses on Oatlands Church, Weybridge, are worth a note, for the reason that many modern churches have little flower or greenery to relieve the bare stone. The Roses clambering up Oatlands Church make a pretty place of it.

A beautiful Rose in Mr. Waterer's nursery at Knaphill is the result of a cross between *Rosa rugosa* and a Hybrid Perpetual variety. It is not an exhibition flower, nor perhaps one that show-flower fanciers would care for; but the blooms are of an intense crimson colour and as sweetly scented as the old Cabbage Rose, while the plant is free both in growth and bloom. This is the kind of Rose that many would admire, although it may show a little of its yellow centre, not only for its colour, but sweet scent. A scentless Rose is without its greatest charm.

NOTES OF THE WEEK.

Linnean Society.—The post of president, vacant by the resignation of Mr. W. Carruthers, has been filled by the election of Prof. Stewart.

Cypripedium californicum is a pretty small-flowered hardy Lady's Slipper, exhibited by Mr. Ware at the Botanic show on Wednesday. The lip is white, and the sepals and petals green. Quite a gem for the rock garden.

Mecconopsis nepalensis.—The largest flower of this we have seen has been sent us by Mr. G. F. Wilson, in whose garden at Wisley both this and *M. Wallichii* do well. The soft golden-yellow colour is charming.

Old double crimson Pæony.—Although we have many striking colours now amongst the Pæonies, the old double crimson keeps its hold. Planters should not overlook either this or the double blush in the search for novelties.

A Pink show will be held in connection with the Rose show of the Manchester Botanic Society on July 19. This flower is grown by many amateurs in the midland and northern counties of England, and a good display may be expected.

Varieties of the Oriental Poppy are now many in number, and some of the colours are rich and striking, quite as brilliant as in the type itself. The orange and scarlet shades are intense and striking, especially in the garden, but in the exhibition they make a rich break of colour.

Striated Pansies.—There is a race of Pansies called "striated," in which the colours are distributed in stripes. Occasionally they make a happy contrast, but the reverse is the rule. We saw a lot of them recently, but against the self kinds they are weak and ineffective.

Azalea roseiflora.—Flowers of this cut from a plant in the open come from Mr. G. F. Wilson, Heatherbank, Weybridge Heath. Its flowers are of a bright salmon-pink colour, quite double, and with the petals beautifully imbricated—quite a gem in its way. It used to be known as *A. Rollissoni*.

Eremurus himalaicus.—This beautiful white-flowering species has been in bloom at the Hale Farm Nurseries for the last three weeks. There are four specimens flowering, two of which attained a height of over 6 feet. This is undoubtedly one of the best of the Eremurus in cultivation.—G. R.

Rhododendrons in Hyde Park have flowered unusually well, but the heavy rains of the past few days have spoilt the bloom. The large standards are a mass of flower, and in the beds are Mr. Anthony Waterer's finest varieties, mostly grouped after the plan given in *THE GARDEN*, April 12 (p. 335), to prevent the colour-jumbling usual in gardens. Hardy Azaleas are over, but they have made rich breaks of colour.

Iris florentina.—What presumably are the white and pale blue forms of this Iris have been blooming

profusely at Dropmore this season. The clumps of the blue form especially are large and in great abundance, so that its lovely hue is in evidence as a striking contrast to the giant double Pæonies which abound here. Many Irises have larger and more quaintly-marked flowers, but few possess a more lovely hue than does the pale blue variety referred to.

Apple Annie Elizabeth.—I should be glad to know of any English grown Apples of a better quality than the variety Annie Elizabeth, which has always been good during the last twelve years.—H. N. B.

*** A very juicy Apple for June, and with admirable qualities.—Ed.

Geranium ibericum.—The tufted Geraniums, probably because they occupy so much space, are not very largely grown in gardens, but the foliage alone is pleasing, whilst when in bloom the plants are delightful. At Dropmore there are many huge clumps of the purplish-blue *Geranium ibericum*, which just now are very attractive.—A.

The weather in Worcestershire.—Unusually dry here and bitter winds. Hard frost on the 30th ult. This has been a very bad season for gardening on light soils. Plums and Apricots have entirely failed. Pears almost a failure. Apples, Currants, and Gooseberries are good.—H. MILLINGTON, *The School House, Bromsgrove, Worcester*.

Larix americana is a tree not frequently met with, and it is now in great loveliness. It is closer-growing than our ordinary Larch, somewhat pendulous, and the specimen here (Liphook) is of a beautiful grey-green just now, and would strike an ordinary passer-by as something out of the usual way. Just in front there happens to be a bush of Lilac *Josikæa* in full bloom, which shows off well in consequence. Near these is a tree of *Pavia indica*; the foliage of this is very beautiful in hue and form just now.—M. R.

Primula Reidi.—Our experience of *Primula Reidi* is rather different from that given at p. 524, so I send a note of it. The label of our best plant is June, 1886. It grows in damp soil in shade, and has five flower-stems, two of them small. We were not fortunate last year with the seed. *Cypripedium acaule* (the large form) has been very fine. *Xerophyllum asphodeloides* has bloomed well; the slugs seem to like it, and eat across some of the stems. Happily the flowers come out well in water. *Asarum arifolium* has its weird flowers out. *Iris Kämpferi* promises to flower rather early this year.—GEORGE F. WILSON.

Turkey's Beard (*Xerophyllum asphodeloides*) is one of those old-fashioned plants that are rare in gardens. Two splendid masses were exhibited by Lord Walsingham, Merton Hall, at the recent Royal Botanic Show, and were the prettiest things there amongst hardy flowers. It is like an *Asphodel* in habit, and very beautiful when forming a spreading tuft of grassy leaves, from which rises up a stem from 1 foot to 3 feet in height, terminated by a dense raceme of creamy white flowers. A sandy border, not too dry, is just the place for it, and there are many spots of this kind in gardens. It is a native of the Pine barrens in North America.

Parks and open spaces.—Mr. Phillips, chairman of the Parks and Open Spaces Committee, submitted a report recently to the London County Council with reference to the future administration of the parks and open spaces, and organisation of the staffs attached to them. The report stated that the committee believed reorganisation to be necessary, in order to bring about uniformity of system and unity of direction and control. The area under municipal control had increased during the past twenty years from 178 acres to over 3000 acres, and the number of persons employed was now nearly 400. The expenditure upon maintenance only was nearly £50,000 annually, and the total cost, including expenditure on the capital and working accounts, was £100,000, which was not likely to diminish.

Fruit crops in America.—This is a very unfavourable year. The fruit crop is almost an entire failure from the Mississippi River to the coast; crops in California are partial. We have in this neighbourhood over 2000 acres in fruit, comprising Peaches, Apples, Pears, and Plums. The largest

crop of Peaches that has been known for years was had throughout the United States last season, this no doubt causing the failure now. Our principal market Peach is the Elberta. A small orchard of 1 acre of this variety was sold in the New York market at a net profit of £80 last season, fruit selling from £1 to £2 per bushel. We have sold a whole crop at 5d. each for the Peaches. This (the Elberta) is considered the most profitable market variety we have. The Wild Goose Plum was very profitable years ago, but now they seem to be hurt more easily by the cold winters. Many bushels have been sold for £3 15s. net. Strawberries, as well as Grapes, Figs, &c., are also grown very extensively here.—EUGENE M. RUMPH, *Marshallville, Georgia, U.S. America*.

Roses at Vienna.—On June 7 and 8 a Rose show was held in Vienna, all species of the queen of flowers being represented by about 100,000 cut blooms. I noticed amongst Tea Roses the beautiful Maréchal Niel, Reine Marie Henriette, F. W. Bennett, large flowers of Bougère, the creamy white Grace Darling, masses of the much admired Marie Van Houtte, with its rose-edged petals, the white Natalie de Serbie, fine large flowers of Pomponette, Cœur de Lyon, Niphotos, Mme. Chauvry, and Viscountess Folkestone, &c. There were many Hybrid Perpetual Roses, too, but the Tea Roses seemed to be the favourites. There were baskets filled with Merveille de Lyon, Baronne de Rothschild, Captain Christy, Louis Van Houtte, Maréchal Vaillant, Fisher Holmes, Beauty of Waltham, &c.; fans arranged with La France, Mabel Morrison, Gaston Lévêque, &c. A looking-glass, whose frame was formed by Forget-me-nots and hedge Roses, made an agreeable change to the masses of single flowers in glasses. There were only a few Moss and miniature Roses, but nice specimens of Duc de Chalus, Mlle. Thérèse Levet, Souvenir d'Alphonse Lavallée, La Rosière, Her Majesty, Boileau, Marie Baumann, Duke of Teck, Cheshunt Hybrid, Ulrich Brunner, Eugène Fürst, &c. Noticeable was a single red and white striped Rose called Schönbrunnensis.—LOUIS KROPATSCHE, *Vienna*.

Callistemon rigidus.—The peculiar arrangement of the flowers which gives rise to the popular name of Bottle-brush plants is common to several of the Australian genera. It is most marked, perhaps, in *Callistemon* and *Metrosideros*, and, in a less degree, in *Melaleuca* and *Calothamnus*. Of the numerous species comprised within these genera there is probably none, at any rate in cultivation, that surpasses the species under notice either in brilliancy of colour or in size of inflorescence. The cylindrical bunch of flowers is about 5 inches long, and measures over 3 inches through. The beauty of the flowers is produced entirely by the long, bright red stamens tipped by the yellow anthers. As many as fifty stamens may be counted on a single flower, each being $1\frac{1}{2}$ inches long. The petals are five in number, small, and of a lightish red, but in no way conspicuous. There is a bush about 8 feet high and as much through, now flowering at Kew. Plants of this species succeed well potted in loam and silver sand, requiring abundance of water. It is advisable to keep them somewhat pot-bound, as this is more conducive to free-flowering. An ordinary greenhouse temperature suits them, but a light and airy position should be selected. The flowering season for this species extends over a considerable time, and it frequently blooms twice during the year.

The great purple Flag (*Iris pallida*) is the finest Flag in cultivation, not excepting such a beautiful species as *ochroleuca*, and the richest break of it we have seen is in the Knaphill Nursery, where there is a mass of plants one forest of tall spikes of blue Elder-scented flowers. We should like to see this noble hardy flower more in gardens, but it is not so common as its well-known name would warrant. Each spike, when the plants are in a good soil and position, will reach a height of 4 feet, and carry as many as twelve blooms. It is known also as the Dalmatian Iris and the pale Turkey Iris, and has been long in English gardens, as it was one of the plants grown by Gerard in 1596. Surrounded with trees, the effect of the beautifully coloured flowers is more striking.

FLOWER GARDEN.

THE FLAME NASTURTIUM.

(TROPÆOLUM SPECIOSUM.)

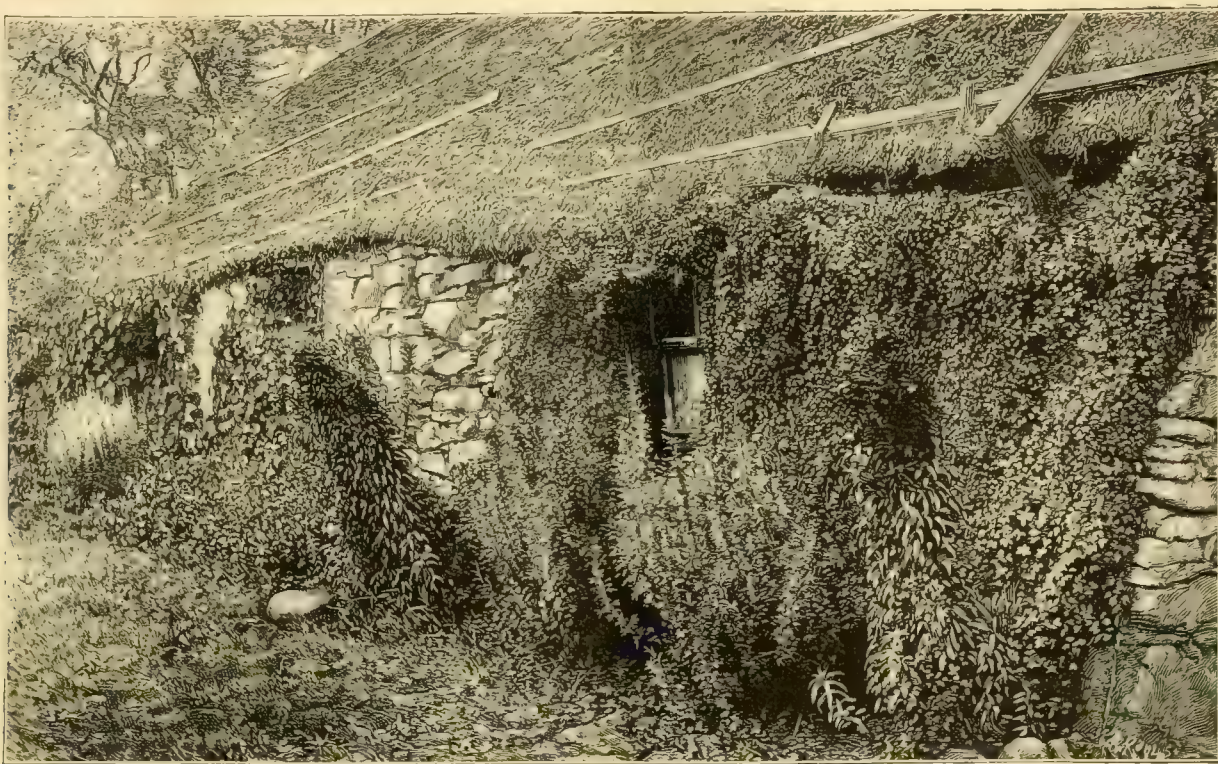
THIS magnificent species, one of the many fine plants introduced by Mr. William Lobb, was sent to England about the year 1846, although it had been known in a dried state long before that date. Although it is constantly being recommended by the few who succeed in growing it well, it is very seldom that one sees it, although its flowers and, later on, its berries are so ornamental. It has often been tried in the south of England, but in most cases with very indifferent success, whilst in the north of Scotland it invariably does well. Its main requirements seem to be moisture (not stagnant) and shade. Many fail to establish this

plenty of shade—an hour or two of sunshine in the day is amply sufficient. More will deprive it of all luxuriance and full sunshine is its death. It will do no good in clay land, but should have good, rich, deep loam if possible, and the nearer to that the better. There must be no stagnant moisture. Further, it is most important that it be not disturbed on any account. No spade, nor hoe, nor even rake should come within several feet of where it has been planted. The plants mixed with it are a mistake. The cottage represented is the house of a crofter at Achianaich, three miles from the village of Kenmore. Given the above conditions, it is easy of cultivation and almost sure to do well, but it is a capricious plant, and occasionally it fails where you think it ought to do well, and does well where you think it ought to fail.

HERBS.

LOOKING along the herb border the other day to ascertain if some spring-sown things were making the necessary headway, I could not help thinking

mass of pleasing colour that cannot be beaten in the flower garden, whilst the silver and gold varieties are wonderfully pretty with their bright young foliage. Is there anything that appeals at once to the sense of sight and smell with much greater force than a well-grown bush of Lavender in full flower, and big clumps of Rosemary are not to be despised? Individual plants of Borage make nice specimens, and are very attractive when in full flower. A few can be used with advantage in back borders in the flower garden, unless this is already well stocked with that lovely perennial, not unlike Borage in habit and colour of flower (*Anchusa italica*). A pinch of Borage seed should be sown annually, as self-sown plants do not always make their appearance, and the leaf of this herb is always in request with the advent of hot weather. A few clumps of Fennel are admissible in the wild garden where the large umbelliferous flower-heads have a bold and novel effect. Very handsome in foliage are Tansy, Chervil and Burnet, and a large bed of Chives has been very gay with its rather uncommon flowers. The above are a few of the inmates of the



The Flame Nasturtium (*Tropæolum speciosum*) on cottage window. Engraved for THE GARDEN from a photograph sent by Rev. J. B. Mackenzie, Kenmore, N.B.

Tropæolum no doubt from planting it at the wrong season. We have found that by taking it up after it has commenced to grow, every bit that has a small portion of the fleshy root attached will at once start into growth. Anyone desirous of growing it will do well to plant it now, and thus the fresh tubers will be ripened before the autumn.

The Rev. J. B. Mackenzie, to whom we are indebted for the photograph from which the engraving was made, writes:—

Tropæolum speciosum grows luxuriantly in many parts of Perthshire with very little attention, while in other districts it is rather difficult to grow well. When grown to such perfection as on this rather humble cottage it is remarkably beautiful, and keeps in flower for a long time. The long trailing shoots covered with the brilliant flowers are first-rate for house decoration. They can be used in so many different ways. To grow it well it must have

that in many, perhaps in the majority of cases the merits of herbs as ornamental plants are hardly appreciated at their true value. It is by no means certain that they always receive their due share of attention, or are cultivated in sufficient variety; indeed, it often happens that some particular sort is wanted which has not found a place in the collection. I counted twenty sorts along the border, and there are yet others to complete the list, but even if the list was full and a small gathering of every variety were ready to hand, it would be no apology for the absence of the most ornamental in other parts of the garden. Take Chamomile, for instance. Apart from its merits as a carpet bedding plant, where it can be cut and hacked into any shape, always retaining its bright colour, it is a most useful plant for furnishing odd nooks and corners where the soil happens to be very poor and dry. Most things in such a situation would at best drag on a miserable existence, but the Chamomile is quite at home with its carpet of rich green, and its innumerable bright flowers. The Thyme bed is just now a sheet of soft blue-grey, a

herb border that help to make this part of the garden as pleasing to the eye as it is necessary to the kitchen.

E. BURRELL.

Claremont.

The Water Violet (*Hottonia palustris*).—The season is early yet for pretty waterside flowers, and quite recently I searched a long stretch of the Gipping in vain for anything interesting or beautiful. But turning off from the main river and passing through meadows which are intersected with narrow and shallow streams, I came upon one that had many pretty colonies of the above-named flower scattered along its course, and they looked exceedingly pretty. The English name "Water Violet" is hardly the best that could have been given this pretty flower, as it is not expressive and rather misleading. On the other hand, Water Primrose might be considered perfectly legitimate, for, although to the casual and non-botanical observer the Primrose likeness would not be patent, yet it is a fact that this belongs to the Primulaceæ, and what is more, so much does it resemble *Primula ja-*

ponica, that a spike of its flowers might almost be mistaken for a spike of this *Primula* in one of the pretty light shades now so abundant. We call *Primula japonica* the Japan Primrose, and *Hottonia palustris* might justly be called the Water Primrose. Its flowers, as before intimated, borne in whorls like those of *Primula japonica*, are placed at intervals upon the spikes, which commence to bloom immediately they rise above water, and continue lengthening and blooming till they reach a height of about 18 inches above the water's surface. The leaves are cut into fine, Grass-like segments, and in shallow water or rich mud they form a green and graceful carpet. Being so early, *Hottonia palustris* has a special value, and might fittingly be placed in the waterside or bog garden, where, in company with *Menyanthes trifoliata*, it would give an earlier charm and interest to that part of the garden.—A. H.

Plants for grave.—I should advise in this case (p. 519) *Chamomile* and *Veronica incana*. There are few brighter or more enduring greens among dwarf hardy plants than the first named; although of a spreading habit, it can be cut and trimmed into any shape, and it forms a capital contrast to the silver grey of the *Veronica*. The flower can be kept from the *Chamomile* for a time, but this is hardly necessary, as the white flowers will mingle with and help to show to advantage the purple bloom of the other. With the decay of the flowers both plants can be trimmed over, and will require hardly any further attention until the following summer, except to fill any little gaps that may exist in the carpet of foliage. Being perfectly hardy, and from the nature of their growth amenable to confinement in any geometrical design, I think the two plants named would answer admirably for the purpose required, although there are other things which might be more in accordance with your correspondent's ideas, as *Arabis*, or a groundwork of *Stonecrop* with a thin line of *Ajuga reptans* running through it; the last-named is a neat and pretty arrangement, but requires occasional supervision to keep the Bugle Flower within bounds.—E. BURRELL, *Claremont*.

Iris Gatesii.—This, which excels *Iris susiana* in beauty, was discovered by Mr. Sinten in the mountains of Southern Kurdistan, and was introduced by me to Europe two years ago. The flowers, on stalks as thick as a man's finger and 25 inches high, show well above the foliage. They are in some cases double the size of those of *I. susiana*, and the colour is not so sombre, but far more delicate and beautiful. The ground colour is creamy-white, the very massive standards, as well as the falls and claws, are dotted over with very minute silvery-grey points, and also adorned with a most delicate network of silvery-grey lines. The beard is ochraceous-yellow, and, seen from a distance, the flower looks yellowish grey. This *Iris* has the largest flower of any of the genus so far known, and, apart from its size, the flower is striking and of a highly aristocratic appearance. There are, moreover, some other novelties coming on, one of which resembles *I. susiana*, but with markings of a crimson colour.—MAX LEICHTLIN, *Baden-Baden, in Garden and Forest*.

Pæonia Moutan (the Chinese Tree Pæonia).—A rosy-coloured variety of the Tree Pæony is figured in the *Botanical Magazine* (tab. 1154) for the year 1809. The plant was introduced by Sir Joseph Banks from China into this country about the year 1794. The first of the kind introduced to England had single flowers, and the plant is figured in Andrews' "Botanist's Repository" (tab. 463). The flowers are white, with a dark red or crimson centre, and was named *P. papaveracea*. The same thing is figured in *Bot. Mag.* (tab. 2175), and is there named *P. Moutan* var. *papaveracea*. The plant is indigenous to the mountains in Northern China, whence it was brought into the southern provinces, and cultivated with the same rage as Tulips have been in Europe, "and with a similar effect of producing numerous varieties, some of which, from their beauty and rarity, have been known to sell in China for a hundred ounces of gold." It is also stated by Dr. Sims, in his remarks on this plant in 1809, that 240 varieties were enumerated as being

grown in China at the end of the last century. The plant from which the early *Botanical Magazine* drawing was taken grew in the garden of a Mr. Greville at Paddington. It was planted in the open ground, covered with a glazed building, unheated, and bore a profusion of blossoms. It was not a tall plant, but divided into several branches at the base, spreading in a circular form, and extended to 9 yards in circumference. It is also stated that plants in China attained a height of 10 feet. A double variety, having white flowers with a red centre, is figured in the *Botanical Register*, under the name of "Sir Abraham Hume's Tree Pæony" (tab. 379), for the year 1819. It had been imported by Sir A. Hume from China, and only two other double varieties were known in England at that time, under the names of *rosea* fl.-pl. and *Banksia* fl.-pl. It is also stated here that the first plant reached England alive in 1794. Sir Joseph Banks had much difficulty in obtaining plants, and even when they had been obtained and shipped for England many of them died in transit. The plant was not much grown nor known in gardens until Mr. Fortune sent over numerous fine varieties, which were, I believe, sent out by the firm of Standish and Noble. They flower very freely in our garden here without any protection.—J. DOUGLAS.

MAX LEICHTLIN'S GARDEN.

A VISIT to the Botanischer Privat Garten at Baden Baden is always an event of the greatest interest and pleasure to those who have bulbs on the brain, with which disease I must confess myself to be afflicted. If there were no other considerations but those of gardening in the world, I should like to repair to it with the utmost regularity at least twice every year. But that is a programme which it is not so very easy to carry out, so after a four years' absence I am glad to console myself with coming to it once more. I found the magician at work, as he has been for a long time since past, weaving his spells, not in the dark colours of necromancy, but in the brightest hues of the rainbow, and in forms and shapes which are fit for heaven. He seemed to be perfectly well, and not a bit tired of the delightful occupation to which his whole life has been given up. But I could not assert that this changelessness is as much a feature of his garden as it is of him. On the contrary, apostolic words were the first that came into my mind when I had gone through his gate: "Old things have passed away, behold everything has become new." Where were the former friends which I knew so well and admired so much only a few years ago? Scarcely one of them could be found—their places knew them no more—and they are in all probability now decorating the grounds of some English or German amateur, or labelled off in some botanical collection either on the Continent or with ourselves. Here I remember to have seen *Androsace foliosa* for the first time; there, *Ruta patavina* was invading and taking full possession of the path. In this border was a crimson *Polygonum* from the Himalayas; in that, *Hellebore* Mme. Fourcade was at home; *Hibiscus palustris grandiflorus* attracted me of old, and so I might go on, though doubtless some of the best things are forgotten by me while I write here without notes or memoranda of any kind. But now all this has been changed. The only very conspicuous reminders of the past that I could see were a few *Tropeolums* and several *Iris*s, which seem rooted very emphatically to the spot, and *Iris Korolkowi* has held its own here, while friends and neighbours have long since passed away. But in this lies the speciality of Herr Max Leichtlin's work. He presides over no botanic garden for the advancement of science, and still less has he to gather plants together after the rôle of a nurseryman, but his

is—so far as I know—a very unique occupation, which consists in obtaining new plants and bulbs from the ends of the earth, and then when he has proved them and multiplied them, he sends them out, and they charm and captivate many a lover of flowers, who but for him could never have had this pleasure at all. The one word then which is written upon the Botanischer Privat Garten beyond any other from end to end is Novelty. Here you will be glad if you have any delight in seeing things for the very first time, and here you may get new ideas into your head which you never could have arrived at elsewhere. This little garden plot, which is full of innumerable borders and frames and seed-pans (sometimes in one not very large pan Max Leichtlin said there were as many as 2000 seedlings coming up), are treasures of the greatest possible rarity. They can be met with—at least in combination—nowhere else, and the pleasure of making such sweet acquaintances for the first time can hardly be exaggerated. It is as though a stream were passing through this spot which afterwards widened out, and which now fertilises the most distant localities.

But let me enumerate just a few of the things which are at present under Max Leichtlin's care, and which struck me most during my visit. I was passing along with him, looking at this and at that, when he said, "There is the scarcest alpine in Europe." That was enough to arouse curiosity, if anything could do it, and I beheld before me a pretty little flower, very much in the way of *Haberlea rhodopensis* or *Ramondia serbica*, on which innocence was written to the last degree. But although that is true, the associations connected with *Jankæa Heldreichii* are very far from being innocent. It seems that this interesting little plant was noticed by Boissier some thirty years ago, and that from that time to this it has remained in the closest obscurity, and that no one has been able to get even a look at it. The reason is a sufficient one for this great retirement, but I should never have guessed it before being told. *Jankæa Heldreichii* lives amidst scenes of blood and violence—the brigand's lair is its home—and without an escort of a strong military force it could not safely be got at. No wonder, then, that we all knew nothing about it. If it had not been for Max Leichtlin's enterprise, that might have gone on for ever. I asked if the soldiers were employed in procuring this rarity, and the answer was, "Certainly." The neighbourhood of Mt. Olympus is not one yet where a collector of plants can wander with any safety at all. I am very glad I have seen, and I hope to possess this delightful little stranger. I do not know that I could say that it is much better—if better at all—than a *Haberlea* or *Ramondia*; but is there not a pleasure in attaining to the unattainable?

The next very noticeable plant, as it seemed to me, was a striking *Onosma*. It is to go by the name of *Onosma albo-roseum*, and this is most suitable. I never saw a red *Onosma* before, nor did I even know that there is one. Max Leichtlin told me that my visit was about ten days too late for this plant. It was going off when I was at Baden Baden. All *Onosmas* are very pretty, I think, but if one could be imagined with the look of ripe Cherries about it, an impression would be conveyed of this new introduction from Armenia, and which differentiates it from anything else. At the entrance of the garden a large and very imposing umbellifer stared me in the face. If any of the orders of the vegetable kingdom could be dispensed with, I should name the umbelliferous at once.

I hold with a friend that it can sometimes be tolerated, but seldom admired; but in this instance, size, if nothing else, seems to claim some acknowledgment of it. The plant is *Dorema ammoniacum* (Don), or known as *Assafoetida* in medicine. The blossom, which is of a light canary yellow, is plentiful, but the growth in a very short space of time calls most for remark. In less than five or six weeks the plant has attained a height of more than 6 feet, and has a diameter of at least 4 feet at the bottom. I should never care to fill my garden with specimens of *Dorema ammoniacum*, but I am glad to have seen it; there must have been a wonderful energy in so quickly building up cell upon cell till such a fabric was raised.

Time and space would fail me to tell with any effect of half of Max Leichtlin's treasures. He had some specially fine *Pæonies* in blossom when I was with him; e.g., *Pæonia Moutan* var. *Gloria Belgarum* is the grandest *Pæony* I ever saw, and another most noticeable specimen is *Pæonia Moutan* var. *Ceres*, a hybrid between *P. M. chinensis* and a Japanese *Pæony*. Both of the above are very good indeed. I can do no more than just mention as new to me *Trifolium tomentosum*, which is quite worthy of its name, and comes from Syria; *Exochorda Alberti*, which very much resembles, but is preferable to and more amenable to reason than the *Exochorda* one has been accustomed to see; *Helicophyllum Aucheri*, which has an undeniable look of velvet about it; *Tropæolum Leichtlini*, which is intermediate between *T. edule* and *T. polyphyllum*; *Geranium balkanum*, of very pleasing appearance and with foliage of most remarkable fragrance; a *Bellevia* of the brightest ultramarine-blue; *Colchicum giganteum*, of larger dimensions than any other; *Cerastium Haussknectii*; *Lindelofia longifolia*; *Rheum Riwas*, with young leaves resembling a toad, from Persia; and many others which are too numerous for me to mention just now, and which I missed at their best either by being a little too early or a little too late in the season to suit their pleasure. *Galanthus Fosteri* is considered at Baden Baden to be the future *Snowdrop* king; it has already attained very large and striking dimensions, and will improve under cultivation still further. But there are two things I must not forget. Max Leichtlin seems to consider that *Fritillaria Walujewi* is by far the best of its tribe. If so, I can only pray that I may possess it before long, for there are some flowers that commend themselves to me in the highest possible manner, and among these are the *Fritillaries*. This particular one to which I now refer is chequered in the inside and is of a peculiar red colour; outside it is of a silvery-grey appearance, and is even more fascinating than any of its congeners, which is saying a great deal for it. But while I could run on still for a very long time adding the name of one thing to another which is well worthy of notice, I must wind up with the praise of an *Iris* which alone would have repaid the trouble of a journey from the Isle of Wight to Baden Baden. I have heard from Professor Foster of the unusual dimensions and beauty of the newly-introduced *Iris Gatesii* from Armenia, and if I had been at home I think I might have seen it in blossom in my own garden in Ryde, but that is a pleasure still to look forward to. Max Leichtlin says it has the most aristocratic appearance of any flower that has ever passed through his hands; but, unfortunately, it was not in its pride when I was with him last week, and yet still for all that I was not to be disappointed about *Irises*. *Iris tingitana* was in its full glory, and better than I ever had seen

it before. *Iris macrosiphon*, from America, was quite new, and very interesting indeed. *Iris lupina* was worthy of its name. *Iris Korolkowi* was elegance and loveliness combined, and there were others which I could name; but more striking than any of them, more fascinating than any other *Iris* I ever met with at all (and when one is speaking of an *Iris* that is at once the ne plus ultra of flowers) was *Iris Lorteti*, a recent introduction, and from which I could not take my eyes for some minutes, so inexpressibly beautiful did it seem to me to be. I went to fetch my wife from the hotel on purpose that she might not lose the chance of seeing this incomparable flower, which will be enthroned in my affections for a long time to come. Max Leichtlin seemed almost in doubt as to which of the two he prefers, *Iris Gatesii* or *Iris Lorteti*. If I remember rightly, he said they very much resemble each other. *Iris Gatesii* is a trifle larger and the more aristocratic of the two. *Iris Lorteti* has the lovelier tints. But I am not quite sure about his words, and I do not think he was quite sure himself as to which of these two *Irises* he preferred. At present he is very much interested in new importations which he expects from Armenia. It would almost seem that Armenia is the best hunting-ground, specially for bulbs, in the world, but there is a great deal of danger and trouble in connection with the discovery and importation of plants. His collector has to make himself known to the burgo-master or chief of the village near to which he is working, and he is attended wherever he goes by one of the chief's friends, or his mission would very soon be interrupted, and even his life might be sacrificed. Still, notwithstanding all its dangers and difficulties, Max Leichtlin seems to hope that his search in Armenia will soon yield to us much more of plants and bulbs than as yet it has done, and all those who care for these things will devoutly say amen to his desire.

I have already spoken of magic, and it is shown more than anything else in the wonderful improvements and transformations which some flowers assume when they pass through the master's hands. In some instances one would scarcely know them again, so altered are they from their former selves. A chance word on the part of Mr. Ingram some fifteen or sixteen years ago set Leichtlin at work till he produced from a common *Aubrietia* the beautiful *Aubrietia Leichtlini*, or *rosea*, as it is sometimes called, which we all admire so much. It is quite one of the prettiest of spring flowers, and it seems wonderful that it should have been obtained in this way. But selection after selection of seed did the work. A blossom was marked off for distinction which had any suspicion of rose tint in it, and this occurred over and over again, till at last it was no case of suspicion at all, but a warm roseate colour declared itself plainly and evidently enough. But who shall say how much of foresight and patience and working up to a point was required in all this. The transformation of a blue *Aubrietia* into a red one is not done in a moment. We are promised now that in due course of time we shall have an *Aubrietia* which is decidedly white. That would be a great acquisition, and I can believe anything about promises in the future when I see what has been done in the past. Perhaps of all Max Leichtlin's triumphs of this sort *Crocsmia imperialis* stands at the head; it is so at any rate so far as I know. It is an undeniably beautiful flower, and one might judge from the estimate which is put on it when it comes into the nurseryman's hands that the popular verdict is very much in its favour. Of

course it is not in blossom at this season of the year, but I know it quite well, and I cannot say too much in its praise. But here, I believe, it is the case that the very last word has not yet been spoken. Max Leichtlin notices a sort of reflexed tendency in its petals, and he therefore comes to the conclusion that a *Crocsmia* with reflexed petals can some day be arrived at. May he live to accomplish it, and, so far as that goes, may it be a long time before he gets what he wishes. Everyone who has a garden at all worth looking at must have instance upon instance before his eyes of very similar improvements; on the tombstones, as they are facetiously called, which so often do duty for labels, no word is of more frequent recurrence than "*Leichtlini*" or "*grandiflora Leichtlini*;" there is a proof positive in that of the inspiration which comes to us from Baden, and of the debt which we all owe to its skilful and laborious worker. If there were a sufficient number of *Leichtlins* in the world and life were prolonged, as in the case of Methusalem, they could certainly change the face of the whole vegetable kingdom; but then I think it would be rather a question if the change is for the better. One can admire now the perfectly perfect flowers when so many others abound, which are of lesser pretensions and which set them off as a foil, but if everything were just as it ought to be and colours harmonised in every case and forms were regular to a degree, I doubt if we should think ourselves better off in the least. If the line be true of men and women,

He is all fault who hath no fault at all,

surely something of the same sort would obtain in the kingdom of Flora, and we should all be longing for a few jagged edges, a few less symmetrical forms, just an imperfection here and there to set off all the rest. But this will not come in our time, so we may well bid Max Leichtlin God-speed in the very interesting work to which he is so much given up, and greatly admire what he does. I am afraid, however, that what has been just now written will appear as rank heresy in the eyes of my florist brethren, but I cannot help being rather on the side of the heretics. I most unfortunately missed Mr. Elwes by two days at Baden-Baden. I should have liked to meet him there. I am not going to touch on a recent interesting controversy which appeared in the columns of your contemporary, but of course it was a little referred to by us. I attach a very great deal of importance to Herr Max Leichtlin's opinion about anything that has to do with a "gardener's problem," and for the most part I could quite well fall in with everything he said. When I saw him working from morning till night, interested beyond measure in his experiments and his ventures all over the world, superintending with his own eyes and hands the precious possessions which are under his care, I could not but think of him as at least in one manner fulfilling to the very letter the following wish:—

The empirical philosopher is like to a certain insect, which shall be named, which only lays up and uses its store. The rationalists are like spiders, which spin all out of their own bowels. But give me a philosopher who, like the bee, hath a middle faculty gathering from abroad, but digesting that which is gathered. —*Bacon*.

For assuredly there never was a busier bee than Herr Max Leichtlin is on the face of the earth.

HENRY EWBANK.

Hotel de la Paix, Vichy.

The fashionable flower.—A time of high popularity is now being enjoyed by the *Carnation*. It appears to be more in favour for button-holes than the *Rose*. Those who have got into the way

of growing the winter-blooming kinds well are undoubtedly having a good time, for there never seems to be enough of them coming into the London markets to bring the prices down to a low point. To grow winter-blooming Carnations sufficiently well to be profitable demands an amount of skill that cannot be picked up in a short time. It is not only in winter, but all through the summer that Carnations are in demand, but, as might be expected, it is in a great measure limited to decided, or at any rate to self colours. The most valuable of all is the old Souvenir, and next to this come the white and crimson Cloves and Miss Joliffe. It is pleasing to see that the Carnation is at length becoming everybody's flower, and the demand for plants at the present time is quite phenomenal, especially of those kinds that are suitable for profitable culture.—J. C. B.

HARDY FLOWERS AT THE TEMPLE.

THOSE who specially admire hardy border flowers could not complain that their particular floral fancy was not well represented at the recent show in the Temple Gardens. It is true all the groups or collections were from the trade. That matters little, as what the trade have in abundance, all who have gardens can have in proportion if they will but furnish their gardens with the proper things. The entire exhibition, in fact, was a traders' show, for with few exceptions the exhibits were sent by trade growers, who presented plants and flowers very much as they are naturally, and not as they are after being severely trained, or dressed, or otherwise, but through their respective courses of garden culture. Generally there were few hardy plants of the ordinary herbaceous or perennial type other than Pansies and Violas, a few rock alpinas, and certain hardy shrubs. It was in the form of cut flowers that the hardy denizens of our gardens and nurseries were so admirably represented, and few of the section now in bloom did not find recognition. Specially was the show a sort of gala for Pæonies, Pyrethrums, Irises, and Poppies, and as most of these give rich colours, they formed peculiarly attractive features. The remarkably attractive collection set up by Messrs. Kelway and Sons was without doubt the premier exhibit, but some exception might well have been taken to the style of setting up the flowers, which was having them in the long regulation show boxes, and although getting bodies of similar flowers together is the way to create a good effect, that effect is far from being a pleasing one. Very much allowance has to be made for the convenience of transit, and it reflects honour on this enterprising west of England firm that they should have been able to show such an abundance of hardy flowers in such a clean, fresh condition. Whilst the method of staging Pæonies, Pyrethrums, Poppies, Irises, Lupins, &c., enabled the individual merits of each flower or variety to be well examined, as a whole the arrangement was far from being artistic, and it is to be feared that we must look in vain for any effort at artistic arrangement in groups which are required for a couple of days only. If the Royal Horticultural Society would at every subsequent show, in addition to inviting these fine groups of hardy flowers, offer some special prizes for groups of a given area most artistically or elegantly arranged, some very pretty effects might result. Delphiniums, however, though looking singularly handsome when the spikes of beautiful blue flowers in many shades spring up from out of a base of luxuriant leafage, yet have a very stiff, formal appearance when cut. If instead of fixing them up in boxes they could be cut low down and shown in groups set in baskets on the ground or floor rather than elevated, they would be much more handsome. I believe by far the most pleasing effects would be created in hardy cut flower arrangements were no table nor stages provided, but each exhibitor left to his own devices from the ground upwards. The white *Lupinus grandiflorus* and the dark blue and white *Lupinus Foxei*, set up in trebles of spikes were very pleasing because they refused to stand absolutely erect. Perhaps we have not quite reached the best

season for hardy flower displays, but still there was ample evidence that flowers of many kinds are in great abundance at the end of May. The collections set up by Messrs. Barr and Son, Mr. T. S. Ware, and Messrs. Paul and Son were of the customary mixed order. Where, however, in irregular fashion any one kind made a bigger mass than ordinarily, there the effect was the best. When mere handfuls of flowers are intermixed anyhow, then the effect is much marred. Where it is not possible to furnish leafage in a cut state, some suitable foliage plants should be employed in the setting up of groups. No one would dream of mixing up hardy plants in a border in the way so commonly seen at shows, and what is needed in show groups is some imitation of garden borders planted as they should be, each kind or variety being in good sized clumps, with settings of green or other foliage shrubs. Beautiful and varied in form and colour as hardy flowers are, I do not know under what conditions they look worse than when set upon a table, and with very little attempt at effective arrangement. A broad bank of hardy flowers and shrubs or plants arranged to produce the most effective garden display would be a fine show feature, compared with which even big banks of Orchids would look poor. It is very doubtful whether one half the effect possible with such a wealth of material has ever yet been seen at any ordinary flower show. In Messrs. Paul & Son's less pretentious, though pleasing group were small, but striking clusters of such flowers as *Geum minimum* (orange shaded), *Trollius japonicus* plenus, *Ranunculus acris* plenus, Iceland Poppies, Violas in sprays, &c., which were even more attractive by reason of their special beauty than were the huge masses so formally grouped of Pæonies and Pyrethrums; whilst this firm's small collection of rock plants included several lovely gems meriting close examination. A large, but very heavy collection of hardy flowers was sent by Messrs. Veitch & Sons. In their hardy shrub and plant collection, baskets of early *Gladioli* stood out in lovely contrast to the hardy foliage and flowering shrubs around them. In the group referred to such soft tints as the *Gladioli* gives in May were discounted by the brilliant bunches of Pæonies, Poppies, Anemones, &c., in close juxtaposition. Some bunches of *Dodecatheon Meadia* elegans were charming. Such pretty lilac-red flowers could hardly be otherwise. There was in this collection enough of material to have made up a grand bank of colour occupying three times the space, and it naturally led to the idea that the setting up of groups of cut flowers in an artistic way was not specially invited. The need seems to be all the greater now that in London at least the old form of exhibition of specimen plants appears to be extinct.

A. D.

NOTES ON HARDY PLANTS.

Atragene alpina.—When beautiful and distinct plants are more sought after than they now are, no doubt this moderate climber with its big drooping Clematis-like flowers will be found a desirable subject to plant. For positions in full sunshine, with its roots in rich deep soil, and where it may cling to other shrubs, which it might be allowed to do without harm, it will prove useful in spring. It begins to flower in April, and strong plants will go on into June. This I consider is good service for a large purple flower, that might almost be looked upon as a Clematis, and as an open-air plant might be said to begin the Clematis season two months earlier than it comes by the true Clematis.

Aponogeton distachyon.—It is curious to watch the growths of the tubers of this aquatic plant when under what may be termed the dry treatment, that is in pots like other plants. I have always found it advisable to start newly imported tubers in this way, as to plunge the dry and shrivelled roots in water at once often proves too much for them, bursts the tissues, and causes decay. My son sent me a quantity of tubers a few months ago from the Cape; they were at once potted like Tulips. Just now a tuft of black-purple

growths is issuing from the old foliar fibre. The merest touch will break the young growths, as they are so brittle. The most remarkable feature is the effect of the stronger light and air compared with the under-water condition on the colour of the herbage. Of course, when so much growth can be seen the plants may be safely put in water, and the simplest way perhaps is to sink both plant and pot as they are.

Trollius Gibsoni.—What a magnificent Globe Flower this is, and yet it is not a true Globe Flower in the sense of the sepals remaining globular, as in the typical *T. europæus*. It is the colour that charms and almost surprises one. It surpasses that of *napellifolius* and the deeper orange-yellow *asiaticus*, not by a shade or two, but by a great deal. When the flowers are in their prime their colour, which might be described as Roman red, is deepest in the middle or among the petals, and owing to the open character of the flower this rich colour is well exposed. I have grown the plant five years, and it is yet only of moderate size. It is a decidedly slow grower for a *Trollius*; the habit is erect, height $1\frac{1}{2}$ feet to 2 feet.

Anemone sylvestris.—It seems that this Windflower likes the chalk (p. 484), and the writer is to be congratulated on the fact that so lovely a flower will flourish so well with him without care. But why do so many complain of the plant dying off? Especially during the past winter this *Anemone* has been proved to be generally scarce. What happens is, the older or flowering crowns die. There may be pretty well enough of the thin runners left, but are not these two years before they flower? A person near me could always have plenty of it, and his land being very stiff and heavy, I naturally supposed heavy soil to be the right sort. Anyhow, I began with heavy soil for it, and the results, in my view, justify what I stated (May 10, p. 438).

Lobelia fulgens is now pretty well claimed as an essential plant for making a rich summer display, and indeed we have nothing to equal it for depth of scarlet-crimson, and plants last in flower eight weeks in ordinary weather. Many, however, have a difficulty with it in keeping stock, and have to buy fresh plants every year. By one plan, at least, this difficulty may be overcome. Not only is the plant a lover of moist places naturally, but under cultivation the plants should have plenty of moisture in summer. According to my experience, the roots do not winter safely in this climate in damp soil, and roots in such situations are not saved by a covering of ashes over the crowns. Many people take up the roots, and some succeed in getting stock from the old roots that have been stored until spring, but I believe most people find the roots more difficult to manage out of the ground than otherwise. What I would suggest is that as well as the batch set out in moist quarters for flowering, another should be planted in a dryish situation in poorer soil for stock. No flowers should be allowed on these, and so finer leaves and crowns can be had. The chief advantage, however, is that these plants in dryish soil will be pretty safe left out all winter, and certainly if slightly covered with a few coal ashes. In early spring strong rosettes begin to show, and that is the time to dig up and divide the clumps and make further plantings. I daresay it will be found that those set in damp soil will have all perished; hence the advantage of the drier grown batch. I have tested this method for two winters, and I find that it not only answers, but gives least trouble. The best of all the varieties of this is the dark purple-leaved variety known as *Queen Victoria*.

Woodville, Kirkstall, Yorks. J. Wood.

SHORT NOTES.—FLOWER.

Carnation Ellen Burrows.—This promises to be a fine tree variety. Several plants of it were exhibited by Mr. Charles Turner at the Temple show. The plant is strong and the flowers full, bright salmon-rose, a telling colour, and not destitute of fragrance.

The white Columbine (*Aquilegia sibirica alba*) is delightful on the Kew rockery. There is a plant in partial shade, its stems rising about 3 feet in height

and carrying large, pure white flowers, each fully 1½ inches across. Nothing could excel it for gracefulness.

The Japan Primrose (*P. japonica*) in the moisture and shade at Kew does remarkably well. All the varieties are here, planted in bold masses—white, pink, and deep crimson. They were also very beautiful a few days ago in the garden of Dr. Lionel Beale, Canes Wood, Weybridge.

Achillea mongolica.—This is a pretty flower in full beauty in Messrs. Paul and Son's nursery at Brixbourne. It is allied to the common Sneezewort (*A. ptarmica*), but is more slender in growth. The flowers are very full, snow white, and produced in profusion. It is a first-rate border plant.

FERNS.

HARE'S-FOOT FERNS.

(*DAVALLIAS*.)

THESE Ferns are everybody's favourites, and certainly most beautiful. A selection can be made for almost any position in a Fern house, and if properly chosen for the stove, the intermediate house, or the greenhouse, all will give



Davallia canariensis.

satisfaction. Thus the one here represented, *D. canariensis*, thrives well in the greenhouse, and it is extremely interesting on account of its being the only species in the genus which is said to grow wild in Europe. It is said to be found in Spain and Portugal, although I have never seen specimens of the plant from these districts, but I have received it from Madeira and the Canary Islands. A glance at our illustration will give a good idea of its appearance. One of the very handsomest of all the genus is *D. fijiensis* and its variety *plumosa*. These plants have a less robust rhizome, or creeping stem, than the species here represented; the fronds are much larger and feathery, more finely divided, and very rich deep green in colour. Two other excellent kinds for the greenhouse fernery are *D. Mariesi* and its variety *cristata*. They are both beautiful evergreen plants from Japan, and they are very suitable for cultivation in baskets, their slender creeping stems spreading in every direction and producing an abundance of beautiful bright green fronds,

which in the variety *cristata* have all the pinnae, as well as the tips of the fronds, ornamented with crests and tassels. For baskets of larger dimensions nothing can exceed the beauty of *D. tenuifolia* Veitchi, the long fronds and the peculiar formation of the segments being exceedingly beautiful and distinct. The plant has a wide distribution. Yet another kind, *D. Tyermani*, succeeds well in the greenhouse, making slender rhizomes, which are densely clothed with large silvery white scales, which render it very conspicuous. The fronds are very thick and fleshy, and last a long time after being cut. This makes a beautiful basket plant, whilst for cultivation in the stove it will be difficult to find anything to surpass *D. pallida*, perhaps better known as *D. Mooreana*.

Doryopteris ludens.—This plant, recently sent out by Mr. Bull, of Chelsea, differs from most of the known species in being a native of the Philippine Islands, whilst the better-known species are natives of the Western Hemisphere. It also differs

in having a creeping stem, whilst the others have nearly always an erect, tufted growth. All have netted veins and a broad marginal continuous band of sori; the fronds vary in this plant in shape, as in many of the western species, being sometimes simply hastate, but afterwards becoming somewhat triangular. The fronds are coriaceous in texture, rich green, borne upon a jet-black stem, nearly a foot long. It is a handsome and desirable acquisition.—G.

Ferns for cutting.—*Adiantum cuneatum* is still the best for cutting. Except for mixing with flowers in the filling of large stands, few other kinds seem to find favour. The *Adiantum* grown in private gardens rarely stands when cut, different to that produced by the market growers, who treat this Fern so as to enable it to keep fresh for some time after it is cut. In place of having their plants crowded and over hung with other things in shaded houses, the *Adiantum* is grown where nothing else interferes with its getting all the light possible. For this reason the plants are kept well up to the glass, and no more shade is used than necessary to prevent scorching. The close, damp atmosphere that some think requisite for Ferns is also avoided,

and no more heat given than needful to promote healthy growth. By these means the pale yellow tinted colour in the fronds is secured. Deep green *Adiantums* meet with little favour now. Plants that have been hard cut during the spring should be so treated as to produce another crop of fronds that will get well matured before autumn. All old, discoloured fronds should be removed, and if the plants want more root room they should have a shift. Those that are in pots sufficiently large should have manure water frequently as soon as the young fronds begin to move. The practice of syringing overhead daily that some growers follow is a mistake with Ferns that are required for cutting, as it tends to make the fronds soft. If more stock is wanted, spores should be sown without delay, so as to give time for the young plants to gain strength enough to carry them through the winter.—T. B.

HYPOLEPIS.

In this genus are included some very pretty and distinct Ferns, which are tolerably hard and firm in texture. Some are well adapted for Wardian cases and for general decoration where dwarf-growing plants are required. They are for the most part plants of moderate height, producing their fronds from a slender, creeping sarmentum, which grows close to the ground. In habit the species would appear to approach *Phegopteris*, although I see Mr. Baker, of Kew, places the genus between *Adiantum* and *Cheilanthes*. Some are cool house plants, and others require stove temperature to develop their beauties, but all will be found worthy of a place in ferneries, which appear to be again becoming popular, judging by the numerous inquiries I get from growers respecting them. The amateur Orchid grower may take advantage of these plants, for nothing associates with Orchids so well as Ferns. Under these conditions I learned to grow both classes of plants, and from my success and the charming appearance of the houses, I have never had reason to condemn the combination. These plants are very easily grown, either in pots or planted out in the open fernery. In the latter position I like to see them by far the best, as their creeping stems have ample means for spreading, and thus a good clump is formed, whilst should the plant become bare in the centre some of these stems can be pegged round in such a manner as to fill up the blank. They like good drainage, and the soil should consist of rough peat and light turfy loam, made tolerably sandy, and not too stiff and heavy with loam. During the summer season they enjoy copious supplies of water; in winter less will be necessary. Dryness at any season must be avoided, or the lower pinnae will become rusty and it will entail a deal of trouble to cut all such pieces out. This if not done will give the house a neglected appearance—the very opposite of what a Fern house should present.

H. DISTANS.—This is one of the most elegant of the whole genus; its fronds, of a hard and robust nature and finely divided, when fully grown reaching to some 18 inches in height. The fronds when 6 inches or 9 inches long are valuable for cutting, as they last a long time in good condition. It comes from New Zealand and may be grown in quite a cool house.

H. TENUIFOLIA is another lovely Fern from the same country as the last. The fronds when mature are some 4 feet or more high, three or four times divided, the segments finely serrate, and clothed below more or less with woolly hairs. It is, however, seen more frequently with fronds from 1 foot to 2 feet high, and some 12 inches to 15 inches broad. Such plants as this afford a decided change from the usual run of *Lastreas*, *Polystichums*, and

other plants, too frequently grown to the exclusion of all other things.

H. BERGIANA.—This is a well-marked species from South Africa, requiring the warmth of a stove. I have specimens of it gathered in Natal by Plant. It is also found in Zambesiland and in Cape Colony. It is a tufted plant, bearing fronds each 1 foot or 18 inches high, and some 8 inches or 9 inches broad. The naked portion of the stem is stout, dark chestnut-brown, and clothed with a woolly tomentum, as is also the whole underside of the fronds. It is a pretty stove ornament, but is not suited for cutting.

H. REPENS.—A strong-growing plant of great beauty, having fronds from 2 feet to 4 feet in length, three or four times divided, the stem straw-coloured, and more or less prickly; the colour of the segments is rich green, which renders it very effective. This plant is a native of the West Indies and Brazil. It grows very freely and should not be allowed to overrun adjacent kinds.

Other species said to belong to this genus are *H. parallelogramma*, *H. Purdieana*, *H. hastilis*, and *H. anthriscifolia*, but none of these species are in cultivation. By this it will be seen that Fern lovers need be under no apprehension that the stock of new kinds is exhausted. Depend upon it, we have as many new kinds to bring into a cultivated state as we have ever had living in this country, and if Ferns were as eagerly cultivated now as they were about thirty-five years ago, we should soon have some hundreds of new kinds to satisfy our curiosity and embellish our plant houses.

W. H. G.

SHORT NOTES.—FERNS.

Cystopteris montana.—I have recently received some fronds of this species gathered on the Breadalbane Range of the Grampians. It is one of the most beautiful of all the smaller growing British kinds. The fronds are deltoid, and produced from a slender creeping rootstock. I believe the plant is peculiar to Scotland, where it is very rare. It is, however, said to be found in North America, in the Rocky Mountains, and also in Canada. I fear we shall never succeed in establishing it in London or its neighbourhood.—G.

Isoloma lanuginosa.—I was much pleased on looking over some dried specimens of Ferns brought from the Mauritius to find amongst them examples of this species. I well recollect how the plant was welcomed at Kew when the first specimen of it arrived in the gardens. I do not know if the species still exists in our national collection, but I hope it does. The plant cannot be reckoned beautiful, but it is well deserving attention. The fronds, erect, springing from a tufted caudex, are each some 2 feet in length, the pinnae being jointed to the rachis, and bearing white dots round the edges; the rachis continuous. W. H. G.

Fern houses.—Where there is a house wholly or in a great measure devoted to Ferns, no more heat should be used than is necessary to promote a fair amount of growth. Such kinds as the *Gymnogrammas* and a few others, that require a considerable amount of warmth, are much better grown elsewhere than along with the general collection, which do better with only a little warmth, less shade, and less atmospheric moisture than is often used in Fern houses, and with more air than is frequently regarded as necessary. In this way better results are obtained, the plants having more substance in them, and being less subject to the attacks of thrips. This pest invariably gives much trouble when the plants are treated in a manner that makes the fronds soft and tender.—T. B.

Pterozonium reniforme.—This is a rare plant even in herbariums. However, one came into my possession some few years ago, and I tried then to obtain some plants from the spores, but in this I was unsuccessful. In general structure the plant does not differ much from *Gymnogramma*, but the aspect of the plant is more that of *Adiantum reniforme*; some slight differences, however, induced Fee to establish this genus for it, and I believe it is the only plant which has been put into it. The

plant, I believe, is a native of Peru, but I have been unable to discover in what part of this country it is to be found. Some of our Masdevallia hunters should be able to come upon it, and it would be a desirable plant to introduce to cultivation.—W. G.

Large specimen Ferns that are much confined at the roots, and to which it is not desirable to give more room, should have manure water frequently so long as they continue growing. Support of this kind is necessary to keep up the requisite vigour, and with most sorts, especially the different tree species, it is much better to give the requisite sustenance in this way than to put them in very large pots or tubs, the result of this being that they out-grow the amount of room that can be allowed them, and in addition the plants encroach upon each other and smother all the weaker growers that are near them.—B.

Seedling Ferns.—Seedling Ferns of various kinds that have been pricked off into pans and boxes should be put singly into small pots as soon as they are large enough to handle. The practice of allowing young stock of this kind to remain together until the roots get matted is wrong. When in this state it is not possible to separate them without breaking the young fibres, the result of which is that the plants are some time before they recover from the check. Give pots proportionate in size to the rate of growth natural to each kind. Nothing is gained by using larger pots for seedling Ferns than necessary to carry them through the growing season, but they should have enough room to admit of this, as no further shift should be wanted this summer.—T. B.

ORCHIDS.

ONCIDIUM STELLIGERUM AND ITS VARIETIES.

I WAS recently asked what difference really existed between this plant and the variety known as *Roezli*. They are now both flowering in Mr. Sander's collection at St. Albans. I have had blooms sent me in order that both may be described from the life, and I must say that size in the individual flowers is of material importance. *O. stelligerum* is a Mexican species, introduced, I believe, just fifty years ago, and in my earlier days amongst Orchids it was sought after, and I frequently exhibited it in a collection of these plants. It was a very pretty plant, and was a fitting companion to the older, but equally beautiful *O. leucochilum*, from the same country. The most of the plants which Mr. Sander has are of the variety *Roezli*. The true species first introduced is very much smaller in size, having spreading flowers, in which the sepals and petals are about equal and nearly an inch across, the ground colour yellow, profusely marked with blotches of chocolate-brown; the middle lobe of the lip is yellow, the side lobes small and short, the crest being yellow. In the variety *Roezli* we have a flower quite double the size of that of the species, with long and pointed sepals and petals about equal in size, the ground colour being light yellow, profusely blotched with a deeper chocolate, leaving the tips quite clear yellow. The lip is longer than in the species, the side lobes large and white, whilst the narrow front lobe is entirely soft brown. The wings on the column are also more largely developed than in the species and pure white. These colours, with its size, render it a very effective plant. There is yet another variety of this species which I think superior to *Roezli*, and that is *O. stelligerum Ernesti*. As far as I am aware, this is only to be found in the Cambridge Lodge collection. It is a very showy and beautiful variety when in flower. In growth it resembles the typical plant. The spike is much-branched, many-flowered, each bloom measuring nearly 2½ inches across,

and having the additional advantage of being delightfully fragrant. The sepals and petals are spreading, ground colour pale yellow, clearly spotted, rather than blotched, with rich chestnut-brown; the large lateral lobes clear yellow, the front lobe bright reddish brown, the wings of the column being pale yellow. It will be a good thing when we have more of this beautiful variety in our gardens. The whole of the above plants are very easily grown into good specimens, and the warm end of the *Odontoglossum* house is exactly the place in which they thrive admirably. They should be grown as pot plants, as the long branching spikes are best arranged from such a basis. The drainage must be kept in good condition. During the growing season the plants should be treated to a fair amount of water, and should have any amount of light and air. The usual time for its flowering is through the spring and summer months, and the flowers last long in full beauty. Those who do not possess the variety *Roezli* should add it to their collection.

W. H. GOWER.

ODONTOGLOSSUM HYBRIDUM LEROYANUM.

HYBRID Orchids are now numerous in some of the more popular and best-known genera, but the production of a hybrid *Odontoglossum* has hitherto proved too much for the skill of Orchid cultivators in this country. Seed has been obtained and plants even have been raised, but they have either died or have failed up to the present to produce flowers. A remarkable exception in France is worthy of notice, however, and will always possess considerable historical interest, as the first hybrid resulting from artificial crossing amongst the *Odontoglossums*. This is in the collection of Orchids formed by Baron Edmond de Rothschild at Amandvilliers, Gnetz. It was secured from a cross effected about five and a half years ago between *O. crispum* and *O. luteo-purpureum*, the former being the seed parent. The seeds were sown when ripe, and several plants were raised, which have steadily progressed until the present year, when the most advanced produced a raceme of seven flowers early in May, and these are now fully expanded, the characters indicating a true combination of the two species named. The pseudo-bulbs are rounder than those of *O. crispum* and more like those of *O. luteo-purpureum*, the larger being 1½ inches in diameter and the same in depth, and flattened, the other being more conical in form.

The leaves are each 10 inches to 12 inches long and 1½ inches broad, stiff, and bright green. The flowers are each 3½ inches across from tip to tip of the petals, and 3 inches from the tip of the upper sepal to the margin of the lip. The sepals and petals are nearly equal, the latter slightly broader; the sepals of a pale yellowish ground tint, very strongly marked at the tips. The petals are whiter, and, perhaps, will become still purer. The sepals have each three broad reddish-brown bars, these being more clearly defined in the upper one than the two lower. The petals are undulated at the margin with one large blotch in the centre, two smaller rounded ones at the side, and a few still smaller near the centre of the base. The lip is three-quarters of an inch in diameter, somewhat like that of *O. luteo-purpureum* in shape, fringed at the edge, white, with one large reddish blotch, and a deeply divided yellow crest at the base on a reddish base. In general appearance the flowers are very distinct, the sepals and petals being slightly curved forward. Baron Edmond de Rothschild specially desires the plant to bear the name of his gardener, M. Leroy, and I believe that the hybrid will be figured in an early issue of the "*Reichenbachia*."

L. CASTLE.

Epidendrum Stamfordianum.—This is a beautiful plant, although I have heard it remarked that its flowers are small, and that there is nothing of it; perhaps not with a small spike, but when seen as I have it now before me, it is truly charming. This is the variety which we had at the

Tooting Nurseries, and which was distinguished by the name of Rollisson's variety. It has longer and thinner bulbs than most of the plants of this species, and it throws up from the base of the pseudo-bulb a long and branched raceme, bearing many fragrant flowers; the sepals and petals have a ground colour of buff-yellow, more or less spotted with deep red; lip three-lobed, the middle lobe flat, violet at the base, with a streak of deep red down the centre. This species and another are the only two which have the inflorescences coming from the base of the pseudo-bulbs. It thrives well, treated as a pot plant, and placed in the Cattleya house in a moist atmosphere. It is a native of the coast in Guatemala. I am much obliged to Mr. T. Thomas for sending such a fine spike.—W. G.

SHORT NOTES.—ORCHIDS.

Cypripedium Curtisi.—I have received a very fine variety of this species from "J. C." with twin flowers. I have seen it with twin flowers before, but I never saw such a fine variety, the lip being large and all the colours very bright, the dorsal sepal having a very broad border of white, whilst the ground colour of its petals is deep purple, the lip being bright brown. It is a plant which requires warmth, coming as it does from Sumatra.—G.

Orchid flowers.—I have received a box addressed to my private residence, but it does not contain any flowers, only a letter with a request to say something about them, and to name. It bore the signature of Ethel, and I hope I shall soon have the flowers packed and sent. It must have been an omission, as the box was not broken, nor had it been tampered with.—G.

Dendrobium Harveyanum (H. J.).—This, and not *D. Brymerianum*, is the name of the species sent. Both plants come from the same country, viz., Burma, but I do not know if they grow in close proximity. The petals as well as the lip of *D. Harveyanum* are beautifully fringed. *D. Harveyanum*, though introduced some seven years ago, is still rare in collections. It first flowered in Mr. Harvey's collection at Liverpool, and has, as far as I have seen it always appeared to have much smaller flowers than *Brymerianum*.—H.

Odontoglossum Wendlandi.—This is a charming plant, a new species introduced by Mr. Sander, of St. Albans, having a somewhat dense spike, the flowers resembling in shape, but not in colour, those of *O. Schillerianum*. The flower is creamy-white, more or less spotted and streaked with bright chestnut, lip profusely spotted with the same colour, the crest on the lip white. Its habitat I do not know, but it certainly thrives under the same conditions as *O. Alexandræ*, and must, therefore, be an acquisition to the cool house.—H. G.

Dendrobium Schroederi and D. Farmeri albiflorum.—I am in receipt of a beautiful spike of each of these plants from Messrs. Seeger & Tropp to show the distinction, and to show me that a plant offered in bloom by Messrs. Protheroe and Morris a short time ago was not *D. Schroederi*, but *D. thyrsoiflorum*. *D. Farmeri albiflorum* is the Moulmein form of the plant, having pure white sepals and petals and the lip deep rich yellow. I used to import this species in some quantities from the Khasya Hills, and these plants all had the sepals and petals of a white or pale yellow, more or less suffused with rose, and the lip rich orange-yellow. I really think this is the prettiest form of the species. *D. Schroederi* is different from either of the above, producing stouter and more angular stems, and the spike is more lax and the flowers larger, the sepals and petals being of a dead white, the lip being pale yellow at the margin passing into orange at the base. The plant was named in honour of Mr. Schroeder, who lived at Stratford Green, Essex. It has always been one of the rarest and most beautiful of the white-flowered species.—W.

Plant nomenclature.—I try sometimes to get up a smile over the poor stuff found in what are called the comic papers as wit, but the attempts usually fail. I was therefore all the more surprised to find in one corner of a page of THE GARDEN a

few lines so funny as to elicit a roar of laughter. What amusing people these botanists are! How they love to indulge in phraseology to which Welsh is plain as a pikestaff, and Volapuck easy! That these scientists are of a very superior race to common humanity, there can be no doubt; hence they use the language of the unknown spheres. Such choice bits as were found in the corner of p. 473, May 17, might, if occasionally collected, form an admirable comic column. The sort of lingo the little paragraph illustrates makes me thankful I am not a scientist. On a preceding page the new *Calla* is described under an absurd personal botanical appellation. Does anyone suppose that this plant is a distinct species that it should so be named? Why not have called it the golden *Calla* or Elliott's *Calla*? The beautiful crimson-tipped Broom shown by several exhibitors at the same time, a shrub which should, if really a good grower in the open, become one of the most popular of its class, is, if rightly comprehended, in danger of being hidden under its heavy technical nomenclature. Why not have called it the crimson Broom? If it be popularly known as such, and it is not a misleading description, hundreds of purchasers might be found for so charming an addition to our shrubberies.—Y.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

ASPARAGUS.—We have had a good season with Asparagus, and this appears to be the rule generally. Next season, however, has to be thought of as well as time present, and if the beds are closely cut from in all midland and southern counties especially much longer, the chances are the crop next year will suffer greatly in consequence. An early strong top growth will build up good crowns and buds, the shoots next spring being proportionately improved in quality by this, and not by the manure piled on to the beds in the autumn or winter. June 12 is the time-honoured date for ceasing to cut, and in some instances a few dishes may safely be cut for another week or more longer. Peas will, in most warm districts, be fairly plentiful by the middle of June, and there will then be much less demand for Asparagus.

MULCHING AND MANURING ASPARAGUS.—Now is the time when manure and moisture are most needed by Asparagus, but very frequently the beds are cleared of the former in the spring, and do not retain or obtain a sufficiency of the latter in consequence. Already the beds are in a semi-dry state, and unless a soaking rainfall is experienced soon, dryness and cracking will soon take place in very many instances. These should, therefore be anticipated, or the Asparagus must suffer. First, lightly loosen the surface of the beds and, if possible, give liquid manure freely prior to mulching with strawy litter, decayed hot-bed manure, leaf soil, or anything that will not bind. Even a surfacing of fine garden soil is much better than no dressing at all. Salt enters largely into the composition of Asparagus, and in all but marine districts where there is plenty of it in the atmosphere this being duly deposited on the ground, it is advisable to apply some. It must be most sparingly used on clayey ground, and at this time of the year only, as its effect is to make heavy ground pasty and too retentive of moisture. Salt may also be applied to light soils now with advantage. Six pounds of it are ample for every 12 square yards.

THINNING AND STAKING ASPARAGUS.—Thinly grown plants give much the best returns, and thickets of top growth are especially to be condemned. The latter ought to be freely thinned out, the more weakly shoots being removed, and from six to nine of the stoutest reserved. Nor ought strong Asparagus growths to be left to the mercy of strong winds. When heavily laden with moisture, as they frequently are, winds twist them down and cripple the stems badly, and it pays well to prevent this by lightly supporting with stakes. They ought not to be bundled up tightly together,

but if a stake is placed to each clump the wattling or tying material used may be taken from this loosely round all the growths without actually crowding them together. Especially is it desirable that the strong growths formed on new or comparatively new beds be staked, as these being thin do not shelter each other, and, in addition, wind-waving is liable to loosen the plants at the roots. The roots of one-year-old Asparagus can be moved more readily than older ones, and in order to have them fairly strong, thin out the seedlings when large enough to handle to about 4 inches apart.

CABBAGE OR COLEWORTS.—The value of a good supply of small tender hearts during November and December cannot well be over-estimated, especially where there is a large establishment to be provided for, and a few might well be grown in every garden. Little Pixie, Hill's Dwarf Incomparable, Nonpareil Improved, Shilling's Queen, and London Rosette are all of neat, quick growth, the last named being somewhat the hardiest and perhaps the most generally serviceable. Seed of this and one or more of the other varieties recommended ought to be sown at once in any open position, preferably in drills. Open these about 4 inches apart, water them, and then sow the seed thinly, covering with fine soil. If broadcast sowing is adopted, make the surface fine, water through a rose, sow thinly, and cover with not less than 1 inch of sifted soil. Thus treated every sound seed will come up, and these should be dusted over early in the morning, in order to protect from both birds and slugs. When large enough, put out the plants on rich firm ground, 12 inches apart each way. Coleworts succeed admirably in succession to Tripoli Onions without any further manuring and digging of the ground.

ENDIVE.—As a rule, there is little or no demand for Endive in this country during the time good Lettuce is available, but directly the latter falls off in quality the salad is greatly improved in appearance, if not in other respects, by the addition of well blanched Endive. In any case it is unwise to grow much extra early Endive, as the greater portion of the plants in all warm districts inevitably runs to seed prematurely. Therefore be content to sow a pinch of seed during the early part of June, raising the main crop plants a month later. Endive, however, cannot well be grown too large, and where it is found plants obtained by sowing seed in June do not run to seed in the autumn, then ought early sowing to be resorted to. Strong, fully grown plants, in addition to being the most easily blanched, are also of superior quality, the hearts being nearly as crisp and sweet as the best Lettuce. The Moss Curled is of quick, close growth and blanches almost naturally, but it is not advisable to grow this variety extensively. The Louviers Laciniated is far superior to it, and is strongly recommended for either the early or main crops. A good stock of Green Curled and the Improved Round-leaved Batavian are excellent for the main crop or late supplies, the last-named being especially good. Sow the seed thinly either in drills or broadcast, the latter preferably, and much as advised in the case of Coleworts.

MUSTARD AND CRESS.—This is appreciated as much during the summer as at any time, always provided it is quickly grown and tender. As a rule, too little pains are taken with it at this time of year, and it is hot and tough in consequence. Both Mustard and Cress should have long well-blanching stems, that grown in the open and much exposed being very short and otherwise unsatisfactory. A small plot of ground near to a moderately warm wall or fence is suitable for the purpose, the soil being made rich with the free addition of old hot-bed or Mushroom bed manure, either a fresh site or fresh soil being given at each weekly sowing. Well moisten this, sow a patch of seed of each kind thickly, press it in, and lightly cover the Mustard only with fine soil. Shade closely with either brown paper or mats, and do not remove this covering till the salading is 2 inches high, then gradually expose to the light. The soil from first to last should be kept carefully moistened, and the change of soil or position is absolutely

necessary, most failures that occur being due to staleness. W. I.

PLANT HOUSES.

PELARGONIUMS, IVY-LEAVED.—The Ivy-leaved varieties now in cultivation are more elegant in growth and in the form of their flowers than either the old large-flowered sorts or the zonals, whilst they are equally as continuous in their blooming as the zonals. For hanging baskets they are unequalled, and in the form of specimens loosely trained round a few sticks, when the plants get large they can be turned to good account for the decoration of plant houses through the summer, and in autumn when blooming plants are not too plentiful. Where large specimens are required they must have plenty of root room. They may be potted when in full bloom without receiving any check, provided care be taken not to disturb the roots more than by removing the old drainage material. Ten-inch pots are not too large for full-sized examples, and even with this amount of room they will need assistance with manure water later on to maintain a robust growth. Turfy loam of good quality, with a sixth part of rotten manure and a sprinkling of sand, is the right soil to use. Young plants, such as struck from cuttings during the present summer, will be in right condition for filling hanging baskets next spring; consequently the requisite amount of cuttings should now be put in. By striking them early the plants have time to gain strength before autumn.

PELARGONIUMS, LARGE-FLOWERED.—Plants that had their shoots stopped early in the spring with a view to their coming into bloom after the earliest are over will now be pushing up their flowers. Manure water should be given them once a week. This will not only assist the bloom, but it will keep the older leaves fresh and green until the flowering is over. See that they are quite free from aphides before the flowers begin to open, as fumigating after this will cause the petals to fall prematurely.

PELARGONIUMS, LARGE-FLOWERED WINTER BLOOMERS.—To have the plants in condition to produce flowers in sufficient quantity, they require to be struck in spring. If cuttings were put in at the time advised, they will now need shifting out of the little pots in which they were struck to larger ones; 4-inch will be the right size to put them into. Give them rich compost, such as advised for the Ivy-leaved sorts, and make it solid in the pots, as, in common with the summer-flowering varieties, light potting causes gross sappy shoots and leaves. Stop the plants once; if they are kept as they should be close to the glass, this will be enough to cause the production of as many shoots as will furnish them sufficiently.

TUBEROSES.—Where flowers are wanted late in the season, some roots should now be potted. They should be stood in a cold pit or frame, with enough air on to prevent the temperature rising so high as to excite the top-growth sooner than it is required. With a like intention the sun should not reach the glass in the middle of the day. If the pots are stood on damp coal ashes or other material that will hold a little moisture, water will not often be required.

STOVE.—**IXORAS.**—Cuttings of these plants strike freely at all times of the year when the wood is in the proper condition. An important matter in the cultivation of *Ixoras* is to see that the cuttings are made from strong vigorous shoots; the stronger they are the better; and the stronger the wood is, provided it has not got too hard, the more freely the cuttings strike. *I. coccinea* when properly treated throws up strong shoots from the collar, the tops of these when they have grown through the plant making the best cuttings. They should be struck in a brisk heat, and be kept moving continuously afterwards. Put them singly into small pots with a mixture of peat and sand below, the top all sand. As soon as well rooted, put them into 6-inch or 7-inch pots. Give them good fibrous brown peat, to which add a liberal amount of sand. When the plants have begun to move freely, pinch out the tops to induce them to break low enough down to furnish the future specimens. *I. coccinea*

is still much ahead of the various other species and the many seedling varieties that have been raised. The individual flowers last double the time that those of the others do. When well managed it grows fast and blooms profusely, but it appears to have beaten most plant growers of the present day. *Ixoras* require more pot room than most stove plants that attain a similar size. If ever the roots suffer through being pot-bound the wood gets hard and stunted. Like many other stove subjects that require a deal of heat, *Ixoras* suffer by being too much shaded and having too much air in summer; consequently the atmosphere gets drier than the plants like. Another mistake often committed is that of not closing the house early enough in the afternoon. T. B.

FRUITS UNDER GLASS.

PEACHES.

WHERE the prefix early, independently of first quality, has been the guide to the selection of varieties for forcing, not a few houses will now be clear of fruit, and, considering that the trees have the hottest quarter of the year before them, they will require most careful management in every detail. Free, steady growth of shoot, clean, fresh, healthy foliage, and active roots working near the surface are all-important items which must be secured and maintained, otherwise the wood will ripen prematurely, when the buds will drop through being too forward. Profuse ventilation, copious watering, and good syringing are three cardinal points; thin training, extreme cleanliness, and perfect freedom from insects are equally imperative. The ways and means are as simple and common sense as one and all they are necessary. When Royal George and Noblesse or Grosse Mignonne were the pioneers, private consumers were satisfied if they obtained really good fruit by the end of May or the beginning of June, and stripping the roofs being the then favourite mode of management, these sterling varieties, provided they were properly tended, never got too forward in the autumn. First houses of the past having been converted into second houses of the present and for the future, many gardeners now force their earliest trees in pots, and this plan undoubtedly is the best, as they can transport them to the open air, to cool borders, or to north aspects, if so inclined, when the compartments recently occupied can be converted into other purposes throughout the summer and autumn. Young trees, moreover, just in their prime, can be forthcoming every year, and although pot culture is expensive, this, I venture to assert, is the best and only certain mode, as Peaches in April and May are expensive in proportion to their similitude to Turnips. Succession houses in which the fruit has been carefully elevated above the trellis, and is, moreover, perfect in colour, will now require more air and genial warmth, otherwise the quality will be flat and insipid. Fire-heat, it is just possible, may be dispensed with for days together, but so necessary is a brisk, buoyant temperature, that the fires should never be pulled out altogether until after midsummer. The last watering is not likely to carry the trees through; another supply of pure water equal to the mean of the house should be given at once, and the better to keep the surface roots moist and active, some light non-conducting material may be cast over the borders. Discontinue syringing before the fruit begins to soften, but moisten the walls and floors two or three times a day, also any bare parts of the trees, and ply most vigorously as soon as the crop is gathered. At this stage cut out all superfluous shoots which have finished their work, regulate those retained for next year, and follow up the detailed management recommended for the earliest compartment.

Late houses.—Complete the final thinning, leaving one fruit to every square foot of foliage, and at the same time secure more wood where the shoots are likely to become at all crowded, a condition which greatly impedes progress at a busy time, and results in a plethora of weak, unripe, useless spray. Crowding in early and midseason houses is bad enough, but when this very common fault is committed when the ripening of the wood and fruit

must be delayed until late in the season, the result may be very serious. Young men who have not been thoroughly trained in the art of disbudding are apt to lay in a great deal too much wood, but this should not and would not happen if their leader preceding them performed his duty in a workmanlike manner. The borders being outside and fully exposed to the sun, heavy mulching will play an important part, not only in keeping the surface roots moist and cool, but also in preventing the escape of water when flooding is resorted to, and dispatch is the order of the hour. Syringe copiously every morning soon after 6 o'clock, and again in the afternoon, when the house may be closed for a short time to economise fire and prevent the temperature from falling too low at stoning time.

Peach cases will require similar treatment, both as regards manipulation of the trees, mulching, and watering, but mildew, sometimes very troublesome in these structures, must be prevented from gaining a foothold by the occasional use of sulphur water and free ventilation along the front throughout the night. If aphides, black or green, put in an appearance, syringe well with weak tobacco water in preference to Gishurst, as the latter sometimes marks and disfigures the fruit. W. C.

GARDEN FLORA.

PLATE 757.

CAMELLIAS.

(WITH A COLOURED PLATE OF *C. RETICULATA*.)

A GROWING dislike for double flowers that are stiff and formal in shape has lessened the popularity of the garden Camellia in England. The big double *Dahlia* was replaced by the more elegant single-flowered kinds; double-flowered *Fuchsias*, *Anemones*, *Hollyhocks*, *Pæonies*, and many such like plants are losing favour from the same cause. Double flowers are not objectionable when they are elegant in form, as, for instance, in the *Rose*, the *Carnation*, and the *Chrysanthemum*, or when they have novelty to recommend them. It is a matter of taste, but in my opinion double flowers generally are much less beautiful than single ones.

It was at the time when there was a craze for the big formal double flower that so many Camellias with that character were popular. Importers and raisers of new kinds paid most attention to doubleness and an imbricated arrangement of petals. The single-flowered sorts were grown only as stocks upon which the choice kinds were grafted, much as the *Brier* and *Manetti* are grown for *Roses* now. A few single or semi-double-flowered Camellias still remain in cultivation here, but the bulk of the hundreds of kinds known are double and regular in form.

The parent of all the garden Camellias, viz., *C. japonica*, is single-flowered, and there are many varieties of it known in Japan and China with the same character. Others have the petals arranged loosely and irregularly. This fact is worth noting, as some people have given up the cultivation of Camellias from a belief that all were double-flowered. It would be difficult to replace the Camellia as a plant for the conservatory and greenhouse, and if we can obtain kinds which, in addition to a rich evergreen foliage, accommodating habit, and freedom of flowering, will also produce flowers that are good to look at and useful when cut, a good deal will have been gained.

Whilst *C. japonica* has been too much improved by the florist, a second species, viz., *C.*

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew, February 20, 1890. Lithographed and printed by Guillaume Severelyns.



reticulata, has been allowed to remain untouched. It is by far the finest of all Camellias both in regard to size, form, and colour. Mr. Moon has represented only a small flower, for I have seen them fully 8 inches in diameter. This plant differs from *C. japonica* in having rigid, flat, dull green, strongly reticulated leaves, in the ovary scales or bud wrappers being silky, and in the young leaves being almost chocolate-brown in colour. The petals are broad, wavy, and curved, and the stamens, instead of forming a tubular cluster in the centre of the flower, are mingled with the petals. There is a variety in Japanese gardens with regular single flowers as large as those here described; this should be worth getting for English gardens.

C. reticulata was introduced from Japan in 1820 by Captain R. Rawes along with *Primula sinensis*. Although figured and described in various publications about that time, it does not appear to have become well known. I doubt if it is to be found in twenty gardens in England now. There is an old plant of it "cribbed, cabined, and confined" in a low frame in the Royal Horticultural Society's Gardens at Chiswick, which is said to have been one of the first introduced. There is also a very fine plant growing on the back wall of the conservatory at Chiswick House. There is another large specimen in the temperate house at Kew, where the capabilities of the species are fully displayed and where it stands a long way first amongst a good representative collection of Camellias. The magnificence of this specimen when in bloom, the rich rose-red, large size, and elegant form of the flowers are not even approached by any other Camellia. It finds its parallel in *Rhododendron Aucklandi* amongst plants of that genus. *C. reticulata* does not strike readily, but it may be grafted or inarched on *C. japonica*.

The genus is represented in India, China, Japan, and a few of the islands adjacent, numbering altogether fourteen species. Of these, the most important by far is the Tea plant (*C. Thea*). Horticulturally, the only two noteworthy species are *C. japonica* and that here figured. Several others have been introduced, and they appear to be possessed of characters which ought to prove of service in gardens. Amongst them,

C. SASANQUA should be noticed, as although of no known ornament in English gardens, yet it is a popular garden plant in Japan and China, where it is represented by many varieties in the colour and the number of the flower-petals. Its leaves are said to be used to adulterate tea. It grows to a height of 6 feet, has small leaves, white or red flowers nearly 2 inches across, almost flat, with small bud scales. There is a good bush of it in the temperate house at Kew.

C. OLEIFERA was introduced before 1820, and largely distributed in England, but it does not appear to be in cultivation now. It forms a large shrub, and bears numerous single white cup-shaped flowers 2 inches in diameter.

C. ROSE-FLORA is very similar to *C. Sasanqua*, the habit being compact, branches twiggy, leaves small, the flowers rather flat, each $1\frac{1}{2}$ inches in diameter, coloured dull rose. It is cultivated in the temperate house at Kew.

C. JAPONICA.—The type has single red cup-shaped flowers, each 2 inches in diameter, with from five to seven petals, each 1 inch wide. It is common everywhere in Japan, where "during the winter months when the whole floral world is in repose, this flower with its unrivalled beauty enlivens and decorates the gardens and groves." It was introduced into England, it is said, before 1739, and, like many other Japanese plants when first introduced, it was for a long time cultivated as a stove plant.

So far as I have been able to search, I have

not found any record of *C. japonica* ever having been hybridised with any other species of Camellia. On the other hand, all the garden Camellias bear evidences of close relationship with *C. japonica*. Probably, as in the case of the *Chrysanthemum*, *Cineraria*, *Hyacinth*, &c., all the forms in gardens are the result of cultivating and selecting from one species only. It is remarkable how much can be done to diversify the characters of a given species in this way. In 1819 Curtis published an elaborately illustrated monograph of the Camellia as represented in English gardens at that time. He described twenty-nine varieties, all of them introduced from Japan. Amongst them were albo-plena, imbricata, Lady Hume's Blush, Waratah, fimbriata, and atrorubens. These are all well known in gardens now. Kew, Chiswick, Messrs. Loddiges, Colville, and several amateurs were the principal introducers and growers of Camellias at that time. *C. Donckelaari* was sent to Holland from Japan by Siebold in 1836. Meanwhile new varieties began to appear in European gardens. France, Italy, Belgium, as well as England took Camellias in hand, with what result is shown by the names borne by the hundreds of kinds now known.

Comparing the type as here described with the best of its progeny with their large flowers, varied forms and colours, as shown by Mr. Paul, for instance, at a recent meeting of the Royal Horticultural Society, we have a striking example of how much the cultivator can improve on Nature so far as regards size, colour and substance of flowers.

The Camellia rarely seeds under cultivation in England, but in Italy and other countries favourable to its growth in the open air it seeds freely. It is remarkable that whilst typical *C. japonica* is easily propagated from cuttings the varieties we cultivate cannot well be increased in that way, but must be grafted. The stock employed here is *C. japonica*, but in China where the Camellia is cultivated, though not a native, *C. euryoides* is preferred. All the best varieties of Camellias are grafted by the Japanese.

IN THE GARDEN last year a plate (718) is given of two varieties of Camellia and several others are described under the name of Japanese Camellias. The smallness of the leaves and characters of the flowers of these varieties appear to me to indicate that *C. Sasanqua* has had something to do with their origin. They are pretty in flower, compact in habit, and altogether promising, although, of course, they have not yet been properly proved. To conclude on safe ground, the claims of *C. reticulata* for a prominent position in every conservatory big enough to hold a plant which wants space 10 feet in height by as much in width cannot be too strongly urged. W.

ORCHARD AND FRUIT GARDEN.

MELONS IN FRAMES.

GROWERS of Melons for private use not unfrequently commit an error in undercropping and overfeeding, with the natural result that the individual fruits, handsome, no doubt, become too large for small families. The quality, moreover, is not improved, but quite the reverse by the immoderate use of stimulants which force Melons beyond their normal size, as may be noted when the seeds do not half fill the cavities. The exhibitor, as a matter of course, must have big Melons for his collections of fruit, otherwise he loses a point or two, but when he approaches the flavour classes he takes the happy medium, well knowing that the same judges mayhap will employ another sense as their standard in awarding the honours. This being so, we may assume that the medium Melons are the best, and

as the best sometimes are very bad, all parties concerned in their production, disposal, and consumption may benefit by growing smaller fruits and more of them. Small Melons, as a matter of course, can be grown in the most approved houses simply by allowing individual plants to carry three fruits instead of two, six instead of four, and so on, but where good frames are at command and summers prove fairly hot, the supply may be greatly increased and extended from July until the autumn. May, as I have often stated, is the best month for putting out frame Melons and Cucumbers, for not only is the whole summer before them, but at this particular time the bedding plants or the forced Potatoes have been cleared out, and these useful structures are standing more or less idle. If well managed, the fruit from these May plants should be ripe by the middle of July, and, considering that frame Melons are moderately perpetual, the supply will be good for three or four weeks when the June set will be coming in, and last, but not least important, the third sowing should give most acceptable crops for the hot shooting days early in September. There should be no set time for sowing, as seeds are plentiful and germinate as freely as Mustard; therefore, young stock should be raised at short intervals, and as regularly thrown away if not wanted when showing signs of becoming pot-bound, that is, where pots are used, the better plan being found in a single light frame for a nursery and small squares of sound turf for sowing the seeds upon. A steady bottom heat, I may say, is imperative, and 80° is better than 70°, but where existing beds retain some latent heat and fresh linings can be applied, it is more than probable they may be renovated without going to the trouble or running the risk of getting too much heat by pulling them to pieces and rebuilding. We sometimes see economical gardeners cutting a trench a foot or so in width longitudinally through the centre of an old bed, filling in with hot material, which revives the whole, and after beating it as hard as a sod of loam they lay the compost at once immediately over it. Another advantage they gain by elevating the frame, as the plants must have 18 inches of head room, is an equal depth of soil for the roots at the outset. We sometimes hear inexperienced persons say the stems of Melons may be earthed provided the seed leaves are not buried, but it is a case of the pitcher to the well; it may be done for a time with impunity, but more likely than not the lightest of coverings may result in canker and collapse when the frame becomes full of foliage. The ridges or hills, on the contrary, should be raised to their extreme height, and upon these the balls must be so elevated that water cannot reach the necks of the plants when flooding becomes necessary. This high and dry position of the roots is the best preliminary preventive of canker near the surface, as the roots and stems up to the cotyledons soon become hard and woody. Then, in order to keep the vines firm and wiry, the compost, sound heavy loam and lime rubble, should be poor rather than rich, and by no means excessive in quantity. Two cubic feet of this compost resting on turves Grass side downwards and thoroughly rammed is ample for each plant, as the roots foraging for a living will take copious supplies of warm diluted liquid when the swelling crop renders the application of stimulants necessary.

MANAGING THE PLANTS.—The method of pinching the point out of each when it has made from four to six rough leaves is well understood to mean the production of four vines of equal strength, and when those trained diagonally nearly touch the sides of the frames, two at back, two at front, the next pinching will result in a flush of fruit-bearing laterals. All that show female flowers may extend until the fruit is set, when they must be pinched to prevent crowding. Others which do not show may be stopped at the first joint, when the second laterals will show and swell fruit if it is wanted. When the crop is secured a little more loam may be added to the hills and firmly rammed, but water must be sparingly supplied until the Melons are the size of duck's eggs, when there will be little danger of their turning yellow from generous feeding and overhead syringing. Here it may be well to hark

back to say the vines if possible should be kept clear of the bed by the early formation of a rough trellis of slating laths or kidney Bean sticks, or lacking these humble materials, the deep parts back and front may be filled in with Birch faggots or a few Pea sticks.

The lining throughout must be regularly secured with warm material, and the lights covered with mats at night, not only to keep in heat, but to prevent the escape of moisture when a bright moon exerts her influence. The crop may be regulated to secure small or medium fruit by thinning, and crowding being injurious as well as dangerous, all spray and useless laterals must be cut without breaking the main foliage. A little air must be given very early on fine mornings, and gradually increased until the temperature stands fully 80°. When this gives way reduction must be rapid and closing early, a sun-heat of 90°, with an overhead bath, being most acceptable until the fruit shows signs of netting. Then more air, less water, and plenty of sun heat will form suitable ripening conditions. W. C.

BIRDS AND THE FRUIT CROPS.

JUDGING from Mr. Coleman's remarks on p. 514, the bullfinches are to be regarded as friends rather than included among the enemies of the long-suffering fruit grower, and as such should be preserved accordingly. Can anyone prove that these hard-billed, so-called friends of ours are simply foraging for insects when they completely clear a tree of buds, and, further, are we to believe that insects of any kind can possibly exist in the delicately close folds of a fruit bud? For my part I have so little faith in any remedy other than covering with wire netting that I shall continue to destroy bullfinches every winter, and what few twigs are injured we can very well spare. We killed a considerable number of them last winter, but not a quarter were shot down among fruit trees, they being caught in various forest trees, and the Larch in particular, in which they settled between attacks on the fruit bushes. Ever since Mr. Coleman saw a wire-netting-covered structure in this neighbourhood, and which happened probably not less than ten years ago, he appears to have been prejudiced against them. As it happens, the Gooseberry bushes which Mr. Coleman saw so badly defoliated have never since that time been in a similar plight, and of recent years they have been as free from caterpillars as any outside. If the bushes fail at all it is from over-exhaustion, exceptionally heavy crops long kept on the bushes being the order of the day. This shows what remedial measures will do, and also how easily we may err in arriving at a too hasty conclusion. Mr. Coleman has no doubt about the unwisdom of permanently covering in fruit quarters with wire netting. I am equally sanguine it is the right thing to do where good crops cannot be had because of the birds. He recommends covering with fish-netting first during the winter to protect the buds and subsequently to preserve the fruit when ripe. What is this but a makeshift and the reverse of economical modification of the plan of covering in a more sensible and durable manner. When we constructed the wire-covered house referred to on p. 410, we did not make the same mistake as did my friend who erected the "Gooseberry house," that taught Mr. Coleman such a lasting lesson, but, as before stated, six large wire-covered shutters were fixed along the front, and these are always taken down directly the trees and bushes are past being molested by birds. The birds soon get accustomed to these openings and go in and out freely and frequently. Not a caterpillar is to be seen, and the bushes are crowded with fruit; whereas those in the open are far from being satisfactory. Presently we shall be able to close these shutters either in the inside or from the outside, hooks and staples as well as buttons being attached to the shutters and posts, and, in addition to defying the fruit-eating birds, including bullfinches, we can also lock the door and shut out all other intruders. If the foregoing is not enough to set other gardeners contrasting the old with the more modern system and in-

duce more owners to imitate my employer's example, I do not know what will. As before pointed out, there is not the slightest reason why most other fruits in addition to Gooseberries should not be permanently covered in. W. IGGULDEN.

THE FRUIT CROPS IN SUSSEX.

AFTER a recent visit to a number of fruit gardens in West Sussex I am afraid I am compelled to report the failure in numerous instances of the Apple and Plum crops. Indeed, in a number of gardens the failure is all but complete, while at the same time nothing could have been more promising than the show of blossom in the spring. Apple trees especially were covered with healthy-looking bloom. Plums after a splendid blossom seemed to set well, but turned yellow and dropped the moment they began to swell. Of course, the cause of all this is, for the moment, the one absorbing topic of conversation amongst fruit growers, and men who have not an unlimited supply of capital to fall back upon are beginning to look very grave indeed.

In this one opinion all will agree that frost could this season not have been the agent in bringing about such a state of things, as no heavy frosts occurred while the trees were in flower, nor have any happened since, to account for the fall of the embryo fruit, and yet the failure is palpable. Unlike the Plums, Apples do not seem to have set at all; the blossom which made such a grand display some weeks ago is now hanging in withered bunches on the trees, giving them quite a brown and rusty appearance. Questioning many of the fruit growers in this district with regard to the crops of previous years, I was invariably told that the crops both of Plums and Apples for the past three years had been exceptionally good, and when pressed with regard to their system of manuring, the truth came out that in rare instances only had this been carried out to any extent. In fact, it would appear that manuring Apple and Plum trees is the exception and not the rule with growers for market, and this in the face of gathering enormous crops of fruit for three consecutive years. I am speaking now not of old worn-out orchards, but of young healthy trees in their prime of bearing. I may here venture to suggest that perhaps the above facts in the treatment of the trees have something to do with the failure which is now so plainly visible in most gardens. Nature, as it were, has done her best, and, in the absence of assistance, has become exhausted, and a period of rest must be passed in order to recuperate her lost energies before she will, or is able, to throw into the lap of the too greedy grower (I will not call him cultivator) her abundant stores. The market gardener does not expect an abundant crop of any kind of vegetable from land that he never manures. What folly, then, to complain of his fruit trees refusing to yield when he knows that they have been systematically starved. This season's rest will, no doubt, be of the greatest service to the trees in prolonging their lives, but the growers would, I think, do well to pay more attention to the subject of manuring as a means of obtaining more regular annual crops.

This part of Sussex enjoys a magnificent climate, and the soil is almost everything that can be desired in the way of fruit production. It is, therefore, greatly to be regretted that a more enlightened and scientific system of cultivation is not adopted.

I may mention that among Apples Warner's King and Irish Peach have set the best. Pears are an equally bad crop with Apples and Plums, and it is no uncommon thing to see acres of fine Pear trees wholly destitute of fruit. Gooseberries are a splendid crop all over; in fact, nothing could exceed the fine appearance of the bushes, weighted to the ground with fine fruit. Currants of all kinds are also a fine crop generally, which will help to make up for the shortness of the larger fruit. Strawberries show well, but are greatly in want of rain. Immense quantities of this fruit come to the Brighton market from the neighbourhood of Washington, a small village to the west of Worthing. Owing to the want of rain, insects of all kinds are rampant everywhere, and are doing much harm.

Heavy rain would be the Sussex growers' greatest boon at the present time. The outdoor plantations of Tomatoes and Cucumbers are looking remarkably well, the dry warm weather suiting both plants. Notwithstanding the annual failure of the outdoor Tomato crop, there are still a few venturesome enough to continue the experiment, hoping for a dry warm season, in which case only can they hope for success, for if the summer proves wet, disease sweeps all before it. J. L.

Cherries and Damsons.—The produce this year of these seems to be very diverse. About Farnham Royal, Sweet Cherries in diverse kinds, but especially May Dukes and Bigarreaus, are largely grown, the trees liking the chalky substratum. The crop is practically an abundant one, the trees being clean and healthy. About here on the Middlesex clay the Cherry crop is a comparatively poor one. Damsons on the chalk in Bucks, however, seem to be in as bad case as they are here, where the crop, as with the Plum tribe generally, seems to be an absolute failure. My trees of the Farleigh Prolific, though they bloomed profusely and seemed to set fruits in myriads, are now fruitless. If they carried a fair crop according to size and age, it should reach thirty to forty bushels. I do not think there are so many ounces on the trees. Hardy fruit culture will hardly meet with much encouragement this year.—A. DEAN.

Sand for Muscat Grapes.—Those who have to deal with a heavy and consequently moisture-retaining soil in which Muscat Grapes are growing know well that this is not the best kind of material to produce the finest crops of well-finished bunches of Grapes. This variety is more partial to soil that approaches sand than any kind of Grape that I know of. Therefore, for the better and easier cultivation of Muscat Grapes, light soil is to be preferred to that which is heavy and retentive of moisture in which the roots are not nearly so active, therefore do not assimilate nearly so much moisture. When heavy borders are constantly deluged with water the soil becomes sour. The roots do not work freely, and the foliage is liable to be scorched by sudden bursts of strong sunshine. I have here to deal with a heavy class of soil from which the fibre quickly decays, leaving the remains a mass of inert matter, unless charcoal or old lime rubble is freely mixed with it. I have lately been in the habit when renewing the surface of the border early in the spring to add next to the roots on the old border a covering of sharp silver sand a quarter of an inch thick, or clean grit from the roadside will do. Over this some soil is laid, and a mulching of partly decayed horse manure. Again, when the border inside is watered after the bunches are thinned and the berries swelling freely another sprinkling of sand is applied, first removing the mulching so as to get the sand on the surface of the soil to which the roots should be encouraged to find their way. The increase in the number of roots and the manifest improvement in foliage and general appearance warrant me in saying that Muscat Vines are partial to gritty matter for their roots to ramble in, and as it tends to make the soil more porous, extra assistance can be given to the roots in the shape of stimulants.—H.

SHORT NOTES.—FRUIT.

La Favorita Melon.—This is one of the best of the green flesh varieties, and was raised by Mr. Herrin at Chalfont Park a few years since. A first-class certificate of merit was awarded to it at South Kensington at the time for its luscious flavour and admirable appearance. I noticed the other day that the raiser has it fruiting finely at Dropmore now. Green-fleshed Melons, on the whole, show the highest average quality in flavour, but scarlet-fleshed Melons doubtless look best when cut. La Favorita is one of the very best of its section, and is a handsome Melon also.—A. D.

Lord Grosvenor Apple.—Out of a number of small bush Apple trees on the Paradise stock planted two years since Lord Grosvenor is the only one fruiting, and it has set such a crop that I have removed a good quantity already and shall presently have to take off more. The other kinds comprise Lady Sudeley,

Bismarck, Lord Derby, Pott's Seedling, and Tyler's Kernel, a very superior selection, but Lord Grosvenor is the only variety carrying fruit this year. I would not, however, assume, as some might, too hastily, that it is the only one worth growing. Perhaps next year the others will bear, whilst Lord Grosvenor may be barren.—A. D.

Rhubarb preserve.—As fruit threatens to be so very scarce this year, and it may be needful in some households to fall back upon commoner materials, I may remind housewives that Vegetable Marrows boiled with sugar and flavoured with ground ginger and essence of Lemon make a delicious compound, so also does Rhubarb when boiled with about one-fourth of its bulk of dried Turkey Figs, which not only help to counteract the astringency of the Rhubarb, but assist to solidify it also.—A. D.

KITCHEN GARDEN.

POTATOES LATE PLANTED.

A CORRESPONDENCE which took place last autumn in a leading London daily paper disclosed the fact that a considerable number of persons had once more tried the experiment of planting Potatoes much later than the orthodox period. As usually happens in all somewhat similar cases, much diversity of opinion was expressed, some writing in most favourable terms of the, to them, novel practice, others being equally condemnatory of it. Twenty-five years ago I took an active part in an experiment conducted by a very able gardener with the view of testing the plan of late planting of Potatoes, both new and old sets being used; that is to say, tubers grown during the current year and others saved through the winter were tried. Since that time I have had good opportunities of conducting experiments on my own account, and the conclusion arrived at is that we cannot, as a rule, do better than complete the planting of Potatoes generally by the end of April or the early part of May. Much, however, depends upon the nature and state of the soil at planting time, the quality of the seed, tubers, or sets also materially affecting the result. It has been asserted that better crops, all things considered, can be had by planting any time in June than is usually the case when it is done much earlier. If July should happen to be a dull and showery month, early varieties generally certainly suffer badly, it being no uncommon occurrence for the best portion of a crop to be quite spoilt by the disease. It is not often the haulm is over-run by disease while yet it is growing vigorously, and this is what takes place with June-planted crops, most of the top-growth being made in July. August, as a rule, being the best month in the year for maturing crops of all kinds, it follows that the late-planted early forms of Potatoes may do exceedingly well, heavy crops with little or no disease in them being ready for lifting in September if need be. All this reads and sounds reasonable enough, but put into actual practice it never will be at any rate extensively carried out. In our case, for instance, we are never certain of being able to get a large breadth of ground into good working order in June, especially if only recently cleared of other crops, and unless the soil is very finely divided for these late planted crops they would fail conspicuously during a dry hot summer, while they would be very light in a wet season. Where the soil can be got into a free working state without having to wait for natural pulverisation to take place, that is to say, baking by sunshine and a subsequent soaking of rain, there is an advantage in being able to plant breadths of Potatoes in succession to Broccoli, Borecole, Brussels Sprouts, and such like, but in most cases I am of opinion that the best system of

double cropping consists of planting or sowing other crops either between widely disposed rows of Potatoes or in close succession to early lifted breadths of the same.

Another drawback urged by the opponents of the practice of late planting Potatoes is the difficulty experienced by many in keeping their sets in a condition fit for planting in June. Tubers that have been allowed to sprout repeatedly, naturally become impaired in vigour, these shrivelling badly and proving too weak to push up strong shoots when they are at last buried in the ground. According to my experience, however, Potatoes can be kept fairly plump, and with the original sprout attached very much longer than many are aware of. At the present time we have several pecks of Veitch's and Myatt's Ashleaf, apparently as fit for planting now as they were in March, and these will not be wanted for planting till about the first week in August. The secret of success in thus keeping planting tubers till late in the summer lies in the fact that we have a cool, light, and fairly airy cellar. Too much of either warmth, moisture, light, or air would spoil them. On the floor of the said cellars the tubers are liable to sprout badly, but not so when they are stored thinly in trays supported well away from the moist bottom. If keeping the planting tubers was the only difficulty to be grappled with, then as far as we are concerned late planting would not be a failure, and might often prove a great success.

There are many who prefer what are generally termed "new" Potatoes to those more fully matured and with more starch in them. Whether or not this is a healthy taste it is not for me to say, my object in alluding to it being to point out how comparatively easy it is to maintain a long, or it may be with the aid of glass, a nearly, or quite, all-the-year-round supply of them. The early varieties, and the Ashleafs in particular, lend themselves the most readily to any method of prolonging a supply of young Potatoes, and preference may well be given to either the old Ashleaf, Mona's Pride, or Veitch's Improved, quite small tubers of these cooking well. All that is necessary is to plant a few or several rows, according to the requirements of the place, early in June, more a month hence, and finally during the first fortnight in August. Any open spot would answer well for the two first of these late plantings, the ground being fairly rich and got into a fine condition, the rows being about 2 feet apart. The August planting ought to be made on a warm border, or in a convenient sunny spot where the plants can be covered with frames in October, or otherwise roughly protected from early frosts. The tubers obtained from the July planting, if lifted early in October and stored in sand, will keep good and pass well for "new" Potatoes till late in the autumn, those obtained from the August planted rows being available for December. From the latter month the supply could be maintained with the aid of pot-grown plants started in October. I am aware the foregoing is by no means novel, but, as far as my researches go, it is one of the few ideas in kitchen gardening that originated well within the memory of living gardeners.

Very few probably have any good planting tubers yet in store, but they may yet be able to have late crops of young tubers. The requisite supply of sets may be obtained from pits and frames in very backward localities; while in the majority of midland and southern gardens those lifted in June or the early part of July from sunny borders would answer well for planting in August. Exposure to the light will have the effect of hastening maturation, but it is unwise

to lay them anywhere in the open, newly-lifted Potatoes being most susceptible of taking the disease. Store them in a dry house or shed for about a fortnight, then start them in a moist and fairly warm position. Thus treated they sprout quickly, and may then be planted with every prospect of strong growth and a full crop.

W. IGGULDEN.

EARLY PEAS.

PASSING through Covent Garden Market some time ago, I noticed a quantity of imported Peas lying spread out in the open and fully exposed to sun and air, which had apparently made the shells to assume a leathery and pallid appearance. Such Peas may have the name of young green Peas, but they must be a long way removed from that delicate product we so much value at the proper season. Why cool covered places could not be furnished for the exposure of such produce it is not easy to understand, but I rather infer that the Peas had been spread out thus thinly because they had heated in transit. With such poor stuff in the market under the designation of green Peas, well may lovers of that delicious vegetable pine for the produce of our own gardens. The only drawback is that nearly all the earlier sowings are thin, some indeed very thin. Sowing so early as December and January is not desirable where the soil is naturally wet and cold and the position is bleak. What with bad germination, stunted growth, slugs, and birds, the plants make poor development, and from one-half to two-thirds are destroyed. It is most probable that from one-half to three-fifths of the seed of these very early sowings has been wasted, and seedsmen would do well to advise their customers to refrain from committing seed to the treacherous chances of winter. There will be no earlier Peas gathered from these December sowings than from those made early in February. Seed sown in the middle of December and podding for gathering in the middle of June occupy six months on the ground. Really all the same results ought to flow from only four months' growth. It must have been fully ten years since a terribly sharp white frost so late as the morning of April 28 decimated early Peas wholesale, killing the bloom and the tiny shoots which had formed. In many cases entire breadths had to be ploughed up. This was the worst disaster experienced by Pea growers for half a century, as whilst Potatoes and other tender plants often have suffered, Peas have rarely been hit in that way. Peas were that year exceptionally early. Gentle showers, now that the ground is warm, with soft, mild, dewy nights would help to swell the pods and recoup somewhat for thinness of plants. I think it would prove of great service in helping to break the force of these prevalent east winds were broad lines of Rye sown at intervals of every ten or twelve rows of Peas. Such wind-breaks would also prove useful in many cases in districts where the wind swept strongly from the east.

A. D.

A new Tomato.—Mr. Herrin has at Dropmore added yet another to the long list of Tomatoes at present in cultivation. He has in one of his span houses several plants in pots trained up to the roof of a variety the product of a cross between Perfection and Ham Green Favourite. The product is found in the fine fruits of the former and the wonderful profusion of fruit trusses seen on the latter. The bloom racemes are so abundant, that they dominate over the leafage. I think it would be impossible to find one which blooms more profusely or is a better setter. Some plants of Perfection in the same house and treated similarly do not produce bloom by fully two-thirds as compared with the new variety, which has been very fittingly named Dropmore Prolific.—A. D.

Late spring frosts.—It is a curious fact that whilst autumn frosts are as a rule general in their effects over a certain area, the reverse is the case with such as occur in May and June. Why it is

that tender vegetation should suffer seriously in one garden and go almost or quite unscathed in another by the side of it has always been a matter for wonder to me. This capricious action of late spring frosts was peculiarly observable in the one that occurred on the night of May 31. I have some Potatoes in a field that is fully exposed to the east and north, but not a leaf of them was injured. Close by is the garden of a cottager, well sheltered, quite a warm little spot, and one of the last that would be thought to be severely visited by frost at this time of year. All the Potatoes in it were badly frosted. Even more remarkable is the complete immunity from injury of a row of runner Beans not half a dozen yards from the Potatoes. These are notoriously susceptible to frost, but they are quite fresh, a striking contrast to the blackened Potato haulm. I find that the effects of this frost have varied in this neighbourhood. In some places nothing has been touched, whilst in others the destruction has been great, and in many instances the yielding powers of the Potato are very seriously impaired. It would appear almost impossible to explain such discrepancies, for whilst many sheltered situations are severely visited, others exposed to the four winds of heaven escape. It is easy to understand that elevated situations enjoy comparative immunity from late spring frosts, but one finds it difficult to explain how it is that of two gardens lying side by side, one escapes and the other is punished.—J. C. B.

TOMATO CULTURE.

It is interesting to learn, as "J. L." informs us upon p. 441, that the numerous and extensive ranges of glass that have been recently erected in the county of Sussex, notably in the neighbourhood of Worthing, and from which, as we all know, a large proportion of the supply of English-grown Tomatoes has been derived during the last three or more years, are for the future to be devoted to the production of Grapes instead. It goes without saying that to combine the two, at any rate in the same house, is simply an impossibility, for, like the Vine, the Tomato requires a house to itself, and cannot be grown even indifferently well under the shade of Vines or anything else. What strange changes the wheels of Time and Fortune bring forth. It is only the other day that the Jersey growers were cutting out their Vines by thousands in order to make room for Tomatoes, and now the Sussex growers are reversing the operation, and discarding the production of Tomatoes for the sake of devoting their houses to the culture of the Grape. Surely the Sussex growers must have found the cultivation of the Tomato unprofitable, or they would not be so eager to give it up and invest their capital in vineries instead, or else they would, at any rate, erect fresh houses for the Tomatoes as the Vines monopolise the old ones. I cannot help suspecting that this is being done to a great extent, for otherwise where do the ever increasing supplies of this popular fruit come from? Undeterred by the low prices that ruled during the latter part of last season, Tomatoes are more plentiful than ever this year, and I have not even heard of more than 1s. per pound being obtained (wholesale) at any time since the new year; whereas 1s. 6d., 2s., and even 2s. 6d. per pound used frequently to be made for spring Tomatoes only two or three years ago. This plainly proves that the production of the fruit is increasing even faster than the demand. That the Tomato is frequently employed by market growers as a catch crop while the Vines are growing I am quite aware. I well remember seeing Mr. P. Ladd's house, 680 feet long, at Swanley, now entirely devoted to Gros Colman Grapes, filled with Tomato plants, while the Vines were becoming established, and I believe it was thus cropped for two or three years in succession. Whatever the future may bring, the cultivation

of the Tomato has undoubtedly been found a profitable undertaking by many in the past. I believe, however, that money may still be made in this way, unless, indeed, prices recede much further in the near future than they have already done. But to realise anything like an adequate return, it is absolutely necessary that the grower be favourably circumstanced in all respects. He must have cheap land, cheap labour, suitable and well constructed, yet comparatively inexpensive houses, good soil, an open and fairly dry situation, a mild and sunny climate, and must grow only the best and most productive varieties, and these in the best and most skilful manner. A ready and not too distant market, a sufficient amount of capital, and a considerable degree of experience on the part of the investor are also requisite. These being given, success is probable, but not otherwise. The climate of Sussex is evidently peculiarly suited to the requirements of the Tomato, but it may be grown well in many other parts of the country. Wherever indeed the climate is genial, sunshine abundant, and the atmosphere pure, free, and moderately dry, there good crops may be had, though I have noticed that the plants apparently thrive better within smell, if not sight, of the sea than elsewhere. It is certainly a remarkable and almost extraordinary fact that the culture of the crop in question is, or I should perhaps rather say has been, undertaken in so many instances by those who were more or less ignorant of the nature and requirements of the plant. Not once or twice, but many times I have seen what might have been a splendid crop almost entirely ruined simply by ignorance or the neglect of a few simple precautions.

Coming to the subject of disease, my own opinion is, that no one whose houses are of light and airy construction, and situated in a moderately high and dry position, need have any serious fear of the disease. In the first place, prevention, as we all know, is better than cure. Under natural and rational treatment the disease seldom appears on healthy plants, and even if it does, it can make but little headway, and by a few vigorous measures may be stamped out almost directly, though in dull, cold, and wet weather some little trouble may be experienced. The disease known as *Peronospora*, which is similar to, if not identical with, the well-known Potato murrain, is in my experience much the most to be dreaded. In dull, wet, and cold weather, of which we have had so much during the last two seasons, it is almost sure to appear in low, damp, or ill-ventilated houses, though it is not nearly so destructive under glass as in the open air, and if timely and persevering efforts to stamp it out are made, it may be got rid of in a short time. As regards the disease known as *Cladosporium*, which has without doubt wrecked ten times as many plants as any or all of the others, the antidote and cure may be almost summed up in the word "ventilation." A close, moist, and stagnant atmosphere, whether the temperature be high or low, is not only a direct incentive to its appearance, but, what is more, is, if continued, a sure and certain cause of its development. Let air be admitted with sufficient freedom, and I am positive that no one whose houses are moderately dry and airy will suffer from this disease in any appreciable degree. After the plants are once established and growing, until the nights become long and cold in the autumn, the ventilators should never be completely closed, except, perhaps, for a short time during a fog or in very cold and stormy weather. Whenever it is dull, wet and cold, a circulation of air must be maintained by means of a gentle warmth in the pipes,

keeping the roof ventilators at least open a little way in order to allow any vapours to escape. I have followed this system for several years past, and, except on one occasion by an oversight, have never had a trace of *Cladosporium*, though it has been rampant all round, and very little trouble indeed with the *Peronospora*. The latter is unmistakably induced chiefly by cold and wet, for I have had plants standing out in the open blackened with it in a single night in such weather as we have had in July and August the last two years; while others planted against a wall close by were scarcely affected at all. Even under glass the greatest care is necessary during dull and sunless weather to avoid attacks and to stamp it out if either of the diseases does appear. Under these conditions especially it is certain that Tomatoes will not endure anything of the nature of forcing treatment, and if subjected to it for any length of time they are sure to break down in some way sooner or later.

The variety referred to by "J. L." is undoubtedly Vick's (not Hicks') Criterion, an old kind, and, indeed, one of the first hybrids ever raised, but still in some respects superior to any of the newer introductions. I filled one side of a 60-foot house with it three years ago, and though the weather was very unfavourable and the house somewhat low and damp, this variety did admirably, and with a little warmth continued in bearing until Christmas. It is, as "J. L." justly remarks, a splendid setter, the very best in this respect I have ever tried, I think—and I have grown most of the varieties in cultivation, I think, more or less—and this, with its vigorous constitution, renders it by far the best Tomato we have for fruiting in the depth of winter. The trusses are remarkably bold, consisting usually of seven or nine pips. Another distinct feature of this variety is the unusually long and stout divisions of the calyx. In these respects it greatly resembles that admirable variety Horsford's Prelude, but of the two I think Criterion possesses the better constitution. Its only faults are that the fruit is rather too small to suit the requirements of the markets and shops, and that it is wanting in colour, though in the matter of flavour it is surpassed by few other varieties.

The question is often heard, What may be considered as a good crop of Tomatoes? So perhaps a few words on productiveness may not be out of place. Now this varies so greatly, according to circumstances, that it is almost impossible to say what weight of fruit a given number of plants should produce. Single plants have been known to afford ten, fifteen, or twenty pounds of fruit; nay, it is on record that even as much as forty pounds have been gathered from a plant in the course of a season, and in this country. But such instances are rare, and, as a general rule, if plants grown on the cord-on or single stem principle, and particularly if not planted out until May or June (under glass, of course), afford anything over five pounds of fruit apiece, they may be considered to have done fairly well. Of one thing I am certain, and that is, that, given an equal time and space, twenty plants grown on the single stem principle will produce considerably more fruit than four plants grown on the extension method with five stems apiece. Last year one of my houses—a span-roofed structure 12 feet wide, and not quite 35 feet in length—afforded for several weeks in succession about fifty pounds of fruit per week. It was planted principally with Perfection, and if no other kind had been grown the yield would have been still greater. At this rate a ton and a half of Tomatoes from a 100-foot house in the course of an ordinary sea-

son may be considered an excellent crop. In a fine season well grown plants in the open air frequently produce ten or twelve pounds of fruit apiece if they do at all well.

B. C. R.

STOVE AND GREENHOUSE.

CYCAS REVOLUTA.

THE production of fruit by Cycads when under cultivation is not unfrequently followed by the sickness of the plant, or by its falling into a sleepy condition for a long period. Such plants as *Bowenia*, *Stangeria*, *Dioon*, *Zamia*, and even some species of *Encephalartos* are considerably weakened in health by being allowed to mature their cones. It is therefore advisable to remove the cones as soon as they appear unless wanted for some special purpose, or unless the plant is known to bear fruit without suffering. To remove the female cones of *Encephalartos villosus*, for instance, would be a mistake, as the plant does not appear to be weakened if allowed

midrib, those of all other Cycads being without this character.

The fruiting stage of a Cycas is heralded by the declining of the fronds, their assuming a sickly hue, and by the thickening of the apex of the stem. The fruit-bearing aborted leaves are then pushed up in a cluster, and finally spread out horizontally, when their true character is revealed. Each one is about 9 inches long, fleshy, and covered with a pale brown felt-like wool. The upper portion is frond-like, the lower part bearing from four to six fruits, each about the size of a large Bean when ripe, and coloured orange-red.

C. revoluta has been in cultivation in England about 150 years. It is a native of Japan and China. It lives to a great age, forming a stem 10 feet high and 1 foot in diameter, such a stem being shown in the Wood Museum at Kew. A living plant in the Winter Garden there has a stem 6 feet high. There are also good examples of both male and female plants in the Palm house. There is no difference between the two sexes except when in flower, and in the males



Cycas revoluta in fruit. Engraved for THE GARDEN from a photograph sent by Mr. J. Forbes, Hawick, N.B.

to mature them, and they are extremely handsome when ripe. The same may be said of *Zamia mexicana*.

All Cycads are dioecious, *i.e.*, the male and female flowers or cones are borne on separate plants. It rarely happens that the two sexes of any species are in flower at the same time in any garden; consequently cultivated plants are not known to produce fertile seed. But the fruits of Cycads grow to mature size without the aid of fertilisation, as in the *Musas*, some *Palms* and other well-known cases. The female cone is, as a rule, much larger and handsomer than the male, and except only in *Cycas* the cones are in shape exactly like those of the *Fir* tribe. But in *Cycas*, whilst the male produces an ordinary cone, the female does not, the ovules being arranged on each side of an aborted frond, of which a large loose cluster is developed on top of the stem, as shown in the accompanying woodcut. Another character peculiar to *Cycas* and to the paradoxical *Stangeria* is that of each of the pinnæ of the leaves having a distinct

having stem scales more rigid than the females. For decoration the one is of precisely the same value as the other. *C. revoluta* is a most accommodating plant, as it does well in a slightly heated greenhouse, and even in the window of a dwelling-house. In a stove it forms a magnificent specimen. Old plants produce offsets freely about the base of the stem. These when removed soon grow into handsome specimens. When sick, the whole plant, roots and all, should be washed and forced into rest for a month or two. After this, if repotted and treated well, it should soon show a marked improvement. Or it may be rejuvenated by cutting off the upper part of the stem and planting it as a cutting. This may be done without the slightest danger to the existence of the plant; indeed, it is the best plan to adopt with examples that are old and in very bad health.

Dietes bicolor. — This is sometimes called *Morea*, and belongs to a genus closely allied to the *Irises*; in fact it is only a geographical difference that separates them. A figure of the graceful *D.*

Huttoni was given in THE GARDEN for August 24, 1889, but *bicolor* is quite as beautiful. It is in bloom in the annexe to the temperate house at Kew, and the vigorous growth of the plants shows their strong constitution. It will continue in beauty for many weeks; but not many flowers open at a time. They are borne on a long straggling stem, rounded and flat in form, something like that of a small flower of *Iris Kämpferi*, and pure white, except a broad band of yellow starting from the centre of the outer segments and running down the lower half. It is quite a gem for a cool house. *Dietes* and *Morea* are principally found at the Cape.

LESCHENAUTLIA BILOBA MAJOR.

At the recent show in the Temple Gardens, Messrs. Balchin and Sons and Cutbush and Sons exhibited small plants of the blue-flowered *Leschenaultia biloba major*, which attracted considerable notice. This *Leschenaultia* has been in the country half a century, and was at one time to be seen in many greenhouses. It produces flowers of the most exquisite shade of blue, the scarcest of all colours amongst hard-wooded subjects, and also the most useful where an effective combination of flowers or flowering plants is attempted.

The plant takes up comparatively little room, a full-sized specimen being rarely more than from 2 feet to 3 feet in diameter. It is a moderately quick grower, and when well managed a certain and profuse bloomer, as shown by the small plants exhibited. When strong the plants keep up a succession of bloom that lasts for four or five weeks. Even if this *Leschenaultia* never attained a larger size than the examples shown at the Temple, it would still be a gem deserving of general cultivation for greenhouse decoration. But with proper treatment it grows on until its roots fill a 16-inch pot. It must not be kept so cool in winter as many things that come from the same part of the world will bear. From 45° to 48° in the night suits it. It is a free rooter, but has so great a dislike to its roots being disturbed or in any way interfered with, that I have found it best when repotting not to remove the old drainage material in which the roots are usually thickly matted, but to transfer the whole entire to the new pot. Peat of medium texture, neither very heavy nor very light, with a liberal addition of sand, is the soil I have found it do best in. It is an erect grower naturally, so that to have bushy, well-shaped specimens, stopping must be resorted to as soon as the young plants have begun to move freely. The shoots must also be tied well out whilst they are soft and pliable. After the wood gets hard, it is scarcely possible to bend it, as it is very brittle. If the tying out is not attended to at the right time, the plants will never be clothed down to the bottom, and as they get older the bare branches will have an objectionable appearance.

This *Leschenaultia* is shorter lived than some hard-wooded species and more liable to get out of condition, especially if, as already intimated, it is kept too cool in the winter or its roots are disturbed. But to counterbalance this it is easily propagated, as it strikes freely from cuttings made of the young shoots whilst they are in a comparatively soft state. The cuttings require keeping close under propagating glasses, but must not be too warm. I have not tried to increase the plant from root cuttings, but have little doubt it would succeed in that way, as the roots are fleshy. —T. BAINES.

— The plant that perhaps attracted the greatest attention at the recent Temple show was this *Leschenaultia*. A beautiful coloured plate of it was given in THE GARDEN for October 4, 1884, and at that time it was unknown to many, especi-

ally the younger generation of gardeners, though the quantity that has been disposed of since should have supplied many gardens with this most beautiful New Holland shrub. Probably the pure air of the South Downs has much to do with the success attending the cultivation of this plant at Hassocks, Messrs. Balchin and Sons' nursery, as in less favourable localities, and especially if situated anywhere within the smoke and fog of London, the foliage suffers greatly during the winter months. When the plant flowers, the blossoms do not possess the same depth of colouring as those of the Sussex-grown plants. This *Leschenaultia* is a rather upright-branched shrub (that is, if stopped during its earlier stages), the narrow leaves being of a peculiar shade of pale green, so that even when out of flower it forms a distinct and pretty little bush. It is by no means difficult to strike from cuttings of the young growing shoots, taken off in the spring at a length of $1\frac{1}{2}$ inches to 2 inches and inserted into sandy peat sifted fine. The pots prepared for their reception should be filled to within a couple of inches of the top with broken crocks. On these crocks the sandy peat should be placed and pressed down firmly to within half an inch or so of the top, leaving just room for a thin layer of clean silver sand. The cuttings being cleanly severed at the base and the bottom leaves removed, they should be dibbled in at such a distance that the tips of the leaves of one cutting just touch those of its neighbour. In putting in any of these small-leaved cuttings this is a very good plan, as space is left for a free circulation of air, which prevents damp setting in, as this is almost certain to severely injure the leaves if they are at all overcrowded. In dibbling in the cuttings it is important to see that the soil is closed in around the base, for the great mistake is made by many young gardeners of leaving the bottom of the cutting loose.

When a pot is filled it must be thoroughly watered through a fine rose, and after being allowed to drain covered with a bell-glass. In this way, if kept in a temperature rather above that in which they have been grown, the cuttings will soon root if properly attended to in the matter of shading, watering, &c., and when they commence to grow, air may be given by tilting the glass a little on one side. As soon as the cuttings are sufficiently rooted they should be potted off, using for the purpose good sandy peat. The soil should be pressed down firmly, and great care taken not to bury the stem at all deeply; indeed this is a golden rule to be always observed in the potting of hard-wooded plants, many of which will perish if the stem is buried only to a very small extent. After potting, the young plants should be kept rather close for a while, but directly they are established the tops must be pinched out, as upon this depends the future bushy character of the specimen. After this the treatment needed will be much the same as for Cape Heaths, that is, pinch back occasionally in order to ensure a well furnished plant, give plenty of air whenever possible, and above all water very carefully, bearing in mind that an excess of moisture may be fatal, while if allowed to become too dry the risk is even greater. Established plants that have done flowering should be shortened back, and encouraged to break quickly by being kept close for a little while, after which they should be repotted. —H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Ivy-leaved Pelargonium Galilee.—This is a fine variety; the flowers are rich rose, quite double and large. It is one of M. Lemoine's seedlings, and we picked it out from a collection of Ivy-leaved Pelargoniums in Mr. Cobbett's garden, Firfield, Weybridge Heath.

Green Bird Flower is appropriately named. Botanically it is known as *Crotalaria Cunninghami*, and may be seen in bloom now in the temperate house at Kew. It belongs to a large genus, containing between 200 and 300 species, amongst others the Sunn Hemp of India (*C. juncea*), the plant that is cultivated largely in Southern Asia, for the valuable fibre of the inner bark. *C.*

Cunninghami is not showy, but interesting by reason of the bird-like shape of the flowers. Each is like a little bird hanging on to the stem by its beak—an excellent mimicry. The colour is green, suffused with a yellowish tint, but green predominates, and is distinctly veined with purple; the calyx, like the other parts of the plant, is covered with a downy substance. It grows about 3 feet high, and came from the dry territories in Central or North-west Australia in 1869.

A beautiful Water Lily in bloom in the Water Lily house near the Palm house at Kew is the variety of *Nymphæa stellata* called *zanzibarensis*. This noble water plant was introduced into European gardens through Professor Caspary, to whom seeds of it were forwarded by the African traveller Hildebrandt in 1874. It bloomed in Professor Caspary's garden, but it was not until 1883 that it was brought to England, where in the June of that year it flowered at Kew. In March 15, 1884, a coloured plate of it was given in *THE GARDEN*, the first illustration we believe that appeared of it, and from that, one can obtain an idea of the rich beauty of the flower. Professor Caspary said that it would bear larger blooms even than *N. gigantea*, and this is confirmed by the specimens at Kew. One of the flowers is over 10 inches across—a charming mass of an intense violet-blue, shot at the base of the segments with a deep reddish colour that makes a peculiarly striking combination. The blooms open in the forenoon and keep expanded until evening, so that visitors have an opportunity of seeing it in its perfection; they last about a fortnight. It is a native of the hot territory of Zanzibar, and, of course, requires a tropical house, where it will ripen seeds freely and with care make a beautiful picture through the summer months. Even when not in bloom it is unusually handsome by reason of the abundance of large deep green leaves.

TREES AND SHRUBS.

EARLY FLOWERING SHRUBS IN THE PINETUM.

BEAUTIFUL as Conifers may be at this early budding season, their various forms and shades of colour may be greatly developed by the introduction of flowering shrubs and herbaceous plants, not in single bushes or clumps, but in large masses where they can be left alone until they are thoroughly naturalised and can be seen gradually exterminating the Grass.

Amongst very early flowering shrubs I question if there is anything more telling than the *Mahonia*, alike good in flower, foliage and fruit; at home in all soils, provided they are not wet; bright and cheerful at all seasons, especially under the shade of large trees, and heedless of the knife, it can be restored to its pristine freshness and vigour by close pruning when the strongest shoots are leafless and old. Pheasants and blackbirds having a great liking for the fruit, it should be extensively planted in ornamental preserves, also near the fruit garden as a decoy from more valuable edible crops.

MAHONIA FORTUNEI OR **M. BEALEI** make handsome single specimens when planted in well-drained loamy soil on the lawn, but they look best and do well when grouped in great masses, with here and there a riser in the form of a tall standard crimson Thorn. These, however, should not be overdone, as the large-leaved Oriental varieties must have plenty of light and a fair amount of sun. Hares are passionately fond of the shoots, and birds are equally keen on the fruit—so keen, indeed, that we are obliged to run neat aviary netting round the clumps and net the heads when we wish to secure a batch of seed.

BERBERIS DARWINI AND **B. STENOPHYLLA** are two of our earliest and brightest spring-flowering shrubs alike useful for single specimens, for making hedges, or forming very large clumps. *B. Darwini* is quite at home on the dry rocky soil about Mal-

vern, where it forms most beautiful hedges and stands the shears or knife, losing, as a matter of course, nine-tenths of its charms where these instruments of torture are regularly used. Here it has been planted in large elevated clumps with a Cypress or *Thuja gigantea* rising out of the centre, the Conifer naturally forcing all the fine arching branches outwards, when in response to a little management they form a most beautiful picture with their long clusters of golden flowers sweeping over the turf. *B. stenophylla*, the smaller-leaved hybrid, flowers later and if anything more profusely, the bright golden inflorescence increasing the natural tendency to curvature of the long slender twigs. Having a disposition to stool and throw up numerous suckers, a single plant in front of a shrubbery or upon the lawn soon makes a handsome object; but plants being cheap and life short, half-a-dozen or nine should be put out in an irregular mass with a few herbaceous *Pæonies* or *Acanthads*, breaking the angles and giving a second bloom in June or August.

HERBACEOUS PÆONIES, indeed, are not half enough grown amongst collections of shrubs and Conifers, and yet once planted they may be left alone for a lifetime. They embrace many shades of colour, from dark crimson to red, pink, and pure white. Some are most deliciously scented, and having long stalks furnished with handsome foliage, they are invaluable for cutting. They do not last very long, it is true, but where large bowls or vases must be kept furnished, they form a charming variety; and last, but not least, from the grower's point of view they may be termed economisers of labour, as their massive foliage lying on the ground prevents weeds from making headway. A few plants near the margin of a pond or stream look well, the old crimson being specially suitable for these positions. Also they go well in combination with masses of shrubs. One of the most beautiful groups here at the present time consists of half a score of large bushes of *Viburnum plicatum*, edged with crimson and pink *Pæonies*. Another is formed of early Dutch Honeysuckle, the bushes being allowed to grow and spread in their own way, with *Pæonies* peeping out over the greensward. The *Pæonies*, indeed, cannot be planted in the wrong place, provided they are backed by shrubs and faced by turf, and there is no attempt at disturbance.

TREE PÆONIES, a host in themselves and gorgeous whilst they last, are very slow growers, and have a great reputation for dying when any attempt is made at disturbance. In this respect they hardly differ from other plants whose size is in diminutive proportion to their years, especially when removal is attempted at the wrong season, but catch them just when the buds are swelling in April, and trees of thirty or forty years' growth may be lifted in safety. The Tree and herbaceous *Pæonies* should not be planted together, as they do not blend well, at least, not so well as some other plants which I could name, notably the old light and dark monthly China Roses, now almost lost to English gardens, or that rare old favourite, the common *Lavender*.

SPIRÆAS.—Amongst the woody *Spiræas* rarely met with except in very old gardens there are several early flowering species which should be extensively cultivated. We have one here which I found thirty years ago under the name of *S. crenata*, a variety of *S. hypericifolia*, but, judging from the fact that the pure white flowers are borne on spreading horizontal branches towards the end of May, I believe it is *S. trilobata*. It is very neat in its habit, growing about 3 feet in height, perfectly hardy, sweetly scented, and so distinct and good, that I must send a few flowers with the request that the correct name may be given to a shrub which should be found growing in all gardens.

S. HYPERICIFOLIA DECUMBENS flowers in June, and forms a neat remarkable shrub if left alone, but being a slow grower several plants should be put out some 3 feet or 4 feet apart, where they can hang over sloping banks or rugged rockwork.

S. LÆVIGATA, a native of Siberia, makes a neat little shrub some 4 feet in height, quite distinct in

leaf and habit, and produces clumpy panicles of flowers some 3 inches or 4 inches in length upon the point of each shoot towards the middle of May or a little later in exposed situations. Each floret is white, with a tiny greenish chocolate eye, which the broad, perfectly smooth leaves render handsome and interesting.

S. BELLA is well known, and worthy of its name when properly managed. Although a native of Nepal, it is quite hardy, and makes a rather loose, straggling, upright shrub some 3 feet in height when planted in loamy soil, fairly moist in summer and free from stagnant water in winter. The best managed plants I ever saw are at Westonbirt, where Mr. Chapman cuts them down to the ground occasionally. The bright rose-coloured corymbs of flowers are produced in May and June, and the tips of the young shoots are as beautiful as the flowers. W. C.

HARDY AZALEAS.

THE two finest shrubs for the garden in the early days of June are the Rhododendron and Azalea, but they have not received equal attention by planters. We have Rhododendron gardens in which there is scarcely a hardy Azalea, and even where this shrub is planted it is seldom used in a way to show its own individual beauty and richness of leaf and flower. The finest piece of planting in the Royal Gardens, Kew, is the mass of hardy Azaleas near the Palm house, as they are surrounded with leafage which brings out the variety of colours, from rose to the deepest scarlet, like a mass of flame at a distance. This is the kind of effect that is wanted in gardens, and the rich break of hardy Azaleas at Kew, backed with noble Beech trees, now in their fullest leafage, should help to bring forward their claims. More still might be done with such shrubs at Kew, and certainly in the London parks, almost innocent, we believe, of hardy Azaleas, notwithstanding the many good uses that might be made of them in creating striking effects of colour. The Azaleas are quite hardy, rarely touched by even the severest frosts, and this is more than can be said for the Rhododendrons, which by the frosts on June 1 had the flower-trusses nipped on the point of expansion, a disagreeable experience on the eve of a great show of blossom. Like the Rhododendron, the hardy Azalea has an intense dislike to chalk, but it will do well in moist peaty soil or in light loam, soils that may, if not natural to the garden, be easily provided to secure the rich effect which the shrubs give in early summer. It is only in old gardens which have been well planted and cared for that such shrubs are seen. The hardy Azaleas have shared the fate of many other beautiful spring-flowering deciduous trees and shrubs, and had to make way for a vast assortment of Conifers, planted, unfortunately, without any thought as to their fitness for the soil or scenery. We have, therefore, unsightly "Monkey Puzzles" defacing gardens and parks and looking out of place amidst English trees, even though they may sweep the ground with their rich green rigid branches. Why not plant hardy Azaleas, which, thanks to the hybridist, are to be had of every shade of colour from white to intense crimson or scarlet, with dark-leaved shrubs or trees as a background, and in large groups or masses, the landscape is lit up with colour at a season when we can enjoy the garden in its fulness. As a fringe to a shrubbery or to make large dense masses in woodland scenery we have nothing finer than the best coloured varieties. They are not of very rapid growth, and do not assume a spreading, broad, and massive habit for some years, but they are worth waiting for, and large groups are more quickly formed by planting at the outset well established specimens.

The history of the hardy or Ghent Azaleas, as they are called, for the reason that a large number of varieties have been raised in Belgium, begins in 1734, when the three species nudiflora, viscosa and calendulacea were introduced into England, and all these are beautiful of themselves and prone to vary in the colouring of the flowers, but, strange to say, yellow was absent, a colour that is now infused strongly into the present race that adorns the garden. In 1793, however, this was supplied by the Pontic Azalea (*A. pontica*), that is wild in the Levant and Caucasus, near home comparatively, though not brought to England for close upon sixty years after the North American species. The hybridists soon commenced to intercross the one with the other, and the result of their labours is the lovely class of shrubs that even now has not received justice in gardens. The Messrs. Lee and Kennedy, of the famous Hammersmith Nurseries, were the first to work them up, then Messrs. Osborn, of Fulham, and Mr. Waterer, of Knaphill, in whose nursery at the present time, or at least a few days ago, the hardy Azaleas made a mass of flower unequalled in any nursery in these isles. There are to be seen clumps spreading out in broad masses, so densely clothed with leaves as to hide every twig, and amongst which are crowded the variously coloured flowers that not only create a charming picture of every hue, but load the air with a strong and pleasant spicy fragrance. The scent of a bush of hardy Azaleas can be detected, though unseen, by reason of this valuable gift of fragrance. *A. nudiflora* flowers before the leaves appear, but crossed with *pontica* we have a happy medium, a race in which both leaves and flowers appear together. *A. calendulacea* has given the intense orange-red and copper colours that many admire, and have good reason to for their peculiar brilliancy and effectiveness. Again, the Swamp Honey-suckle (*A. viscosa*), whose white flowers have a sweet fragrance, has been used with the best results, while the late flowering *A. occidentalis* from California, which has broad leafage and white flowers, does not bloom till quite a fortnight after the others, maintaining a succession of beautiful bloom we can scarcely have too much of in large gardens. We have a fine race of late-flowering kinds from this to lengthen a too short season, but in the autumn there is another phase of beauty, the brilliant shades of the decaying leaves, which take on vivid hues, some of the intense crimson and chocolate-brown creating as fine an effect in the landscape in autumn as in the early days of June, though of a different character.

The Azaleas at Knaphill show that there is no standing still in the development of the race. There are thousands of seedlings both single and double, and the double section, of which *narcissiflora* was the first, is of great value. It is a distinct and remarkable class of shrub very little represented in gardens, but showing now an infinite range of colours both soft and showy, with flowers of finer substance, therefore more lasting than the single varieties. The old varieties are now quite eclipsed by the newer additions, which bloom later and naturally escape frosts and have larger flowers. There is also a great increase in the size of the truss, some of the new kinds rivalling Rhododendrons almost in this respect, one especially, a new variety named Mr. W. H. Honeywell, having a splendid truss, with flowers of a rich scarlet colour. This is the kind of shrub we may expect in the future, and it is to be hoped that many years will not elapse before the hardy Azaleas are planted as liberally as the Rhododendrons. No one can tell from small groups their effect on the garden

scenery. The spreading masses at Knaphill, smothered in bloom relieved by the tenderly coloured leafage and sending out a sweet fragrance, will show the beauty of this neglected shrub in its fulness.

There are two ways of raising them—by seeds and, to perpetuate any particular variety, by layering.

Young shoots of Andromedas.—The *Andromedas*, sometimes called *Pieris*, are remarkable for the rich glowing tints assumed by the young foliage in the case of some species, notably in the Japanese *P. japonica* and the large Himalayan *P. formosa*. In the latter especially the young shoots and leaves are of a very rich crimson, so that a specimen in full growth, provided it is in a sunny position, forms a bright and attractive shrub. *Pieris japonica* makes a very neat and ornamental shrub even when not in bloom. There is a variegated form of this in which the foliage is marked with creamy white, and as the whitened portions become flushed with crimson it is then very distinct. The North American Lily of the Valley Tree (*Pieris* or *Andromeda floribunda*), though nearly allied to the preceding, is without the rich colouring of the others. —H. P.

The white-flowered Wistaria is a charming variety of the common *W. sinensis* that we might see more of in gardens. It is as yet not much known, but as a contrast to the pale purple flowers of the popular species would be delightful. There is a specimen of it in full bloom in the Coombe Wood Nursery of Messrs. J. Veitch and Sons, and from it we can judge of the beauty of a large specimen rambling over an old house or outbuilding. The growth is just as vigorous as in the typical kind, the racemes quite as long or even longer, and the flowers of spotless purity. In many gardens now the common *Wistaria* presents a lovely picture, and on the old houses near Kew as well as in the Royal Gardens it is in full bloom. It takes a long time for an uncommon tree or shrub to force its way into general cultivation, and the white variety seems to have shared the fate of many other things. Those who have the common kind should plant the other against it for a happy combination of two delicate colours.

Purple-flowered Laburnum (*Cytisus purpureus*).—Among the different Leguminosæ now in bloom, flowers of a yellow colour greatly predominate, and for that reason this *Cytisus* is well worthy of mention, for it stands out very conspicuously from the other members of the genus in consequence of the flowers being purple. It is a low-growing, spreading shrub, with long slender shoots clothed with neat pinnate foliage, and studded for a considerable distance with the purple, Pea-shaped blossoms. As a low-growing shrub in the foreground of the larger Leguminosæ, or as a rockwork plant, this *Cytisus* is, on its own roots, seen at its best; but it is often grafted standard high, when, of course, it can be associated with taller-growing subjects. The curious *Cytisus Adami*, which is always a source of attraction when in good condition, resulted from budding this species on to a Laburnum. The plant in question produces three quite distinct kinds of blossoms—the Laburnum, the true *Cytisus purpureus*, and a graft hybrid between the two.—T.

Spiræa trilobata.—This is one of the best of the shrubby *Spiræas*, and makes a pretty compact little shrub. It forms a dense bush a yard or so in height, clothed, as its name indicates, with three-lobed leaves, which are rather small, somewhat glaucous beneath, but of a deep rich green on the upper surface, and in such a setting the flattened corymbs of pure white blossoms are seen to advantage. This *Spiræa* is a native of the Altaian Mountains, and has been long known in this country. It is not often met with in good condition; in fact, this last remark may frequently be applied to all the shrubby *Spiræas*, which are usually crowded up in a shrubbery or mixed border. Few shrubs better repay liberal treatment than the *Spiræas*, as there is really no comparison between a good healthy specimen laden with blossom and one that

just manages to struggle on from year to year. Some greatly object to the pruning of shrubs, but as many of the *Spireas* push up shoots so freely that the entire plant becomes a thick mass, the old flowering wood chokes up the specimen unless removed.—T.

Rhododendron glaucum.—Where the larger Himalayan *Rhododendrons* are planted out, there are some species, natives of the same region, that may be used as an edging to the others, and *R. glaucum* is one of them. It seldom grows more than a yard high and flowers most profusely, forming a compact much-branched bush, with the foliage a good deal crowded towards the tips of the branches. The leaves are about 2 inches long, and the under sides of such an intense silvery whiteness as to suggest the specific name. The lilac-purple flowers are most abundantly produced. It may also be treated as a pot plant with good results, but in common with most of the Himalayan *Rhododendrons* it flowers more satisfactorily if plunged outside during the latter part of the summer to ripen the wood than it will if kept under glass altogether, provided always that the watering is not neglected.—H. P.

The Judas Tree (*Cercis siliquastrum*).—This tree is often seen in old gardens, but it is a rarity in modern places. The increased attention given to deciduous flowering trees and shrubs should bring this *Cercis* forward. It was introduced from S. Europe as far back as 1576, and was one of the things cultivated by Gerard. One of the prettiest specimens we have seen of it was recently in the garden of Mrs. Woodroffe, Weybridge, where there was one near the house smothered in flower in the late days of May. It grows about 15 feet high and has a large spreading head, exceedingly picturesque when the tree becomes aged. Almost any soil suits it, but a deep loam is best. The growth is slow, but at all periods the tree is beautiful, even in its old age. There is a variegated variety, but this should be avoided. The other two kinds, however, *alba* (white) and *carnea* (deep pink) are well worth planting.

Thujopsis dolabrata is a beautiful pyramidal Conifer that comes from the mountain slopes in Central Japan, where it is found at an elevation of from 6000 feet to 8000 feet. We have to thank Thunberg for making known this fine Conifer to us, but Mr. Thomas Lobb sent the first living plant to England in 1853 from the Buitenzorg Botanic Gardens, Java. This plant died, but it was in 1851 that Mr. J. G. Veitch and Mr. Robert Fortune sent home plants and seeds, which thus spread far and wide this distinct and handsome Conifer. It is one of the most ornamental of its race, growing slowly at first and developing into a shapely tree when in a light loamy and moist soil, and protected from cold piercing winds. There are many beautiful specimens of it at Knaphill clothed to the ground with the rich green, peculiarly jointed leafage, a distinguishing characteristic by which this Conifer may always be known.

Abies Engelmanni glauca is by common consent the most ornamental of the Spruces when the true kind is obtained. Its striking colour and regular outline fit it for the outskirts of a lawn, and there is no fear of its succeeding well, as it is exceedingly hardy, vigorous, and the young growth, through starting late, escapes the trying spring frosts. It differs from the type, also called *Abies Parryana* or *Picea pungens*, only in colour, but that difference is a great one, as may be seen from the large masses of the glaucous form in the Knaphill Nursery. From large groups of it one can see the beauty of the foliage, which looks at a distance as if frosted with silver, or covered with hoar-frost. There is some variation, of course, in the masses, as all are seedlings, but they are for the most part wholly covered with the glaucousness that seems to sparkle in the bright sun. The shrubs show scarcely any trace of green, and that only in the centre, which is not seen unless closely inspected. In this condition we have the true glaucous Spruce, but there are many shrubs in gardens called "glaucous" when there is a mere trace of the frosted silver character of the best specimens. The spurious

forms are not beautiful, as they are neither green nor silvery, but no one can deny the splendour of the true *P. Engelmanni glauca* when in a mass, as at Knaphill. The type is a fine deep green shrub, vigorous, and, like the silvery variety, suitable for the English climate. It was introduced into England from the slopes of the Rocky Mountains in 1864, in which region it grows between 8000 feet and 12,000 feet high.

THREE HANDSOME ARBUTUSES.

UNLESS the atmosphere is darkened by smoke or poisoned by impure gases, the Strawberry Tree (*Arbutus Unedo*) may be found growing, if not fruiting more or less freely in all parts of the United Kingdom, and so well is this beautiful shrub known that I may pass it by for the present, as I wish to draw particular attention to three members of this ericaceous family which have been unusually good this season.

The first of these, although only a variety of the common Strawberry Tree, is

ARBUTUS UNEDO RUBRA, described by Loudon as the most handsome member of the whole group. It is quite as hardy as the parent, if anything more dense in its growth, broader and richer in its foliage, which, together with the young shoots, displays a great deal of that warm red colour always conspicuous in the flowers when grown upon the limestone. It is generally propagated by layers, occasionally by cuttings, or by grafting on the species, the first methods being preferable, as grafted trees sometimes go off at the union; also where seeds from the Continent or Killarney are sown in quantity a fair percentage of the red-flowered variety may be obtained on their own roots. The period of flowering extends from the middle of September into October according to soil and position, and during that time large round-headed bushes are objects of great beauty, but their crowning splendour is not attained before December, when, loaded with rich scarlet fruit the size of Strawberries set off by the dark green serrated leaves, they command general admiration. Some very large old trees here bear so profusely, that frequently about Christmas or a little before, the ground, after a windy night, is completely covered with the fruit. Being austere in quality, as the name indicates, birds do not attack the fruit so long as other food is plentiful, but when this becomes scarce or frost and snow set in, blackbirds, thrushes, and fieldfares soon clear the trees.

ARBUTUS PROCERA (the tall Strawberry tree), a native of North-west America, is quite hardy at Eastnor, and flowers freely every year. It does not, however, ripen its fruit satisfactorily, or possibly the flowers produced in May may not be properly fertilised, as I have not succeeded in making the seeds germinate when sown in the usual way. The leaves are oblong, almost ovoid, smooth, finely serrated, and of a very peculiar metallic green. The flowers are produced in large racemes or panicles late in May, lasting into June, colour pale greenish white, and deliciously scented; fruit orange-red, not more than half the size of that of *A. Unedo*, ripe in autumn when unmolested by birds. An old tree growing here on a dry limestone bank and sheltered from north and east is always interesting and attractive, first by its flowers and beautiful leaves, and, second, by the smooth, polished, pale olive-green stem and branches after it has shed the old bark, which it does every year.

ARBUTUS ANDRACHNE, a classical tree, is a worthy companion to the preceding, and, together with *A. A. hybrida*, should have a place in the uncommon groups which these beautiful shrubs form. This is a stronger and taller growing species with narrower, sharper pointed and irregularly serrated leaves, and greenish-white flowers freely produced in May. A native of Greece and Asia Minor, the tree requires shelter from cutting winds, otherwise it loses its old leaves and small branchlets in the spring. The old wood, however, is perfectly hardy in ordinary winters, and taking most remarkable and picturesque forms and curves, the numerous branches give quite an oriental character to the

tree. The old bark becomes quite red and flaky and peels off annually, when the new coat, a pale olive-green, as smooth as polished marble and apparently as hard, appears to great advantage. This, the preceding, and *A. A. hybrida*, supposed to be a cross between *A. Unedo* and *A. Andrachne*, are increased by grafting, and, growing very fast at first, soon make flowering shrubs. W. C.

TWO GOOD PHOTINIAS.

PHOTINIA OVATA.—This handsome rosaceous shrub just now is literally covered with its panicles of cheerful white flowers, which are set off to great advantage by its bright, shining, evergreen leaves. When introduced by Mr. J. G. Veitch from Japan, where it makes a compact handsome shrub, we were advised to give it the shelter of a wall, presumably because the other *Photinias*, once treated as greenhouse plants, are supposed to require this protection. We accordingly planted one of the first sent out against a west wall, where it filled the allotted space years ago, and flowers and fruits as regularly as a *Crataegus*. It is not a fast-growing plant, but remarkably neat in its habit, very handsome when in flower, out of flower, or in fruit, and much harder than I expected to find it; it is one of those shrubs which should be freely planted in what are termed sheltered situations in good localities. A wall, as a matter of course, suits it best, especially in hard winters, when *Escallonias* and *Arbutuses* are apt to get cut, but lacking this shelter it is quite capable of holding its own in the American garden. When planted in a well-drained soil and protected by large deciduous trees and evergreens, it will form a valuable acquisition to our early-flowering shrubs.

PHOTINIA SERRULATA, introduced from Japan about the beginning of the present century, is a much stronger grower, and requires a great deal more room than the preceding. The young shoots and leaves are remarkable for their deep red colour in the spring and summer, and their rich bronzy tinge throughout the autumn and winter, when this *Photinia* stands out as one of the finest evergreen shrubs met with in British gardens. It does best, rivalling *Magnolia grandiflora*, when planted and trained against a south or west wall, where mature trees produce numerous panicles of white flowers in May and June, but, unlike the preceding, it does not fruit in this locality. A most vigorous tree, some 20 feet in height and 10 feet in breadth, grew against the rectory here for many years, and passed unscathed through the memorable winter of 1860, when bushes standing out in open, but sheltered spots in the pinetum were killed to the ground. The rectory tree, unfortunately, was cut down by the owner, who did not know its value—the fault, if fault it could be designated, being a too vigorous growth, which darkened the windows. The bush trees, in due course, were sawn off level with the ground, and although still living, they have not resumed their original beauty. W. C.

SHORT NOTES.—TREES AND SHRUBS.

The St. Dabeoc's Heath is a charming flower when used as an edging to taller things of the same nature. There are white, rose, and purple forms, all with bell-shaped flowers that droop gracefully. It should be used more in gardens. *Dabeocia polifolia* is the name it is now known by, but some will remember it best as *Menziesia polifolia*.

Double-flowered Chestnut. A conspicuous object in Mr. A. Waterer's Knaphill nursery just now is a fine specimen of the double-flowered Horse Chestnut. It is a handsome tree and worthy of a place where there is space to allow of free development. I do not know if this is naturally as robust as the common form; but evidently where soil and situation are suitable it attains considerable dimensions. The double red is also in bloom there, but it appears, as might be expected, not to be quite so vigorous of growth, probably enjoying a warm, well-drained soil.—J. C. B.

A handsome variegated shrub at this season is the golden-leaved form of the Mock Orange (*Philadelphus coronarius foliis aureis*), whose foliage is bright golden yellow, against which the pure white,

strongly-scented flowers lose much of their beauty. But it is a good variegated shrub, effective, not spotty, and very bright against the purple Cherry Plum or Hazel for contrast. A rather shady position is best, as the leaves suffer from full exposure to hot sun. There are large bushes of it in both the Coombe Wood and Knaphill Nurseries, and in both places they make a bright show.

Wistarias on trees.—One of the prettiest features at the Knaphill Nursery is the common *Wistaria sinensis*, which has clambered up trees of Douglas Fir, *Pinus microcarpa*, and *P. ponderosa*. The effect of the writhing stems on the Pines is not altogether satisfactory, but the Grape-like bunches of pale purple flowers are in delicate contrast to the sombre foliage. *Wistaria* amongst *Laburnum* is another happy combination.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JUNE 10.

A GOOD exhibition of hardy and other flowers was to be seen at the Drill Hall, Victoria Street, on Tuesday last, but the various things were principally from trade growers.

A FIRST-CLASS CERTIFICATE went to each of the following:—

CRINUM BRACHYNEMA.—This is not new, as it was as far back as 1840 that plants of it were sent from the Bombay Presidency, where it is said to be abundant, but so little has been seen of it in stoves that it will be new to many gardeners. It is one of those things that deserve to be known. The strong, erect peduncle bears an umbel consisting of from fifteen to twenty flowers, which spread out like those of a *Zephyranthes*, and are of good substance. Each segment is about three-quarters of an inch across, and the pure whiteness of the flowers is set off by a cluster of yellow stamens in the centre, while they have the fragrance of Cowslips. Then we have a fine feature in the deep green leaves, that in plants well grown are quite 2 feet in length. From Mr. J. Smith, Mentmore.

SWEET BRIER ROSE CROSSES.—A number of Sweet Briar Rose crosses were shown by Lord Penzance, Easting Park, Godalming, and one, the result of a cross between the Sweet Briar and Harrisoni, was certificated. The flowers were of a very pale copper colour, and poor compared with those of either of its parents; in fact, Harrisoni spoilt.

BERTOLONIA SOUVENIR DE GAND.—This is one of a class of dwarf creeping plants cultivated for their leaves. In this the foliage is very beautiful, the ground colour rich green, overlaid with broad crimson veins and spotted distinctly with the same colour. A plant or two should be in every stove. From Messrs. B. S. Williams & Son, Upper Holloway.

PHAIUS HUMBLLOTI ALBUS.—This is a variety of a Madagascar Orchid, still rare in collections, but it is becoming more common each season. The flowers of the white form are quite distinct from those of the typical plant; they are larger, and distinguished by bold, snow-white sepals and petals, very striking against the large, shell-shaped lip, which is rose, striped with a deeper colour, giving way to a brownish shade on the side lobes; the crest yellow, and the column greenish—a not unpleasant mixture. From Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham.

BATEMANNIA WALLISI.—A specimen of this bearing one flower was exhibited by Messrs. Sander & Co., St. Albans, and it represented a good variety. The *Batemannias* are allied to *Maxillarias*, and the present species came from Columbia in 1876, when it was regarded as a variety of *B. Burti*. Messrs. Sander's plant had a flower about 2 inches across, rounded in form by reason of the nearly equal breadth of the segments, and of a richly-polished brown colour, set off by a broad edge of yellow, and creamy-white at the base. The petals are narrower than the sepals, and the lip is creamy-white, with a rather thin edge of brown, the column green. A variety, we believe, called

major with flowers $5\frac{1}{2}$ inches across bloomed with Sir Trevor Lawrence in 1883.

CYPRIPEDIUM AYLINGI.—If this lovely hybrid between *C. niveum* and *ciliolare* had appeared two or three years ago, it might have created a small sensation amongst hybridists. It is a gem in its way, the flowers bearing much of the character of those of *niveum*, especially in the lip, where the likeness is most pronounced. The bloom measures nearly 3 inches across, and though the lip is white, the sepals and petals are freely spotted with deep rose, almost hiding the white ground, except at the top of the dorsal sepal. It is one of the most charmingly coloured hybrid *Lady's Slippers* ever raised, and that is saying much. From Mr. E. Ayling, gardener to Mr. A. J. Hollington, Enfield.

SOBRALIA MACRANTHA ROSEA.—It is hard to judge the merit of a plant from one carrying three half-opened flowers, but there seems sufficient rose colour in this variety to justify the name. From Mrs. Studd, Bath.

CATTLEYA INTERMEDIA PARTHENIA.—A lovely Orchid, even when the plant only bears a spike of three flowers, as the one shown by Mr. White, gardener to Sir Trevor Lawrence, Bt. These, however, are of delicate beauty, what some would describe as pure white, but having a tinge of lemon-yellow on the lip, with a slight colouring also of purple at the entrance to the throat; the petals are wavy at the edge. It is a gem amongst the smaller-flowered *Cattleyas*.

AN AWARD OF MERIT was given to each of the following:—

ODONTOGLOSSUM GALEOTTIANUM.—This Mexican plant is not new, but still rare, and may be described as a white *O. nebulosum*, to which it is closely allied, having also something of the character of *O. Cervantesi*. The plant had only two blooms, which are white, except the petals, as these have a few transverse bars at the base, while there are streaks of yellow also at the base of the lip. From Mr. Thomas Statter, Stand Hall, Whitefield, Manchester.

CATTLEYA WARNERI.—A glorious *Cattleya*, first flowered by Mr. R. Warner, and exhibited in true character by Mr. Malcolm Cooke, Kingston Hill. It has flowers over 6 inches across; the sepals and petals are rich rose colour, and the lip intense crimson-purple, with a paler, but finely fringed margin.

CATTLEYA MENDELI ALFRED SMEE.—A handsome variety, very distinct and telling in colour. The sepals and petals are rich lilac, the lip intense crimson-purple in the centre, surrounded with pale yellow, this deepening to orange at the entrance to the throat. From Mr. A. H. Smees.

ODONTOGLOSSUM PESCATOREI TILGATE VAR.—This is a beautiful form, the flowers so densely set on the spikes as to present a mass of delicate bloom. The plant carried two spikes, each bearing about nine branchlets, which had on an average eight flowers each. These are about the average size of those of *Pescatorei*; the sepals white, richly blotched with lake-crimson, the petals also white, but only marked with a few spots in the upper half. Both in its dense bloom and delightful blotches and spots of colour we know nothing in the *Odontoglossum* way more distinct or beautiful. From Mr. J. H. Nix, Crawley.

LOBELIA REINE BLANCHE.—Several plants of this covered with bloom were shown by Mr. J. Witney, Turvey, Beds. The flowers are larger than usual in bedding *Lobelias* and pure white. It makes a useful pot plant.

XEROPHYLLUM ASPHODELOIDES, the old Turkey's Beard, an Asphodel-like plant introduced in 1765 from the Pine barrens in North America, has been twice honoured by the Royal Horticultural Society, having been certificated on June 24, 1879. It is a beautiful tuberous-rooted plant for a moist spot, forming a tuft of grassy leaves, and with the tall stem crowned in June by a compact raceme of small, but numerous creamy-white flowers. From Messrs. Paul and Son, Cheshunt.

ACHILLEA MONGOLICA.—This is a form of the common *A. ptarmica*, but distinct. It is more

slender in growth and a first-class border plant, especially at this season when carrying its terminal corymbose clusters of snow-white flowers which are exceedingly pretty when cut. From Messrs. Paul and Son.

PEONIES.—Amongst the *Pæonies* shown by Messrs. Kelway and Son, Langport, Somerset, were several new kinds, of which the following were each given an award of merit: Stanley, an intense crimson-coloured single flower, the deepest we know of its shade; Princess Mary, a very double pale lemon-yellow variety of charming beauty; Sainfoin, the most striking of all, the flowers very full, large and brilliant, self rose; and Duchess of Teck, the guard florets of which are pale rose, the centre of the bloom creamy-white.

DELPHINIUM ALFRED KELWAY.—This has a tall spike of flowers, closely set, individually of unusual size, and of an intense indigo-blue colour, relieved only by the lurid bronzy red shade of the inner segments. It would make a rich clump. From Messrs. Kelway and Sons.

TUBEROUS BEGONIA GOLDEN QUEEN.—This is one of the most free-blooming varieties we have seen. The plant is a mass of flowers, which are quite double and deep golden yellow, making another fine addition to *Begonias* of this colour. The habit is also good. From Messrs. H. Cannell and Sons, Swanley.

GLOXINIA AGNES COOK.—*Gloxinias* seem to have lost favour somewhat, but such varieties as this should deepen interest in the plant. It has all the essential qualifications of a first-rate *Gloxinia*—strong sturdy habit, freedom of bloom, and substance in the flowers, which stand up well, and are almost covered with purple spots on a white ground. From Messrs. H. Cannell and Sons.

BEGONIA BLACK DOUGLAS.—A perfectly double rich crimson tuberous variety, very showy. From Messrs. J. Laing and Sons, Forest Hill.

B. MME. PFITZER.—This is also fine double a tuberous variety, the flowers full and rich yellow in colour. From Messrs. J. Laing and Sons.

The finest exhibit came from Messrs. Kelway and Sons, whose *Pæonies*, *Pyrethrums*, and *Delphiniums* occupied one side of the hall—a striking mass of bloom. Of the *Pæonies* the finest varieties were Duke of Clarence, a double blush variety; Agenoria, pale yellow, very pretty; Lady Leonora Bramwell, rich rose-purple; Julia Kelway, brilliant rose, thread-like centre; Alba maxima, just tinted with blush, double; Triton, outer florets faint blush, yellow in the centre; and Nico, rich purple-rose. The same firm also had a series of some of the finest coloured *Irises*, as *Victorine*, Queen of the May, and *Mme. Chereau*, *Pyrethrums*, both double and single, of which James Kelway, crimson, and Mary Kelway, white, are two fine varieties, and the white, yellow-centred *Aphrodite*, the best of the double flowers in its line of colour. The *Amaryllises* were worth noting for their extreme lateness, the result of quite cold treatment; thus we have a dwarf, sturdy habit. There were several varieties, but such self kinds as Ernest Kelway, crimson, and Ruby, rich crimson, are the most striking (*silver-gilt medal*).

Messrs. Paul and Son, Broxbourne, exhibited a charming collection of cut hardy flowers, comprising the Shirley Poppies in delicate colours, Iceland Poppies, and *Irises* juncea, the sweetest and best of all June *Irises*; besides a collection of *Pæonies*, including the single and double *Whitley*, Trojan, rich crimson-purple; Caroline Allain, yellow, very fine double variety; Formosa alba, bright yellow in the centre, outer florets white; Buff Prince, yellow; and Næmie, a beautiful flower, large and very double, the colour blush; it is of good habit, rising but 2 feet in height (*silver-gilt medal*).

Amongst the hardy flowers was a collection of German *Irises* from Messrs. Barr and Son, Covent Garden. A small collection of cut Tulips came from Mr. Barlow, Manchester, consisting of *hyblæmens*, breeders, and richly flamed flowers (*bronze medal*), and Mr. R. Dean, Ealing, sent a new tufted Pansy, named White Perfection, which has a larger flower, but not so pure as that of Snowflake, also

shown. A mass of it in the garden would look well. We should think, as the plant is exceptionally free-blooming. He also showed the orange-yellow flowered *Gaillardia aristata*, and the North American purple-flowered *Cleome integrifolia*. Mr. Henry Eckford exhibited cut flowers of varieties of fancy Pansies, some of fine distinct colour. One was a self violet-purple, very rich, and another deep yellow, with a central blotch of almost black. The Bride is a pretty colour, white with a few radiating blue lines in the centre. A collection of seedling Columbines from Mr. Harris, The Grange, Lamberhurst, contained many prettily coloured flowers, but not so fine as a species like *glandulosa* or its variety *Stuarti*.

A large and interesting collection of flowers was put up by Messrs. J. Veitch and Sons, Chelsea. Delphiniums (one a fine deep blue colour), Irises, *Pæonia albiflora delicata*, peach colour, were shown as cut flowers, but the same firm had masses of several Hydrangeas. The little dwarf *H. stellata* fl. pl. has pretty double starry flowers, rose in colour, but not so bold as such forms of *hortensis* as Thomas Hogg, *mandschurica*, which has larger and more finely coloured flowers than *Otaksa*. The most striking was *H. rosea*, a fine hardy Hydrangea, carrying a close head of brilliant rose-coloured flowers, a delightful and telling shade. Messrs. Veitch exhibited also *Rodgersia podophylla*, a handsome plant of the Saxifrage family with broad, bronzy-green leaves and branching spikes of creamy white flowers, *Primula sikkimensis*, and *Bomaria multiflora*, a plant allied to *Alstroemeria*, crimson in colour.

A large collection of Irises from Messrs. Cutbush, Highgate, represented some of the best varieties in cultivation (bronze medal). Mr. T. O. Hodges, Lachine, Chislehurst, exhibited two varieties (violet and white-flowered) of *Ionopsidium acaule*, a pretty Portuguese annual.

A charming exhibit was the cut Roses from Mr. G. Prince, Oxford. The Tea-scented variety Princess of Wales was in its fullest beauty, the colours exquisitely soft, the rose margin shading off to pale yellow towards the full, finely-shaped centre. There were good blooms of *Souvenir de S. A. Prince*, *Princess Beatrice*, and *The Bride*, a lovely Rose, pale lemon colour, outer petals with a broad edge of deep rose (bronze medal). Lord Penzance exhibited a series of Sweet Brier crosses, but we have yet to see the advantages of such hybridisation.

A collection of *Sarracenias*, including such kinds *S. Wilsoni*, *Mitchelliana* (rich crimson), and the common *purpurea*, came from Messrs. B. S. Williams and Son, who also had the tall and curious *Arisæma filiformis*, spathe very dark green, the thread-like spadix, as in *A. speciosa*, black. The dark-leaved *Begonia Louise Closson* and a rich-coloured variety of *Cattleya Mossiæ* named *decora* made up an interesting group (bronze medal). Messrs. H. Cannell and Sons, Swanley, showed a number of double *Begonias* of fine colours and a selection of French *Pelargonium* flowers. A variety named *M. V. Moulens* had bright scarlet flowers, white in the lower half of the upper petals. Cut flowers were also brought of *Aristolochia ornithocephala*, one of the largest of the *Aristolochias* (bronze medal). Double *Begonias Sunset* (brilliant scarlet) and *Viscount Wolsley* (rich rose) were good varieties from Messrs. J. Laing and Sons. Mr. John Reeves, Acton, had flowers of a fine Tree *Carnation* of the size and colour of those of the old Clove of gardens. A sprig of *Larix americana* was shown by Mrs. Robb, Rutland Gate, and a pale creamy-coloured sport from the common Broom with smaller flowers than the type.

The Royal Gardens, Kew, contributed the curious *Pachira insignis*, and flowers of *Solanum Wendlandi* and *Nymphaea stellata zanzibarensis* nearly a foot across, of which a note will be found in the present issue.

ORCHIDS.—Several unusually fine varieties of *Cattleya Mendeli* were shown by Mr. Cummins, gardener to Mr. A. H. Smee, Wallington. One was especially distinct. The sepals were white and narrow, but the petals broad and coloured in the upper

half with a central band of purple-crimson, the lip of this rich colour, the side lobes yellow. *C. Mossiæ* Mrs. Smee is of rich colour, especially in the fringed lip. *Phalænopsis speciosa maculata* is a charming flower, white, barred with rose colour. Sir Trevor Lawrence exhibited several plants of well-known Orchids—*Dendrobium Macarthisæ*, the Rainy Month Flower of Ceylon, a pretty form of *Miltonia vexillaria*, with a few radiating lines from the centre on the white ground, and a species of *Aerides* like a small *quinquevulnerum*. Mr. Culmore, gardener to Mr. M. Cooke, Kingston Hill, sent the richly coloured *Cattleya gigas Sanderiana*. Several spikes of the rich yellow and brown *Oncidium sphacelatum*, a graceful species, were sent by Mr. Wythes, Syon House Gardens. *Cattleya Elsteadiana*, described as a cross between *Lælia purpurata* and *Cattleya Mossiæ*, was shown by Mr. T. Bond, gardener to Mr. Ingram, Elstead House, Godalming. It is not unlike *C. lobata*. Sir W. H. S. Marriott, Blandford, exhibited a hybrid between the same parents as in the variety just mentioned. The lip is more of a self purple-crimson colour than in the other. *Dendrobium lineare*, from Messrs. Veitch and Sons, is well named. It is a New Guinea species, and has a spike of about twenty-three open flowers and seven buds, small and creamy white, lip purple. Mr. W. H. Young, gardener to Mr. Wigan, Clare Lawn, East Sheen, sent *Phalænopsis grandiflora*, *Lælia purpurata Russelliana*, one of the best forms of this species, and *Cattleya Mendelli*. A large specimen of *Odontoglossum cristatellum* was shown by Mr. W. Rann, gardener to Mr. John Larkin, Highbury New Park. The flowers are rich brown in colour.

The silver challenge cup offered for the best collection of herbaceous Pæonies was won by Rev. W. Wilks, the only competitor. He had several fine varieties, and one single white of great breadth and purity. We had hoped to see more competition.

FRUIT.—A small collection of early Strawberries from the Chiswick Gardens showed that the earliest there is *Crescent Seedling*, followed by *Laxton's Noble* and *King of the Earlies*, which is much later. Messrs. J. Veitch and Sons showed *Fig Pingo de Melo*, an early and sweet variety, and *North End Pippin Apple*. Strawberry *A. F. Barron*, from Mr. J. Smith, Mentmore; *Early Rivers* and *Belle d'Orleans Cherries*, gathered from an unheated glass house, from Messrs. Rivers and Sons, Sawbridgeworth, besides a few seedling Melons made up the display of fruit.

PÆONIES AT THE DRILL HALL, WESTMINSTER.

THE papers on Pæonies read at the meeting of the Royal Horticultural Society last Tuesday by Messrs. Paul and Lynch were of importance to cultivators, both from a practical and scientific standpoint. The origin of our garden Pæonies was very interesting as told by Mr. Paul, and with Pottsi, the fine old *carnescens*, and *alba plena* florists have worked wonders within the last fifty years. The well-known names of Salter, Kelway, and Parker were mentioned as pioneers in the development of the Pæony, and exactly what Kelway is doing to-day on a large scale was done in the old times in a more modest way by Salter and Parker; indeed when the latter had the nursery at Tooting, and the Pæonies in such a position that they could at will almost be irrigated from an open sewer, the clumps were marvels of cultivation, the blooms large, rich, and beautiful in their many sorts. In saying that the Pæony is not liable to any disease, however, requires qualification, as on some soils it is one of the most difficult plants the grower has to deal with, i.e., to get a good, healthy, fine-flowering specimen. On light soils even, which were specially recommended for the culture of Pæonies, we have seen whole plants go off in the most mysterious way, the stems actually rotting away at the base, and this, too, in cases which could not be explained away either by mulchings or too deep planting. Frost at an early stage of growth has been blamed for this state of matters, but we fail to see it, and rather think that this is amongst the

unexplained troubles of Pæony culture. Another matter of much importance to the grower is that of Pæonies becoming and remaining in an almost flowerless state even after they have acquired large dimensions. We know well that if an expert was asked for an explanation he would at once say break them up, and in many cases he would doubtless effect a cure, but the plants referred to were broken up and planted separately five years ago, and a single bloom this year will probably be the result of waiting. These are points that touch the cultivator more than historical details and certainly want explaining.

Mr. Lynch seems to have given considerable time and trouble to the species and varieties of Pæonies. He has divided them into three sub-genera, the first being *Montan*, in which the carpels are enclosed as it were in a bottle, the stigmas exposed at the top, and with a distinctly developed disc.

Sub-genus 2.—*Onæpia* includes the curious *P. Browni*, and *P. californica*, which, though placed as a synonym by botanists, Mr. Lynch thinks deserves at least a place as a variety.

Sub-genus 3.—*Pæon* includes all the other herbaceous Pæonies which he breaks up into groups, Group 1 including *P. tenuifolia*, which is the only stoloniferous species, the flowers being nearly sessile and the leaf segments linear. *P. hybrida*, which is said to be a variety of *P. tenuifolia*, Mr. Lynch thinks a species. It differs from the latter in its distinctly stalked flowers, broader linear lanceolate leaf segments, and is not stoloniferous. *P. anomala*, of which there are one or two varieties, one with glabrous, the other with tomentose carpels, is a taller plant, having lanceolate leaf segments.

Group 2.—Entire leaves, including *corallina*, *triternata*, *Wittmanniana*, *Broteri*, *coriacea*, and *Russii*, all, with the exception of *Wittmanniana*, having hairy carpels. Mr. Lynch includes *Russii* as a species. *P. corallina*, a British plant, is perhaps the best known of this group, its red stems, overlapping leaf segments, crimson flowers and coral seeds marking it as a desideratum; *Broteri*, with narrower leaf segments, is nearly allied; *P. triternata*, the old *daurica*, has a green stem with nine broad entire leaf segments; *Wittmanniana*, a rare species with fine yellow flowers, is well worth looking after.

Group 3 includes the *albiflora* section, carrying more than one flower on a stem, a well-known garden species, the most common of all the garden Pæonies, and *P. Emodi*, a good Himalayan species of similar aspect.

Group 4 has been made entirely for *P. officinalis* with its variety *lobata*, the latter a very handsome plant.

Group 5.—All pubescent, and including such well-known garden plants as *peregrina*, *arietina*, *decora*, &c., and these species are divided into smaller groups depending on the division or not of the middle lobe. Two of the species in this group have glabrous carpels, *humilis* and *microcarpa*, and which Mr. Lynch thinks are no more than varieties of *peregrina*; *P. decora elatior* is distinguished from *peregrina* by the cushion at the base of the carpels; and *P. arietina* by the entire, not divided, middle lobe. Mr. Lynch can claim both originality and simplicity for his arrangement; the latter especially will appeal to all who grow Pæonies and know the difficulty of distinguishing one from another.

ROYAL BOTANIC SOCIETY.

THE second and principal summer show of this society was unfortunately spoiled by the wet. The exhibition was small, but many interesting plants were shown, especially Orchids and hardy flowers, always displayed in large masses—the only way to see them in full beauty under tents; whilst there was a fair sprinkling of fruit, not so much, however, as in previous years.

ORCHIDS filled, of course, the usual bank, and the specimens were remarkably fine—a vast improvement on the wretched plants that have been seen at the summer shows. Mr. James, Castle Nursery, Norwood, who was first in the class for twelve, showed good plants of *Cypripedium barbatum* ni-

grum and *C. b. nanum*, a lighter-coloured form. A charming collection came from Mr. J. Douglas, the Gardens, Great Gearie, comprising varieties of *Cattleya Mendeli*, *Mossie*, and *gigas* of fine colours; *Lælia purpurata*, *Miltonia Roezli*, and *Calanthe veratrifolia*. The finest plants were those from Mr. T. Whillans, who was first for twelve specimens, exhibiting noble masses of *Cattleya gigas* Sanderiana, a splendid variety; *C. Mendeli*, *C. Warneri*, *Disa grandiflora*, and *Dendrobium Dearei*. Some of the finest miscellaneous groups were of Orchids. Messrs. Sander and Co., St. Albans, had an excellent arrangement of rare species and varieties, as *Epidendrum Randi*, *Oncidium roaimense*, the plant bearing a number of graceful spikes of yellow flowers, with the sepals and petals blotched with pale brown; *Oncidium stelligerum* Roezli, pale yellow, sepals and petals almost entirely covered with brown; *Aerides Sanderianum*, a fine form, the stiff spike carrying about twenty large flowers, sepals and petals white, tipped with brilliant rose-magenta, the curved lip yellow and rose-magenta; *Phalenopsis Marie*, one of the prettiest of the Butterfly Orchids; *Batemannia Wallisi*, *Odontoglossum Bleui splendens*, recently described; *O. crispum roseum*, a bold form, the flowers suffused with rich purple-rose; *O. c. Rothschildianum*, rich yellow at the margin, paler in the centre, and blotched with chestnut-brown; *Cattleya Mossie* Measuresiana, *C. Schroederæ alba*, *C. Sanderiana*, one of the richest varieties in cultivation; and *Masdevallia Harryana*, Sander's Scarlet, a brilliant scarlet colour; *Phaius Humbloti* and its variety *albus*, *Cypripedium caudatum* roseum, and *Calanthe oculata gigantea*, a very large and late-flowered form. Besides these there were small groups of *Odontoglossum vexillarium*, brilliant rose in colour; *Cypripedium Curtisi* and *Masdevallia Harryana*. *Phoenix Roebolini*, a dwarf Palm, was also shown; it was exhibited some time back at the meeting of the Royal Horticultural Society. A large group was staged by Messrs. H. Low and Co., Upper Clapton, comprising a rich variety of *Cattleyas*, one named *C. Reineckiana* pallida having a flower of delicate beauty; the sepals and petals are white, the lip faintly suffused with rose-lilac in the front, and coloured with yellow at the entrance to the throat. *Cypripedium bellatulum*, *C. Elliottianum*, *Dendrobium thysiflorum*, *D. suavisimum*, *Lælia purpurata*, and *Thunia alba* were in perfection. Messrs. B. S. Williams, Upper Holloway, had a large group well arranged to set off the beauty of the flowers. The well-marked Glen variety of *Vanda tricolor* was shown, and a rich selection of varieties of *Cattleya Mossie* and *Mendeli*, *Calanthe veratrifolia*, the charming yellow *Oncidium concolor*, *Aerides Houlettianum*, pale brown and rose-lilac flowers; *Odontoglossum Alexandræ roseum*, almost wholly rose in colour; *Miltonia spectabilis rosea*, very finely coloured with rose on the lip; and *Calanthe masuca*. Mr. G. T. White, Winchmore Hill, also exhibited a group mostly of varieties of *Cattleya gigas* and *C. Mendeli*. One form of *Mendeli* had pure white sepals and petals; the lip rose-magenta in front, with a broad margin of white, and yellow in the throat. *C. Warneri* was in splendid character, and the same exhibitor had the deep purple-rose *Bifrenaria Walkeriana*, not unlike *Maxillaria Harrisonæ*. Mr. A. H. Smee sent *Cattleya Mendeli hackbridgensis*, a very distinct form, the petals coloured with a central line of rose-magenta in the upper half. *Cypripedium Aylingi*, from Mr. E. Ayling, *Odontoglossum Galeottianum*, and *Cypripedium bellatulum*, with a white dorsal sepal, from Mr. J. Statter, are described in the Royal Horticultural Society's report, also *Oncidium cristatellum* from Mr. J. Larkin.

HARDY FLOWERS made the show—that is, without their help it would not have been worth visiting. Messrs. Kelway and Sons, Langport, had an immense display of Pyrethrums, Irises, Delphiniums, Pæonies, and Amaryllises, all noted in the report of the Royal Horticultural Society. Mr. T. S. Ware, Tottenham, showed a lovely group of a few things, amongst which were Pæonies in great variety and a brilliant mass of varieties of Oriental Poppy; the most striking were Prince of Orange, rich orange colour; Royal Scarlet, brilliant

scarlet; and the Iceland forms, besides *Iris hexagona*, *I. Boissieri*, deep violet, and *Jupiter*, rich yellow. The collection from Messrs. Paul and Son, Broxbourne, was full of interest—large clumps of flowers that made a great show of colour. There were such things as Pæonies, deep blue *Delphinium formosum*, double rose *Lychnis viscaria splendens*, *Geum miniatum*, the white *Libertia ixioides*, *Campanula glomerata dahurica*, one of the finest Bellflowers in the garden, and double *Potentillas*, besides several plants of French dwarf Cannas, of which Mme. Crozy, scarlet, with a narrow rim of gold, and *Henri de Vilmorin*, very large, scarlet, upper half of the flower yellow, were prominent.

Cut flowers were not so plentiful as usual. There was a falling off in Roses, which were shown well by Mr. W. Robins, gardener to Col. S. D. Lee, Aylesbury, and also by Col. Pitt, Turkey Court, Maidstone. Mr. Geo. Prince had the same Roses as exhibited on the previous day at Westminster, and Mr. Robins several good blooms of *Maréchal Niel*.

Other miscellaneous collections were a charming group from Messrs. J. Laing and Sons, Forest Hill, made up principally of tuberous Begonias, but other things were the pretty pyramidal *Saxifrage*, *S. Macnabiana*, and *Miltonia vexillaria*, rose margined with white. A few of the best Begonias were *Maggie Rust*, bright salmon-pink; *Viscount Wolseley*, scarlet; *Miss French*, pale sulphur; *Leviathan*, a large scarlet single; *Sunset*, scarlet, very double; *Marchioness of Headfort*, flesh colour. Messrs. H. Cannell and Sons, Swanley, exhibited an excellent collection of tuberous Begonias, amongst which were such fine things as *Hon. Francis Boscawen*, rich shining rose, a splendid double; *Duchess of Westminster*; *Miss Vyner*, a beautiful yellow single; *Mrs. Allison*, lovely pink colour, double; *Sir W. C. Brooks*, dark crimson; *Ed. Banks*, brilliant shining scarlet; and *Mrs. Buckland*, yellow, more golden in the centre; also *Gloxinia Agnes Cook*; a dark-leaved bedding *Coleus*, *Black Dwarf*, and French *Pelargoniums*.

A fine group came from Messrs. W. Paul & Son, Waltham Cross, consisting of Ivies, cut flowers of *Rhododendrons* in variety, Scotch Roses, and *Tea Rose Medea*, an unusually full flower, pale yellow in colour, and a promising variety. Messrs. Cutbush and Sons, Highgate, showed Ivies and two baskets of the gold netted-leaved *Spiræa japonica reticulata*. Two good tuberous Begonias from Mr. Henry Little, Twickenham, were *Mrs. Little*, with brilliant rose double flowers, and *The Baron*, single crimson.

Irises do not look well when cut, but a rich range of German varieties came from Messrs. Barr & Sons, also Spanish forms, besides a large group of *Ixias*, which show a delightful variation in colour; *crateroides*, brilliant carmine, is the brightest. *Campanula persicifolia grandiflora alba* has an unusually large bell of great purity.

Pelargoniums were shown well by Mr. D. Phillips and Mr. Charles Turner, and a collection came from the Slough nursery. Mr. F. Perkins, Leamington, had the varieties *Princess Beatrice* (blush) and *Prince Henry*, in the way of Mme. Thibaut, but much brighter in colour. P. Miss Iney, from Mr. D. Phillips, has a large pale rose flower, upper petals blotched with deep crimson. Mr. F. Pewsey, Wilts, showed a large basketful of the yellow *Carnation Pride of Penshurst*. A good variety, brighter in colour, but similar to the old *Clove*, is *Uriah Pike*, from Mr. J. Pike, Acton.

There were, of course, classes for stove and greenhouse plants and *Caladiums*. The prize-winners in these are given in the award list in our advertising columns.

FRUIT.—A large collection was shown by Messrs. T. F. Rivers and Sons, consisting of fruiting trees of Lord Napier Nectarine and Guigne Annonay Cherry, a rich black variety, besides other things. The finest collection of fruit was from Mr. J. Edmonds, Bestwood Lodge Gardens, Nottingham, and the best Black Hamburg Grapes from Mr. T. Osman, gardener to Mr. Baker, Chertsey. Mr. P. Feist had the finest clusters of Muscat of Alexandria. The Madresfield Court were poor, not half

ripe; it is a pity to show Grapes in this condition. Mr. G. Clinging, gardener to Mr. W. Greenwell, Caterham Valley, was first for white Grapes. The finest Strawberries were *Auguste Nicaise* and *Laxton's Noble*, from Mr. Divers, Ketton Hall; and of Cherries noticeable were those of Mr. Hare, Wellingore Gardens, Grantham. Mr. J. Douglas showed Nectarines, also Mr. Hudson, who had a splendid box of Lord Napier.

A full prize list will be found in our advertising columns.

Death of Mr. John Rawlings.—The death of Mr. John Rawlings, one of the two brothers trading as Messrs. Rawlings Bros., Florists, at Romford, took place on the 4th inst., at the comparatively early age of 35 years. He was the third son of Mr. George Rawlings, for many years a well-known *Dahlia* cultivator, raiser, and exhibitor, of Bethnal Green, and afterwards of Romford. He was apprenticed to a builder, but not liking the business his indentures were cancelled at the end of five years, and he returned home in 1878. In 1879 Mr. G. Rawlings, the father, retired from the business, which passed into the hands of his second and third sons, John, the deceased, and Arthur. The brothers proved very successful in raising a number of very fine seedling Dahlias, and the first batch they sent out in 1879 comprised such fine varieties as Mr. George Harris, Shirley Hibberd, Mrs. N. Halls, Frank Rawlings, and William Rawlings; followed by J. T. West, Mrs. Douglas, Mrs. Glasscock, Mrs. George Rawlings, Mrs. John Walker, Queen of the Belgians, R. T. Rawlings, T. J. Saltmarsh, Frank Pearce, one of the very best fancy varieties, and others. The cause of death was pleurisy, brought on by a severe cold. In 1888 a heavy flood visited Romford, and John Rawlings in endeavouring to save the life of a man who had fallen into the river was himself pulled in, with the result that he contracted a severe cold, which appears to have undermined his constitution and hastened his death.

Piling earth round trunks of trees.—Would you kindly inform "C. E. H." if 2 feet of soil put against the trunk of a Weeping Elm will hurt it. The diameter is about 18 inches, and the first spread of branches is 7 feet from the ground level.

* * It is a very bad plan to pile earth against the trunks of trees. If it must be done, build a ring of stones round the trunk 2 feet off to keep the soil from touching it. After all, the tree roots will take possession of the soil, and the last condition of things will be worse than the first.—J.

Herbaceous plants (E. J.).—We hope to publish a list at an early date.

Flower shows.—As full a list of coming flower shows as possible is given in our advertising columns.

Names of plants.—*J. C.*—*Lycaste aromatica*; 2, apparently *Dendrobium Fendleyanum*; 3, looks like a *Coleogyne* bulb.—*H. C. W.*—1, *Davallia pentaphylla*; 2, *Phymatodes Billardieri*; 3, *Anapeltis lycopodioides*.—*Vesta*.—*Vandateres*.—*Anon.*—*Maranta Massangana*.—*Mary Woodley*.—Your Tulip appears to be the variety *Pourpre blanc borde*.—*G. F.*—*Gaultheria Shallon*.—*G. Shotton*.—1, *Coronilla Emerus*; 2, *Helleborus viridis*.—*F. S. C.*—Marsh Spurge (*Euphorbia palustris*).—*J. C. L.*—1, *Phyteuma spicata*; 2, *Lactuca scariola* (?) Specimen not good enough.—*Elder*.—1, *Smilacina stellata*; 2, *S. racemosa*; 3, *Veronica caucasica*; 4, *Senecio Doronicum*.—*F. Hand*.—1, *Omphalodes verna*; 2, *Stachys lanata*; 3, *Stachys germanica*.—*Mr. Garden*.—1, *Haworthia subattenuata*; 2, bad specimen; 3, *Cotyledon pulverulenta*; 4, *Gasteria verrucosa*; 5, *Aloe mitracarpus* var. *flavispina*; 6, *Begonia corallina*.—*C. E. H.*—A good form of *Dendrobium nobile*. Please send name and address.—*Dr. Soper*.—The specimen was too small to name.—*S. E.*—Form of *Salix triandra*.—*Michael Williams*.—*Ephedra monostachya*.—*G. D.*—1, *Lilium croceum*; 2, *Pæonia tenuifolia hybrida*; 3, *Veronica pectinata*; 4, *Euphorbia sagittalis*; 5, common Honeysuckle (*Lonicera periclymenum*); 6, *Pernettya mucronata*; 7, *Dactylis glomerata variegata*; 8, common *Ranunculus acris*.—*E. W.*—Weeping form of the Weigh Elm (*Ulmus montana*).—*Anon.*—*Allium Victorialis*.—*W. C.*—*Spiræa trilobata*.

WOODS AND FORESTS.

THE CEDAR OF MOUNT ATLAS.

THE classical Cedar of antiquity has, it is well known, become exceedingly rare on Mount Lebanon, where it exists, outside of the famous grove of about 350 trees, in a few remote and rarely visited stations only. There is nothing more beautiful or more venerable than the little forest of Cedars standing out dark and green on the naked and forbidding background of the high Lebanon range. Each tree, with its original and expressive aspect, seems to relate a history full of memories. But this famous grove of Cedars leaves upon the visitor a sad impression, for no one who sees it can divest himself of the idea that the venerable trees are perishing. The nine old trees are mutilated and injured less by time and the severity of the climate than by the carelessness of shepherds and pilgrims, who break off the branches and often build fires about the trees; and, what is still more serious, young plants are not growing up, as the goats destroy them as soon as they appear.

If the student of the Bible deplores the approaching loss of these, the most touching monuments of antiquity, the botanist and the forester may find at least this consolation, that the Cedar is found on other mountain ranges, so that a speedy extermination of the race is not probable. Vast forests of the true Cedar of Lebanon exist, at an elevation of from 4000 feet to 6000 feet, on the immense masses of mountains which extend all along the coast of Cilicia. It was Kotschy who discovered and described these great forests of Cedars (see his charming work entitled "A Journey to the Taurus of Cilicia," published in 1858). In reality, the station of the Cedar on Mount Lebanon is only the most southern outpost of the species, while the centre of its distribution and its real home is in Cilicia, where it is found in the greatest abundance, and where it reproduces itself vigorously. But to really comprehend the geographical distribution of this splendid tree one must look to the western and the driest part of the Himalaya Mountains, where is found that Conifer known from the time of the most ancient Indian antiquity under the name of "Deodar, or Wood of the Gods," the *Cedrus Deodara* of botanists. It is not surprising that this wonderful plant has been mistaken for a distinct species. It is a much larger tree, and its habit, although not unlike that of the Cedar of Lebanon, differs from it in its slender young shoots and in its larger and longer cones. In the opposite direction, another tree, very much like the Cedar of Lebanon, has been discovered in the Atlas Mountains of Algeria; but in the case of this tree all its parts are smaller than those of the tree of Mount Lebanon. The more the mountain chains, which extend from the frontier of Tunis in a double rank through Northern Africa to the boundary of Morocco, are explored, the more widely distributed this beautiful tree is found to be. Manetti has given to the African Cedar the name of *Cedrus atlantica*, but a critical study of these three trees has shown Sir Joseph Hooker that they are not really three species, but simply three varieties, or rather races, of the same species, as it is principally the dimensions of individuals, and not essential differences, which distinguish them.

The race of the Himalaya, in conformity with the immensity of that mountain system, where all vegetable forms assume an extraordinary size, is the largest. The race of the Taurus and of the Lebanon occupies an intermediate position, while that of Mount Atlas is the smallest, on account of the dryness of the severe climate of the region. The remarkable dimorphism, even, which appears among trees with dark green foliage, and others with silvery grey foliage mixed together in the same wood, is found in these three stations, in the Himalaya as in the Taurus and in the mountains of Blidah. This dimorphism is known to gardeners, as it is seen frequently in cultivated plants of the three varieties now widely distributed in the gardens of Southern Europe.

I had the good fortune, in a recent journey, to

penetrate to the region occupied by the African Cedar and to cross it at different points, and it seems to me that it might be interesting for the readers in the New World to learn a few details of a plant of the Old World, which every reader of the Bible knows and has venerated from childhood. There are learned and competent students who suspect, at least, that in one or the other of the references of the Bible there is room for doubt, and that they do not refer to the true Cedar, but rather to the wood of the Cypress (*Cupressus sempervirens*). Indeed the wood of this tree, which still inhabits the valleys of the Lebanon in the immediate neighbourhood of the Cedars, as in the valley of Kadischa, forming there dense forests, is more valuable than that of the Cedar, both for construction and for the cabinet-maker. The wood of the true Cedar is whitish, rather soft, not very durable, and not odoriferous, while that of the Cypress is very hard, durable, very resinous, and of a handsome brown colour, and in every way superior to that of the other tree.

I saw the Cedar for the first time in the Atlas of Beni-Salah, which forms the principal part of the chain immediately behind the pretty town of Blidah, which is surrounded as far as the eye can reach by forests of Orange trees, whence come in the months of December and January Mandarins, which are now beginning to take the place of all other varieties of the Orange.

We ascend with the aid of mules and Arab guides behind the town during five hours—for it is necessary in order to visit the Cedars to reach an elevation of nearly 2000 feet, while Blidah is only a few feet above the level of the sea. We pass through Arab fields surrounded with masses of Cactus (*Opuntia Ficus indica*) 15 feet or 20 feet high, and covered with the graceful *Clematis cirrhosa*, which in January was in full flower. Fig trees without leaves, the great Caroubiers (*Cerotania Siliqua*), the *Zizyphus Lotus*, and a number of shrubs with shining evergreen leaves, grow on the sides of the road, with here and there an occasional plant of *Chamærops humilis*, which is the despair of the agriculturist of the country, because it is impossible to exterminate its strong roots without the aid of a dynamite cartridge. We ascend rapidly; cultivated fields come to an end, and the naked flanks of the mountains, worn by the torrents of spring and deeply gullied, begin to fatigue our animals. We encounter at 3500 feet thick clumps of the Oak, known to the Arabs under the name of "Ballus," the *Quercus Ballota*, with thick, tufted, dark grey foliage resembling that of the Live Oaks of the Southern United States. The large acorns are sold in the market of Blidah. They are not bitter, although rather astringent for a cultivated taste. We soon leave these Oaks behind. Chestnut trees, although not indigenous, grow here vigorously, as do several shrubs of Europe, like the *Ilex Aquifolium*, the *Ruscus aculeatus*, and the *Prunus avium*.

A little further and we reach the Cedars, which hereafter cover all the slope with an imposing solemn forest, which we admire in silence. They are, for the most part, ancient trees many centuries old, but there are also many young trees which form impenetrable thickets. Under the old trees the ground is open and hard, resounding like iron, for it is still frozen, and here and there are patches of snow. It is impossible to imagine anything more beautiful or more touching than these great trees standing in their silent majesty. The trunks have a diameter of $4\frac{1}{2}$ feet to 6 feet, springing from roots twisting about like serpents; the bark is thick, channeled, dark brown. The trunk separates generally at the height of a man into vigorous, horizontal branches. This horizontal direction of the branches is repeated to the top of the trees, so that they consist of a series of flat stages covered with thick, intense verdure, but diminishing near the top, which ends in a thin, upright leader. Upon these branches the cones appear in great quantity. They are very beautiful, of a clear brown colour, and covered with drops of white resin. The cones are just ripe, although the scales are still closed. A month later they drop, leaving the central axis, which remains on the branches for a long time. The

leaves are short, very close together, entirely covering the branches, dark green on both surfaces, although on certain individuals they are silvery-white, the contrast of colour making an effect of surprising beauty. The height of these trees is not great, the highest, I should think, not exceeding 60 feet to 75 feet, but solidity and strength are expressed to a supreme degree in their habit. An examination of this forest shows, to our surprise, the *Taxus baccata*, the *Cratægus Aria*, the *Euonymus latifolius*, a great Juniper probably undescribed, not unlike *Juniperus Oxycedrus*, *Quercus Mirbecki*, an evergreen species of the Eastern Atlas, but rare in this region. It is not uncommon to see immense trunks of the Cedars torn, burned and whitened, either upright or prostrate on the ground. These are the victims of lightning or of fires lighted by the Arab shepherds, who like to set fire to a great tree to warm their hands.

From the summit of Beni-Salah, which rises a little above the last Cedars, and which is covered with a thick growth of *Bupleurum spinosum*, we obtained a splendid view which will rest always engraved in our memory. About us are the rocks and the gorges of the Atlas covered with Cedars, while developing at the right and left to a prodigious distance extend the ranges of the province of Oran as far as the great pile of mountains to the east of Algiers, the Djurra, with its heavy covering of snow.

There is, further west, in another part of the Atlas, a region where the Cedar forms extensive and luxurious forests. This is the Teniet-el-Had, near Affreville. The Cedars here cover nearly 10,000 acres, and ascend to nearly 6000 feet above the sea level. In the lower part of this forest the *Callitris quadrivalvis*, called "Thuya" by the Algerians, is found. It is a charming little tree, the near relative of the Frenelas and the Widdingtonias of the southern hemisphere, and supplied the ancient Romans with the precious wood called "Citrus," for which they paid fabulous prices—as much as £10,000 for a single table, and, according to Pliny, it was the great and wise Cicero who paid it. This wood is cut from the lower part of the trunk, where there are numerous excrescences, and is really beautiful. It is light rose-coloured, regularly marked with dark red spots, which form a delicate design. The great *Pistacia atlantica*, the *Pinus halepensis*, the most common Pine of Algeria, are found in this forest also. Many of the Cedars have here 12 feet to 18 feet circumference of trunk. One of them, known as the "Sultana," measures nearly 30 feet around the trunk. The "Sultan," which is no longer alive, had a trunk circumference of nearly 35 feet.

The Atlas is not the only station of this tree in Africa. Beyond the Atlas and the grand plateaux of the interior, an immense mass of mountains exists in the province of Constantine, towering above the Atlas even at a height of nearly 7500 feet. All this immense mountain region is covered with forests of Cedar, which have absolutely the effect of our Spruces of the Alps, half covered in the snows of winter. From Batna one ascends in a few hours to the centre of this region. There are, at a lower elevation, forests of *Pinus halepensis* mixed with *Juniperus phœnicea*, which attain here a large size. Higher up the Cedars extend in all directions, and it would require days to cross these forests. The flora of these high mountains must be beautiful in summer. We only saw the remains of that of the previous year, but were able, nevertheless, to distinguish two species of Saxifrage and a Violet, the *Viola Munbyana*, of which the seeds are now growing in our alpine garden. At a single place in these regions in the Babor range to the east of Bougie, at an elevation of nearly 6000 feet, M. Cosson discovered a small forest of an Abies which he mistook at first for the *A. Pinsapo* of Spain. It is, however, a distinct species—the *A. baborensis* of Cosson or the *A. numidica* with obtuse leaves, and more closely related to *A. cilicica* than it is to the Spanish tree. It is a species which succeeds well in the gardens of Europe, although it never grows to any size.—H. CHRIST, *Bâle, Switzerland, in Garden and Forest.*

No. 970. SATURDAY, June 21, 1890. Vol. XXXVII.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

WATER PLANTS.

AQUATIC plants have a beauty all their own. They are often very graceful and striking in their peculiar characteristics; they are always interesting. Just at the present time the Water Lily house at Kew is a wonderful sight. Only that it is so hot with a damp, unpleasant, almost stifling heat, one could spend an hour looking at the marvellous beauty of the different species of *Nymphæas* floating on the surface of the water. There is a large deep blue one in the centre, and numerous other *Nymphæas* smaller and of paler, but exquisitely beautiful tints nearer the edge. In one corner the *Nelumbium*, or Sacred Bean, lifts up its great, massive flower, splendid for its immense size, but beautiful also in the delicate colouring of the margin of its thick outer petals, which are rosy red shading softly into the purest snow white, and forming a large cup of surpassing loveliness. Close to the flower are the large peculiar beans, or seed-pods, on their long stalks. In the Victoria Lily house the huge tray-like leaves are interesting, but there is no flower. I remember some years ago seeing a flower of this Lily gathered from the centre of the house for the Queen, who was then staying at Windsor; it gave an opportunity for a close inspection of its beauty, and I have not since been fortunate enough to come across another. The *Amorphophallus* in this house, which created such a sensation last year about this time, has sent up a tall stem, but no sign of a flower. I saw it last year when nearly reaching maturity, but it was almost impossible to stay five minutes in the house on account of its peculiar odour.

Our own aquatics are very interesting. Both the white and yellow Water Lilies are common enough; the former makes a beautiful flower for the table, and would, no doubt, be more frequently used in our rooms, only for the difficulty of getting at it. In sheltered ponds in Cornwall, Arums grow and flower. They die down in winter, and notwithstanding the thin coating of ice which may at times be formed over them, they reappear and produce fairly strong leaves and flowers. *Aponogeton distachyon* grows almost wild where it once gets a hold. It is nearly always in bloom, but the flowers are more curious than beautiful, and the scent, though said to be like that of the Whitethorn, is not very agreeable. It is easily procured, and will grow in any pond where the climate is not too cold. In Devonshire it is quite at home, and will give any quantity of its curious flowers. The Flowering Rush (*Butomus umbellatus*) is one of our most beautiful wild flowers. It is not very common, but is to be met with in the ditches or "rhines" of this county. It is tall and stately, and worthy

of a place in a garden of aquatics. The generic name *Butomus* is said to be given to this Rush because cattle feeding on the leaves are liable to cut their mouths. Nothing is more familiar to us at the present day than artistic decorations, representing water, reeds, and aquatic birds, such as herons with their long legs standing on the brink of a stream, dreamily looking out for a passing fish. The common Water Plantain (*Alisma Plantago*) may usually be seen in a picture or decoration of that kind, as it combines stately rigidity and gracefulness in such a manner as to be always beautiful wherever it is introduced. It is a very common weed in watery places. The flowers of the Water Crowfoot (*Ranunculus aquatilis*) are like those of that common annual which flowers at this time, *Limnanthes Douglasi*; the plant has both hair-like and flattened leaves, which float on the surface of the water. In stagnant pools the flowers are abundantly produced, and are very pretty. At the margin of such a pool nothing looks better than the yellow Flag (*Iris pseudacorus*), and it makes up beautifully with other tall-flowering plants in a large vase. The Flowering Fern (*Osmunda regalis*) never shows itself to real advantage unless it can thrust its matted roots into spongy soil well saturated with water; it will then often attain a height of 6 feet or 7 feet. The large Bulrush (*Typha latifolia*) is common everywhere, and is now fully appreciated as an ornament mingled with Pampas Grass in our drawing-rooms. It is frequently necessary to wade into deep water to get at it, but it is well worth some trouble. A smaller kind (*T. angustifolia*) is not quite so common, but it grows in the Thames, and is equally beautiful for decoration.

On a hot summer day it is refreshing to look into a dripping well formed by a recess in some bank in a wood, and to see the bright green of the Mosses and aquatic plants which enjoy there a perpetual bath. A curious and elegant little plant, the Cornish Money-wort (*Sibthorpia europæa*), rejoices in such a locality, and will mingle in soft green luxuriance with the marsh Penny-wort and other moisture-loving plants. But outside the well, on the banks of the stream itself, may often be found cushioned in great beds of Moss, the Bog Pimpernel (*Anagallis tenella*) and with it, forming the happiest combination, the blue tiny flowers of the Ivy-leaved Campanula, mentioned in a recent number of THE GARDEN, and a favourite flower of the Rev. Charles Kingsley.

A GLOUCESTERSHIRE PARSON.

Irises of fine colour.—In the collection of German Irises in flower now in the Royal Horticultural Society's garden at Chiswick occur a few varieties of striking colour. Mme. Chereau is one of the finest, and the abundance of white, violet-edged flowers in Covent Garden Market show that it is appreciated. Swerti, white, margined with rich blue; Chameleon, blue; Juliette, standards white, with a tint of lavender, the falls rich violet-purple; Du Bois de Milan, light lavender standards and purple falls, veined with white; Khedive, soft lavender, the beard orange; Mandralisæ, rich blue, a tall and very beautiful flower; Harrison Weir, one of the

best of the none too attractive squalens group, rich crimson-lake, the standards buff colour; Minico, rich gold-yellow standards, deep crimson falls; Enchantress, yellow standards, veined with white on a crimson-brown ground; Venusta, rich crimson and buff; Celeste, the finest of all Flag Irises; Pallida, and Queen of the May, pale rose-lilac, very beautiful, were the most striking.

ROSE GARDEN.

THE RAIN AMONG THE ROSES.

UP to the 10th of June the weather in East Anglia, as a whole, had been cold and dry. Fierce sunshine by day with a dash of frost in the air at night did not prove very fostering to Roses. But on the afternoon of yesterday and throughout the night we had fine genial rain, and to-day it has continued with charming intervals that afford time for economical absorption. This rain has mostly come from the south and west, and has not been iced with east winds; hence it has strengthened and cleansed the Roses. It is of the greatest importance to keep Roses clean. I am so convinced of this, that with a hose within reach of all Roses at one extremity and a water main of good force at the other, I would undertake to keep Roses clear of insect pests without sprayings of London purple, or incessant pickings and squeezings by hand or finger and thumb. Water in quantity and force will do the clearing as well or better than all our killing arts or nostrums combined. Not but that many of the latter are useful in the absence or under a deficiency of water. Neither has this up till now been an insect year among Roses. In some districts the drought and the cold had brought or developed flights of aphides, as so many rosarians express it, and it is a curious fact that these pests come mostly on the heels of cold rather than of warmth, and also that drought favours their rapid multiplication rather than moisture. The largest and fattest are also the first knocked down through heavy rain and the least likely to rise again, unless their troublesome allies, the ants, carry them up our Rose trees afresh for their own purposes. If the surface of the wet earth is sprinkled with guano or London purple in powder, the aphides and their nimble allies will both be got rid of together, and chiefly through the welcome assistance of these heavygenial showers. In the height of the blooming season heavy showers are by no means an unmixed blessing, but very much the contrary. But at this early season, foliage, flower-buds, growing shoots, and thirsty roots are immensely and perhaps almost equally and alike benefited. The effects of genial rain among the Roses towards the end of May and early in June are almost magical. Immediately after the rain, enthusiastic rosarians can almost fancy they hear or see their plants and buds grow. Exhibitors, too, pluck up heart and hope; boxes are refurbished, tubes tested, and all preliminary preparations made for contests and victories that were despaired of before the rain. Briers generally looked promising before the rain. Now their progress is likely to be so rapid, that the Briers are likely to be fully ready before the buds are fit to match them. Such a disparity is on the right side, and promises an unusually successful budding season.

June 14.

D. T. F.

Early Roses.—The more notable among these were Lady Mary Fitzwilliam, Souvenir de la Malmaison, and Homère. The first, though somewhat deced on its *début*, is rapidly establishing its character as one of our very best Roses. Until this season I had not noted it as also one of the earliest

To-day, June 11, I cut two fine blooms off dwarfs in the open. One of them had been perfect from the 6th—the other perfect to-day. I have but one fault with this exquisitely chaste and beautiful Rose. It grows but little, though almost every inch of wood yields a fine bloom. If anyone could furnish a receipt for forcing this Rose ahead like a *Gloire de Dijon* or a *Homère*, he would confer a lasting benefit on all lovers of the Rose. Most rosarians will be surprised to hear of perfect blooms of the *Souvenir de la Malmaison* in the open in the first week of June, for, as a rule, the early blooms are malformed and anything but attractive in that early season of strippling, but graceful Teas. But I have seldom seen finer buds of this old favourite in September or October than I gathered this year in the early days of June. *Homère*, too, seems earlier and better than usual for the season of the year. It seems bent on coming in alike in the open and more especially on walls, almost a neck and neck race with the *Gloire de Dijon*, which is also as good or better than usual this season. The *Maréchal Niel*, on the contrary, is not so promising, and is certainly later than usual. As an open air Rose this golden champion seems to be rapidly losing stamina and longevity, and of those most successful with it in the open air, if there are any such left now, it may probably be said with truth that they raise a great many and lose a great many.—D. T. F.

THE FIRST TEA ROSES.

It is very interesting to watch the opening of the first few Roses that usher in the season, especially when many of the kinds have been newly planted, as has been the case with so many of ours. In this respect there seems to be something in fresh planting, provided it is done early to foster early blooming, for in this respect our newly-planted groups will beat the established ones by at least a fortnight, and this without any forcing or assistance, or natural or other shelter. When a Rose is transplanted in autumn, new root action commences almost immediately, and I imagine continues throughout the greater part of the winter. Moreover, plants as they come from the nursery are moderately pruned, and need little after-attention in this respect. With the established groups, probably the roots are less active during winter, and when they do start these premature shoots are afterwards pruned away; whereas in the case of our newly-planted and sufficiently pruned groups, root action plumps up the dormant buds and stimulates them to such an extent that they break strongly and soon produce fine well-formed flowers. These are the only conclusions I can draw from observation of the doings of our Roses. *Princesse de Sagan* had a fine flower open on June 1. It is one of the 1887 new Roses and as yet little known, but it is without doubt one of the finest red Teas, a vigorous grower and free bloomer, with a fine and showy flower, of globular shape, full, and of an intense and rich crimson-red colour, shaded with deeper and darker crimson. *Mme. Charles* opened its first flower at the same time. This has been called an improved *Mme. Falcot*, and rightly so, for in it are found all the lovely shades that characterise *Mme. Falcot*, but intensified in depth and richness of hue, and embodied in a bloom that has much more substance, being fuller, larger, and finer in every way. It appears to be a vigorous grower, but more will be known of its merits in this respect after the present season's experience. *Amazon* has already a lovely flower open. Although in commerce since 1872, it is not common, but it is really a lovely pale yellow, and being a little less vigorous than some, is worthy of a special and choice position. A group of *Rubens* has several flowers open, even upon the smallest bushes. This is one of the good old kinds that the newer ones should not displace. Although raised in 1859 it is as worthy of recognition now as then; in fact, it should be included among the best twenty-five Tea Roses. It is a good grower and a free bloomer. The flowers are large, full, and globular when open, but very fine in the bud. In colour they are white suffused with a delicate tender rose. *Souvenir de Victor Hugo* will take a

high place among the Teas when better known. It is vigorous and free, and has already opened a lovely flower. It has a large long bud which opens into a fine full flower, which externally is of a soft pale rose colour, but internally of a coppery-yellow hue, with a rosy-carmine bordering to the petals. It exhibits a new and novel blending of charming hues. *Marie Van Houtte*, last, but far from least, winds up the list of those that have already (June 4) rewarded us with flowers. It is always so free and good that it needs no further mention here beyond adding that those who grow it under glass do not see, or perhaps know, half of its charms, for under glass it is pale rose only, but in the open air its sun-painted buds and fully expanded flowers exhibit a most delightful variety of colouring.

As I write these notes a much-needed and soft steady rain is falling, and has been for several hours. Should fine weather follow, in a few days *Roses* will open fast. The promise is a good one, and thanks to the Teas the display which the kinds enumerated above first commenced will continue unbroken for at least four months. A. H.

THE MARECHAL NIEL ROSE.

"A. D." is quite right (*GARDEN*, May 31, p. 499) as to the blooming of this Rose, as its flowering season is soon over. Neither can it hardly ever be induced to bloom a second time. The golden feast of beauty and fragrance is so prodigal, as to lead to a speedy exhaustion of force and collapse of bloom. Could a longer succession of blooming be added to its other merits, the value and usefulness of this peerless golden Rose would be further enhanced. Yet those who grow for market or for private purposes on a large scale may meet and master this inconvenience of its all too brief blooming season by providing many plants or houses of this Rose to come on in succession. By such simple devices even this fault of the *Maréchal* may be mastered, and perhaps turned to more profitable account.

It is a curious fact in relation to *Maréchal Niel* that, though it can seldom be induced to bloom a second time under glass, it mostly does so to a greater or less extent in the open air. And these second pickings are more plentiful from standards on the Dog Rose than from worked plants, or those on their own roots on walls. The older the standards, the more plentiful the second pickings of *Maréchal Niel* through August and September, or even later.

With all its superlative merits, the *Maréchal* is one of our tenderest Roses; hence it is only in gardens here and there that standards will live long or thrive in the open. Consequently before they reach the semi-mature estate of autumnal blooming the frosts of winter and killing winds of March have made an end of them. I have had standard monarchs of a dozen years old, and these have bloomed well in the autumn. Blooms are also produced at times on wall plants in the autumn, though more sparingly. I hardly agree with "A. D." that the colouring of this exquisite Rose is chiefly dependent on the intensity of light or length of day. At times and in places the first blooms are the more vivid. Under other circumstances this order seems reversed, and yet again the colour is somewhat mixed. For a uni-coloured Rose the range is wide, diverse, and rather inexplicable. All blooms below good standard gold may be pronounced faulty from deficiency; all which greatly exceed that standard as spoilt through excess of colour.

D. T. F.

SHORT NOTES.—ROSES.

Harrison's Yellow Rose (*Rosa lutea* Harrison) makes a pretty bed on the turf, its straggling growth and rich yellow, semi-double flowers fitting it for such a place. There is a bed of it at Kew near the succulent house—a happy bit of planting.

Tea Rose Homer.—In *THE GARDEN* for March 31 (p. 498) the following question and answer appear: "Is there such a Rose as Homer, and would you classify it among the above—that

is, the best varieties of different classes?" "There is a Tea Rose called Homer, but it is small and faulty in shape and in no way worth growing." Homer not worth growing! Why, for general usefulness, chasteness, and unique colour, I should place it well up in the running with *Gloire de Dijon*, with which it matches well for clothing or furnishing a wall or trellis. Give Homer its head on a light wall or up a tree, mark well its luxuriant growth, its fine masses of semi-glossy foliage, and its abundant harvest of flowers nearly all perfectly formed in the late autumn tide, and then say if you can that it is in no way worth growing. I enclose a first-flower or two when Homer is prone to be out of form. What would you think of 100 or 500 of such or superior blooms in the late autumn from a single plant covering 5 square yards of a high wall? It is not the first time I have stood by Homer, and I have never had cause to be ashamed of extolling its many merits, or pointing out its usefulness and beauty, which are in the inverse ratio of its size. Homer should find a place in every garden and be found contrasting with *Gloire de Dijon* on every cottage.—D. T. F.

TEA ROSES IN FLOWER.

WARM rains and a fair amount of sun have brought *Roses* on apace, and now instead of single flowers blooms can be counted by the score, and groups of fine kinds begin to have an effect in the garden landscape.

DR. GRILL well maintains the high opinion formed of it last year. All the qualities that constitute a good Tea Rose are embodied in it, unless it be a lack of fulness when expanded, which would render it unfit for the exhibition table. But *Roses* are grown for other ends, and of recent new ones none are more deserving of a high position than Dr. Grill. It is vigorous, with a free and spreading habit of growth. It flowers freely, the buds being bold and of fine form, long, yet globular. The fully opened flower, as before stated, lacks fulness, but this in no way detracts from its beauty when on the plant. To describe the colour is almost impossible, so beautifully are the shades of rose, yellow and copper commingled. The scent is also very sweet. A plate of this Rose appeared in *THE GARDEN*, January 18, 1890.

JULES FINGER.—It is now eleven years since Ducher gave us this Rose, and yet it does not seem to have attained to great popularity. It is fit to rank among the best twelve Tea Roses, and probably in its distinct and peculiar shade of colour it will never be surpassed. It grows and flowers freely, is good in the bud, and if possible better when fully expanded, as the flowers are very large, of good substance, and remarkably well formed. In the bud state it is of a pale salmon-rose colour, but the fully expanded flower is of a deep rose, except the outer petals, which become of a lighter shade. The flowers have such substance that they last a week upon the plant when fully out, and the subtle changes of colour going on day by day are not the least of their charms. When cut, however, these changes of colour are not so charming, as in the house after a day or two the flowers assume a peculiar dull slaty hue.

MME. ETIENNE, one of the 1886 *Roses*, is a very promising variety of good habit and an abundant bloomer; the flowers, of medium size and substance, are of a tender rose colour, becoming paler and externally almost white as they expand. The petals, instead of being smooth, as they generally are, are in this kind somewhat wavy, giving the flower a pretty and distinct character, quite unlike that of any others of the same shade of colour.

COMTESSE RIZA DU PARC is very charming with its large, bright, rosy, copper-suffused blossoms. It is quite unlike any other Tea Rose, and a bold group of it is sure to attract attention, not only on account of its erect habit of growth, but from the wealth and richness of its large glossy leaves and the large and showy blossoms which terminate the shoots. Its scent, too, is also very strong.

SUNSET, that delightful sport from *Perle des Jardins*, embodies the rich orange and buff tints of

Mme. Falcot and Safrano in a flower of fine form and great substance. Generally, this is not an early season Rose, being usually seen at its best in autumn, but upon a newly-planted group in warm soil we are having a succession of magnificent buds and blooms, opening gradually and well and lasting long. Some of the flowers are as large as those of a Gloire de Dijon, and in colour they are externally of a pale yellow, deepening to rich orange and buff in the centre of the flower. It is even more vigorous than

PERLE DES JARDINS, which, where it does well, is one of the best yellow Tea Roses. Upon a warm soil it opens beautifully, the flowers being very large and double, externally of a pale straw colour, but of a much deeper yellow in the centre of the flower.

JEAN PERNET, so faithfully portrayed in THE GARDEN, Dec. 14, 1889, is flowering with its usual freedom, and it is surprising that so fine a Rose does not find a place in some of our English Rose growers' lists. It is exquisite in the bud, which when half opened reveals a deep copper-yellow tint in the middle of the flower, that gradually fades to paler and clearer yellow as the flower expands.

COMTESSE DE FRIGNEUSE AND MME. HOSTE may be taken together, as both are first-rate new yellow Teas, and both are from the same noted raiser, Guillot, the first-named appearing in 1885, and the latter in 1887. Comtesse de Frigneuse, of a beautiful canary-yellow hue, is moderately vigorous in growth, the flowers being produced very freely. The buds are long and pretty; the open flowers are full and exceedingly sweet. Mme. Hoste is a little paler in colour, being of a whitish-yellow externally, but deeper internally. The flower is full, large, and remarkably well formed. The habit of growth is vigorous. It also flowers freely, and is indispensable either in the garden or upon the exhibition table. A. H.

CHRYSANTHEMUMS.

MILDEW ON CHRYSANTHEMUMS.

WILL you kindly tell me what I can do to get rid of the mildew on Chrysanthemums? It seems to have only attacked them during the last week. The plants have a fine sunny house to themselves. The house is smoked once a week, and the plants receive weekly a dose of artificial manure. I enclose two very badly affected leaves.—G. E. BUTLER.

*** The worst enemy Chrysanthemums have is mildew. It makes its appearance first in small spots on the upper surface of the leaves at any stage of the growth, even when in the cutting pots, and if not at once checked it will quickly spread all over the plant. Towards the autumn, when the days are often sunless and cold at night, and in long-continued damp weather, this parasite is the most troublesome. I have seen collections of plants badly affected during the month of May before being placed finally out of doors. From the withered leaf sent I should presume it was from one of the Queen family it was gathered. As a rule, this type is not so liable to be attacked by mildew as some other kinds, such as Meg Merrilies in the Japanese section, and Princess Teck among the incurved kinds, these two suffering perhaps more than any other I know of.

The causes of mildew are various; draughts of cold air blowing across the plants when the outside elements are not propitious for this kind of ventilation will be very likely, indeed, to bring about a case of mildew, especially if the soil in the pots is kept wet. It will be more aggravated if the water used is cold, coming direct from a well, water company's pipes, or a tank underground, or again if the water is highly charged with chalk in solution.

Plants can have sufficient air given to them

without the necessity of creating a draught, especially if this is likely to be of a cold nature. I always found that the best results accrued from plants which had every consideration in the matter of air-giving, this being especially a wind-swept part from the east, rendering air-giving very troublesome. Again, the house in question is closed up once a week for the purpose of fumigating the plants. Of course the temperature of the house is heightened while smoking is being done, and the next morning the house may be thrown wide open. This would cause a check, and again by being fed regularly with stimulants once a week the growth would be rendered soft through being unnecessarily forced.

I should advise "G. E. B." to turn his plants out of doors into some spot sheltered from north or easterly winds, but where they can receive the full benefit of the sun all day if possible, and where shelter from south-west winds is afforded. These new quarters will dispense with the weekly smoking of the house, which is not necessary for Chrysanthemums. If the young growths are attacked with green or black fly, a little tobacco powder dusted over the affected parts at night and the plants given a vigorous syringing the next morning will rid them of the fly. If not quite effectual, repeat the dose the next night. I should also discontinue the use of the stimulant, it not being required at all until the pots in which the plants are to flower in are full of roots and the nutriment contained in the soil exhausted. To return to the case of mildew. Directly the first signs are perceived by the small specks as indicated, the parts should be freely dusted over with flowers of sulphur. That of a brown colour is best, as being the least seen upon the leaves. If it is while the plants are in a house or frame that the mildew is first seen, the atmosphere should be kept as dry as possible, the soil about the roots kept in an equable state, neither too wet nor too dry. Where the plants are standing out of doors the sulphur must be often used, as rains quickly counteract its effects. Where the mildew has obtained a strong hold on the plants, as in the case of those leaves sent, it is necessary to take stronger measures to remove it than the use of dry sulphur, as this cannot be applied effectually to the under side of the leaves, nor to the stems of the plants. The remedy in this case is to apply the sulphur in a liquid form, and prepared in the following manner: Place 2 lbs. of sulphur and 2 lbs. of lime which has not been slaked in 10 quarts of water and boil for twenty minutes. For syringing on the plants use two wineglassfuls of the mixture to 4 gallons of clean, cold, soft water. By using the ordinary rose on the syringe to apply the mixture it is difficult to thoroughly wet the underside of the leaves; a better way is to use a syringe with the jet affixed for causing a single stream; by placing the forefinger over the orifice the liquid can be directed upwards and spread over the plants where required. If one dose is not sufficient to kill the fungus, renew the application of the liquid preparation in a few days. If a slight discolouration of the leaves follows from the sediment of the moisture it will not be injurious, and will gradually wash off with the rains, or it can be removed if desired by one or two vigorous washings with clean water applied with some force through the syringe. Mildew if attacked upon its first appearance on the leaves is easily got rid of by the use of dry sulphur, but when allowed to get a firm hold upon the under side of the leaves it is difficult to eradicate it effectually.—E. MOLYNEUX.

A new Chrysanthemum pest.—I enclose growths of Chrysanthemums eaten by what I believe quite a new enemy to these plants. I have never seen plants served the same as this pest has served some of mine. It was some time before I could believe it was the beetles that I am sending, till this morning I found four under a board on which several plants that have been much injured had been standing. I quite expect we shall hear more of it from other growers.—W. G. GILBERT.

*** The beetles you sent are specimens of one of the ground beetles or Carabidæ (*Pterostichus vulgaris*). These ground beetles are usually carnivorous, and feed on smaller insects, &c. I say usually, because two species out of a very large number are supposed to injure the roots of plants. I cannot think in the case of your Chrysanthemums that these beetles are the culprits. From the look of the ends of the shoots I should think the latter had been broken off. I found they snapped off short very easily, and the broken ends presented just the same appearance as those which were supposed to be eaten off. These beetles generally hide under boards, stones, &c., during the day, and their entire formation suggests that they feed on animal food. Their sharp strong jaws and rapid movements are just suited to insects leading a predatory life. Examine the plants at night time with a light and see if you can find the beetles on your plants. I should be very interested to know if they really attack plants, as they have hitherto been considered to be decidedly useful in gardens.—G. S. S.

NOTES OF THE WEEK.

The Edelweiss at Wisley has kept its white colour well this year. I send a few specimens.—GEORGE F. WILSON, *Weybridge Heath*.

*** Very fine and pure in colour.—ED.

Two useful Primulas.—*P. sikkimensis*, almost over, is still good enough to admire, and *P. Reidi*, with the last head of flower open, reminds one much of the early Snowdrop.

Hartland's Daffodils.—We have received the above, which consists of a number of engravings, nicely printed by a Cork printer, and drawn by Gertrude Hartland—published, we presume, by Mr. W. B. Hartland, of Cork.

Silene maritima.—This is not so often seen as it ought to be. It never fails with abundance of its lovely fragrant blossoms. In habit and mode of growth it nearly resembles the type, but as a rock plant trailing over stony ground it has few equals at this time of year.

The Cheddar Pink (*Dianthus cæsius*), of which there seems to be several forms, is a charming rock plant, most useful indeed in positions suitable for Sedums, Sempervivums, and the like on almost bare ledges. With only a few handfuls of soil this pretty Pink flowers profusely, unmindful apparently of drought or rain.

Verbascum olympicum.—A plant that should have a place in large shrubby borders, by the side of carriage drives, &c., is *V. olympicum*. It is now in flower in the herbaceous border at Llangedwyn Hall, Oswestry, the plant rising to a height of 6 feet 6 inches. It is easily raised from seed, and the foliage is ornamental.—J. CANHAM.

Rose La France de 1889.—The *Revue Horticole*, in describing this variety, says that it approaches Paul Neyron in size, but is more beautiful. It is one of M. Moreau-Robert's gains, and is, without doubt, one of the finest novelties put into commerce this year, as far as one can judge from young plants. Its colour is rose-magenta, and as regards size it will develop to 14 or 15 centimetres, or even more across.

The earliest Strawberry.—More than one variety of Strawberry has been described as the "earliest." We even have the King of the Earlies, but this name would be better given to the variety Crescent Seedling, which is the earliest of those tested in the gardens of the Royal Horticultural Society at Chiswick. The first fruits ripened on June 9; they are not large, but rich in colour and pleasantly flavoured. The next to ripen is Laxton's Noble and then King of the Earlies.

Fruit Growers' Association.—The following papers will be read at the Strawberry conference, to be held by the British Fruit Growers' Association, in the

library at the Royal Aquarium, Westminster, on Friday, June 27 next, at 5 p.m., Mr. T. Francis Rivers in the chair: "The Origin of the Cultivated Strawberry," by Mr. Shirley Hibberd; "The Culture of Garden Strawberries," by Mr. John Wright; "The Culture of Strawberries for Market," by Mr. G. Bunyard; "Seedling Strawberries," by Mr. Thomas Laxton.

Lycaste tricolor, introduced from Guatemala in 1852, is not one of the most attractive of the genus, but a plant in full bloom at Kew will show that it has a distinct beauty. It is very free-flowering, the flowers each borne on a slender peduncle coming from the base of the pseudo-bulbs, clustering in profusion beneath the bold leafage. The sepals are light brown, the petals rose colour—a happy combination.

Ramondia pyrenaica alba.—I have at last seen this rare *Ramondia* in flower. It does not quite come up to what I expected, but perhaps I have placed too high a standard. I expected to see black or purple stamens, but the stamens are yellow, as in the ordinary form, with the usual yellow marks at the base, and although the white petals are clear enough, I still prefer the type. *R. serbica* has again flowered, and still I do not see its superiority to *R. pyrenaica*.—D. K.

Inula glandulosa.—There can be no mistake as to the value of this as a border plant, and although it does best and grows strongest on a heavy soil, it makes a grand show on a light one also. As with many plants of a like habit, the best effect is always obtained by leaving it alone. If amongst strong-growing plants, Ferns, or the like, so much the better, as then the flower-heads do not get splashed by heavy rains. It may be increased by division or seeds, the latter preferable when they can be obtained.

Primula suffrutescens.—When almost all the other Primroses are past their best this carries on the succession, which will be further extended a short time hence by its near ally *P. Rusbyi*. The shrubby Primrose, *P. suffrutescens*, is a native of California, and makes a charming subject for the rockery if planted on a dry, exposed position, and the stems pegged down as they run along. Just now a clump of it at Kew forms a pretty picture with its numerous bunches of large deep rose-pink flowers. They remind one of *P. rosea*, and, coming as they do at this late season, form a very valuable acquisition to a collection. It may probably be increased by cuttings; the stems look as if they would lend themselves to this mode of increase, and I am trying it.—D.

Seedling Carnation.—I enclose flowers of a seedling Carnation. It is a strong grower, very free flowering, and does not appear to split. Will you kindly say if there is anything new about it, or give me the name of the one most like it? It was greatly admired at the Truro show yesterday, but no one could give it a name. Unfortunately, the plant got smashed in the storms of Wednesday, so that the flowers are much washed and spoilt.—SANGUINEA.

** A pretty flower, but we prefer the self-coloured varieties. We know nothing like it.—ED.

The Tree Lupine (*Lupinus arboreus*).—A bush in Mr. Thompson's garden at Ipswich of the yellow form of this a yard high and nearly as much through, studded all over with flowers, shows what a lovely thing it is. It is certainly the prettiest species, and yet the least popular, being very rarely met with in gardens. Although a fine plant for the average border, it is seen to better advantage when somewhat elevated, such as on a bank where it could extend and dispose its branches without need of tying, which however carefully done robs it of some of its gracefulness and charm. It can be raised from seed like the herbaceous and annual species, but seedlings vary in colour, and as the yellow form is by far the best, it is advisable to increase it by cuttings, which strike readily. We have some nice plants that will flower this year from seed sown in an open sunny border in fine soil last July. The plants were allowed to stand where they came up till this spring, when they were transplanted into their present situation in a raised

border, which just gives the desirable elevation for the plant to display its charms to the best advantage. Upon low-lying, wet, and cold or heavy soils it might suffer in winter, but in a light, warm loam there is no danger of this, as it relishes a hot light soil and will probably thrive where many things would fail.

A new Water Lily (*Nymphaea zanzibarensis* flore-rubro).—According to a note in the current issue of the *Revue Horticole*, it is said that this charming novelty, which will certainly rejoice lovers of aquatic plants, has been obtained in the Carlsruhe Botanic Garden by Mr. Graebener. It is a hybrid between *Nymphaea dentata* and *N. zanzibarensis*. The flower, large and very elegant, is of a beautiful deep vinous-rose colour, the centre golden-yellow.

Sikkim Cowslip (*Primula sikkimensis*).—I am sending a few fine spikes of the exquisite *Primula sikkimensis*, now fine here grouped in a half shady and moist bit of soil. I never saw it so strong and good before. A bed of blue *Meconopsis* is just now beginning to be lovely, and the Pinks and Carnations are taking to the tops of our old grey walls very well à la Château Gaillard. Edelweiss is also vigorous, bright, and silvery on limestone wall tops, and has been much admired.—F. W. BURBIDGE.

** Noble flowers of the Sikkim Primrose; the flowers over an inch across, the stalks just upon 2 feet high, with very large heads of flowers.—ED.

Cattleyas from Timperley.—I have sent you some flowers, all of which I consider very good varieties. You will find a spike of *Lælia purpurata* (the late Rev. Boscawen's variety) which, I think, is the best of all the forms of *L. purpurata*. We have now six more spikes, each carrying five flowers; we have had seven flowers on a spike. The flowers of *Cattleya Sanderiana* I consider of very fine colour. I have also enclosed eight blooms of *Cattleya Mossiae*, all very distinct, I consider. I hope the box will reach you safely.—J. HOLMES, *The Gardens, Pickering Lodge, Timperley, Cheshire*.

** A very beautiful gathering. The spike of *Lælia purpurata* (Boscawen's variety) carried five flowers of large size and beautifully marked—the finest variety of this we have seen. The spike of *Cattleya Sanderiana* also carried five flowers of large size and very highly coloured—certainly a very fine form.—ED.

Thalictrum Delavayi, now nicely in flower on the rockery at Kew, seems to open up quite a new field for this charming genus. Of the species in cultivation there are only a few grown for the sake of their flowers, such as *T. aquilegifolium*, *glacum*, &c., and in these cases the stamens only form the ornamental part. Most of the others, such as *T. minus* *adiantifolium* and others are grown for their effective foliage alone, and very beautiful subjects they are for either rockery or border. *T. Delavayi*, a native of Yun-nan, China, was collected by the gentleman whose name it bears, and was first raised in the Paris Botanic Gardens a couple of years ago. If it differs at all from the *T. Chelidoni* of the Himalayas, it must be very little, that rare species, as far as I can recollect, tallying in almost every particular with *T. Delavayi*. There may, however, be technical differences, though as garden plants they may be considered of equal value. The outer segments, which in the others are generally inconspicuous and of a green or yellowish colour, are in *T. Delavayi* well developed. They are of a fine red-purple, each nearly an inch in diameter, and produced fairly plentifully on graceful stalks. The foliage and stems, of a glaucous purple, are very effective, the former resembling an *Adiantum* as much as that of the form of *T. minus* does. It is perfectly hardy, highly ornamental, and only requires to be known to become a general favourite.—K.

A fine variety of the Sacred Water Lily of Egypt is *Nymphaea Lotus* var. *rubra*; but there are two forms, as may be seen in the Water Lily house at Kew, the best having flowers richer in colour than the ordinary type and measuring 7½ inches across. These huge Lilies make a brilliant

show in a large tank or pond under glass, and a house devoted to them gives much interest, as there are remarkable richness and purity of colours in a good selection. Besides *N. Lotus rubra* there are also in bloom the creamy-white *N. stellata albiflora*, brightened by a rich yellow centre; *N. s. Berlin* variety, a charming pale blue flower, giving a constant succession of bloom; *N. odorata sulphurea*, yellow, deep orange centre; *N. pygmaea*, a small pure white-flowered kind, very pretty, and a cross between this and *alba*, white, and the yellow *N. tuberosa flavescens*, illustrated by a coloured plate in THE GARDEN, March 31, 1888, under the name of *N. Marliacea*. It blooms well under glass, but the heat required for the tropical species seems to induce an unnaturally vigorous growth. *N. gigantea* is in flower, but to prevent a mistaken notion of its size, this name should be changed. There is nothing "gigantea" about it now that we have such big-flowered later introductions.

Gladiolus segetus has been unusually fine this season, especially on gravelly soils, in which it seems to do much better than in those of a clayey nature. However much one may doubt the hardiness of other species, there can be no question about this one. It seems within the last few years to be cropping up everywhere, and promises fair to become a weed, though from its beauty one that may be easily tolerated. Whole colonies of young corms are formed round the old one annually, and if these are taken off and properly cared for they will flower the second year. Unless for purposes of propagation it need not be lifted at all, and if left alone it will soon form large tufts. The flowers are as large as those of *G. Colvillei*, the spikes larger, producing more flowers of a rich magenta-purple, and forming very effective groups in the mixed border.

Achimenes tubiflora is a lovely indoor flower, one of those unusually choice things that should be in every stove, even the smallest. There was a group of this plant in full beauty a few days ago in the Royal Gardens, Kew, and from several specimens of it together one can see its distinct and beautiful character. The leaves are abundant, quite Sage-like in appearance, hairy, and of the deepest green, a contrast to the flowers. These are borne rather widely apart on tall slender stems, each with a long tube about 2 inches in length, pale sulphur or rose on the outside of the tube, the expanded portion snow-white, whilst there is a sweet fragrance to add to the value of this *Achimenes*. Its elegance, robustness, and profusion of white blooms should make it a favourite in gardens.

Flowers from Battle Abbey.—I have sent you a few flowers cut from plants which have been growing for many years in the grounds of Battle Abbey. Among those plants I noted are the following, and all seemed in excellent health and were quite at home: *Arundinaria falcata*, 10 feet high and 12 feet through, was very fine, growing at the end of the little lake near the Abbey. Behind this *Bambusa* was a bed 20 feet in diameter filled with *Azalea indica alba* and *A. Fielder's White*. The *Azaleas* had been planted some fifteen years ago, and they flower freely every season. *Stauntonia latifolia*, 30 feet high, under the terrace walls is grand. *Ceanothus dentatus*, 20 feet high, is a sheet of blue, as you can see from the specimens sent. *Choisya ternata*, 10 feet high and 15 feet through, is a mass of flowers. *Acacia dealbata* is also very fine. *Escallonia montevidensis*, with its pure white flowers, is quite at home, growing to a height of 20 feet by 20 feet through. *Vallota purpurea* is doing well in a border in front of a wall, and Mr. Burgoyne tells me that this and the *Agapanthus* flower freely every year. *Salvia patens* has stood many winters, and is now flowering freely. *Dicksonia antarctica*, planted out eight years ago, is in perfect health, and is now developing a new set of fronds. *Lapageria rosea* has made shoots each 6 feet to 10 feet long. *Chamærops humilis*, *Dracæna indivisa*, and *Aralia Sieboldii* are all in perfect health, whilst *Tropæolum polyphyllum* and *Habrothamnus fascicularis* are one mass of flower.—J. DON, *Nottingham*.

** An interesting assortment from this old Sussex garden.—ED.

FLOWER GARDEN.

THE WATER FAIRY FLOWER.

Our illustration represents a form of *Narcissus Tazetta*, rather extensively grown in China as a new year's flower. Although more usually grown in bowls or basins of water and stones, it is also amenable to outdoor culture, as shown by our engraving, which represents a bold mass in one of the public gardens in Hong-Kong. I am not, however, aware of this variety having been tested out of doors in this country on any extended scale, and do not think it would ever equal such varieties as *Soleil d'Or*, *Grand Monarque*, and other well-known Dutch kinds for this purpose. The chief value of the Chinese form consists in its rapid growth and precocity of blossoming as cultivated in a warm sitting-room during the early months of the year. If good sound bulbs are obtained about Christmas time, they will flower

under various names, such as Sacred Chinese Lily, Good Luck Lily, &c., and one result was that some of the purchasers were a little disappointed when they found that the plant was really not a Lily at all, but simply a form of *Narcissus* very much like those that have long been forced in pots in greenhouses or grown in the open-air gardens.

The main point of distinction is that the Chinese bulbs seem to have been specially cultivated for culture in bowls of stones and water, and they grow as so treated very rapidly. It has been suggested that the finer kinds of Dutch *Narcissus Tazetta* might also be grown in water and stones; but my experience, after due trial side by side with Chinese roots, is that they are far less precocious. The best results were given by Italian grown roots of *N. papyraceus*, but even these were weeks behindhand.

Another peculiar point about the Chinese

roots bloom in from five to seven weeks after planting. F. W. B.

SPECIES OF *SOLANUM* AT MORTOLA.

Among the many stories told of witty or curious criticisms regarding Mr. Hanbury's famous garden, there is one which, at the present moment, I am glad to be able to recall. A lady visitor, after wandering with more than ordinarily observant eyes about the various paths, ventured on the hypothesis that "everything she had seen was either a *Solanum* or a *Senecio*." Perhaps this assertion was really no more flattering than true, yet I welcome it as affording a text for a few remarks.

If we turn to the "Prodromus" of De Candolle we there find that these genera, to which our authority has referred, number in the one case over 900 species, and in the other close upon 600. I therefore hasten to dispel the suggestion that Mr. Hanbury has specialised on either one or the other, and given up *La Mortola* to a struggle for existence among 1500 weedy allies of the Potato and of the Groundsel. He has contented himself with half a hundred from the former genus, and little more than a score of the latter. Such a modest total of fifty among the three or four thousand species collected together in the garden would appear then to refute utterly the quotation with which I opened my remarks, but rather than condemn our authority for lack of precision, I would commend her criticism for its bold artistic vigour and appreciation. Amid so overwhelming a wealth of plants the ordinary mind is at first almost staggered; this critic, on the other hand, has boldly exercised her powers of discernment, and impressed us clearly with the fact that amongst the most striking ornaments are those of the *Solanum* group.

It is quality of display which has attracted, not quantity, for I would premise that such highly decorative plants as *Ioichroma tubulosum*, *I. coccineum*, *Datura arborea*, *D. miniata*, the many species of *Cestrum*, *Streptosolen Jamesoni*, &c., are recognised as of the great alliance of the *Solanum*, and, except for purposes of cataloguing, to be called by that name. At certain seasons, notably in the last months of the year, the display from these plants is so

marked that undoubtedly they bear the palm. But comparisons are ever odious, and whilst at one time a visitor may well be most enamoured of the *Senecio* or *Solanum*, at another it is the *Salvia*, the *Mesembryanthemum*, the *Genista*, the *Echium*, the *Aloe*, the *Anemone*, or, indeed, the *Rose* that draws all his attention, and remains with him as the chief memory of a paradise of flowers. Having been so eulogised, and perhaps because they do attract with never-failing delight for a longer period than other plants, I may notice in brief detail a few of the more conspicuous among the collection grown here in the open air. Perhaps the size of some of these species surprises us the most, as in the days when *S. giganteum* was first introduced to the notice of English gardeners as a species remarkable on account of its dimensions, said to attain a height of 16 feet in its own country, with a trunk the thickness of a man's arm! At *La Mortola*, *S. giganteum* is a low-growing tree, being where broadest perhaps 25 feet across, and almost larger than the above dimensions would have us picture it; the trunk at a distance of 1 foot from the ground measured 16 inches in circum-



A group of the Water Fairy Flower in a garden at Hong-Kong. Engraved for THE GARDEN from a photograph sent by Mr. J. Barton.

in the sunny window of a warm room in about six weeks after planting. The method I have for the past two years adopted with success is as follows: The bulbs are totally immersed in bowls of gravel and stones and covered with tepid water. Some allowance must be made for the swelling or expansion of the bulbs, and the tepid water should be replaced by a fresh supply every day if the quickest and best results are desired. Bulbs so treated will produce from five to ten spikes of about six flowers each, and are very handsome and fragrant when in bloom. After flowering the roots may be thrown away; at least all those I tried to perpetuate by planting them outside after flowering have died. Of course freshly received bulbs planted out in the open-air borders or in beds before being subjected to the exhausting water treatment might do much better.

During the past season a good many bulbs of this variety were imported and sold

roots is their free-flowering character, and the peculiar manner in which the bulb diverges laterally as the leaves and flower-spikes emerge from the bulb coats or tunicae. Again, the outer or lateral offsets or blooming centres always flower earlier than the central ones. It is to be desired that we may obtain more exact information as to the culture or production of these roots in China. Also, it would be interesting to hear the practical experience of those who may have experimented with these imported roots in the open air of our English gardens.

Our engraving shows plainly how free and handsome this variety is as grown in a bold group or mass in a Chinese garden, but I believe its real value to us will be its precocity and easy culture in bowls of water in a warm and sunny sitting-room. Given these advantages, and fresh warm or tepid water (60° to 75°) every evening, I have proved that the growth produced averages half an inch every twenty-four hours, and that the

ference. *S. Warszewiczii* attains even greater proportions, spreading more from the base in several large branches. These tree-like forms are useful with their persistent foliage; their flowers are interesting rather than showy, but I think their special attraction lies in the fact that they are trees, or almost trees. Great variation in size always attracts attention with especial readiness. At once we say that we never expected to see the Potato so substantial, nor the Groundsel rearing stiff and woody branches high in air. But in a garden such as this, as in Nature, the traveller has driven home to him these great facts regarding extreme diversity of habit with identity of floral structure. Not only so, but he sees in *Euphorbia abyssinica*, to which I alluded in a previous article, in *Senecio præcox*, and in *Solanum giganteum* the same forces of Nature expressed. There is the same response on the part of the plant to its surroundings, and according to its environment it may grow into a tree or into a creeping herb.

As affording an extreme contrast with these substantial species, *S. jasminoides* may be mentioned as a graceful twining plant with clusters of white-lilac flowers and dark purple foliage. Very attractive does this species appear when judiciously placed, so as to cover old walls and steep rocky places. The general habit of *S. sisymbriifolium*, equally with its profusion of light blue flowers and small red prickly fruit, render it worthy of notice here. In a garden where dry exposed places are far from rare, such a low-growing plant, with its spreading branches of light-coloured, prickly, much divided leaves, has a high value. Of much different appearance, yet useful also on account of its easy culture in damper places, is the Australian species, *S. laciniatum*, with its rich dark green leaves and showy purple flowers. It grows either as a taller gracefully-branched shrub, when competing with *Acacias* or other trees, or it may appear as a dense mass of compact foliage, suited well to fill up some gap or corner.

Perhaps, however, the readiness with which many species of this genus adapt themselves to dry, sun-scorched places, or, I should say with more exactitude, the preference shown for dry exposed places, is a very essential recommendation. Especially is this so when such a preference is accompanied with highly decorative foliage, as we may find in *S. marginatum*. The bluish-white tinge of the large, sinuate-lobed leaves, the white of the under surfaces and of the more protected younger leaves, against which the large golden fruits show to great advantage, the sturdy, yet attractive habit, combine to give this species the foremost place in the opinion of some. Certainly when we may see specimens here grouped in rockwork bordering a handsome flight of steps—where a little stiffness is in demand—we would hesitate to discountenance its claims.

The large and often deeply-lobed leaves of several of the species are doubly attractive by reason of the decorative manner in which they are grouped together, as the crowns of young, often velvety, leaves unfold. The irregularity in the size and position of the rosettes of leaves grouped in a decorative way upon the stiff or more graceful branches, the warlike spiny character of stems, leaves, and even fruit in some instances, are all additional points of interest in these favourites. The flowers are not often so conspicuous or plentifully produced as is the case in some of the previously mentioned allies of the genus *Solanum*. Those, however, who admire the clusters of the ordinary Potato

would find pleasure enough in the different modifications of their shape and arrangement as seen on the trees, or upon the straggling bushes of their relations here. The fruit, however, is remarkably decorative in certain species, in none more so than in a variety of *S. ciliatum* (named *macrocarpa* by Messrs. Vilmorin), a coloured drawing of which, by the kindness of Miss Hanbury, I send in the hope that your readers may see it reproduced in a succeeding number of *THE GARDEN*. The medium size of this intensely scarlet fruit, which measures $1\frac{1}{2}$ inches in diameter, is amply compensated for by the extreme profusion in which they are produced in pairs or singly upon the wiry, straggling, spinous branches. The single bush, if such it may be called, which has this year attracted so much attention, is made more conspicuous by being tied up by the gardeners so as to appear when erect of a height of 4 feet or thereabouts. Its rich, glossy, strongly-veined leaves are in themselves decorative, but the many score of globular fruits, borne so persistently, show out with exceeding brilliance against these, or against a dark background of *Acacia*, in the shade of which it here thrives. No other fruit approaches this in brilliancy; its smooth, as contrasted with a shining, exterior renders it more unique.

Although especially admiring this new variety of *S. ciliatum*, I cannot pass by without remark the highly attractive golden fruits of *S. marginatum*, the larger ones of *S. acanthodes*, or the rich profusion of small "Apples of Sodom" seen on *S. sodomæum*. In the last instance the smaller-lobed shining leaves and the shrubby habit draw considerable attention also. *S. betaceum*, with its richly-coloured oblong fruits, is also very much admired. *S. pseudo-capsicum*, surpassed by its more stately or magnificent relations, is not so highly valued here as it justly is with you.

Perhaps, in conclusion, I may emphasise the fact, amongst the many I have alluded to in regard to these attractive plants, that the fruits persist for so long a time. From October to the present time, or for more than six months, these species have been delighting all who have had the pleasure of seeing the many treasures of La Mortola, with their so persistent golden or scarlet fruits and their handsome, most decorative leaves. PHILIP SEWELL.

Columbines.—The blooming season of this charming race of flowers, so varied in form and colour, has arrived, and so far as I have seen there is no finer white kind than the Munstead Giant. I have a group of about fifty two-year-old plants of it, and they have formed for several weeks past a fine mass of colour. In habit this Columbine resembles the old race of this flower, and there is consequently nothing miffy or tender about it, a very great point of merit, seeing that many of the beautiful hybrid forms are so liable to die out in the course of a year or two, this I find being especially the case with the purer tints. The form of the blooms would seem to point to hybrid origin, and I am the more convinced that this is the case, as I have some plants in bloom of a new strain raised in the north, and which is said to be between the newer kinds and the best of the common forms of *vulgaris*. Among them is one that appears to be identical with Munstead Giant. This strain has been distributed by a Manchester firm with emphatic recommendation under the name of Plant's hybrid. The flowers are said to have caused a sensation when exhibited, but although they are to a certain extent distinct, showing traces of their hybrid origin, I think their beauty has not been exaggerated, as they are very varied in colour, and in constitution they seem to be on a par with those of the common garden forms, which have evidently been the seed-bearers. Whoever values Columbines

should give these a trial, for they evidently have sufficient vigour to do well in any ordinary garden soil.—J. C., *Byfleet*.

BEGONIAS FOR BEDDING OUT IN THE OPEN AIR.

OF late years the tuberous-rooted section of *Begonias* has been used far more extensively for this purpose, and that with good effect and a pleasing change. I well remember when *B. Veitchii* was first introduced, but who then would have thought it possible that such great strides should have been made? Thanks, however, to the hybridiser, we have now an excellent type of plant in the present strains of tuberous-rooted *Begonias* that is well suited for planting out, being of dwarf habit, with flower-spikes clear of the foliage, yet not too straggling. I have noted for several years that it hardly matters what the weather may be during the summer, *Begonias* always seem to luxuriate and make a good display. No doubt they are seen at their best in a showery season, but hot dry weather hardly affects them if a little extra attention be given in respect to watering. My practice is to sprinkle them overhead in warm weather nearly every afternoon as soon as the sun is off the beds. This refreshes the plants and keeps them in good condition. These *Begonias* do not like a hot dry soil; moisture at the root, with the soil kept as cool as possible, appears to me to suit them well. After they are planted out the first week in June, my practice is to carpet the bed with a dwarf-growing plant of some kind. The *Begonias*, of course, are never crowded together like ordinary bedding plants, but allowed plenty of room between each plant, so that each may be seen to advantage. Sometimes I use as a carpet *Mesembryanthemum cordifolium* variegatum, at others either *Sedum glaucum* or *S. acre*. Either of these succulents aids in keeping the soil both moist and cool. Beds thus treated do not dry up nearly so much, these carpeting plants acting more as a mulching as applied to kitchen garden crops than anything else. The water, when applied, trickles down through them, and is not easily evaporated, but remains to be absorbed by the roots. My practice is to remove the tubers from the beds when the first sufficiently severe autumnal frost has marred their beauty. I then place them in a cold frame and allow the tops to dry off, thinking this better than cutting off any portion at the time. In a few weeks the tops can all be removed; then a good top-dressing of Cocoa fibre refuse is applied 3 inches or 4 inches in thickness. This of itself will keep out a good deal of frost, but as a safeguard the frame is covered up well both at the sides and over the glass when any danger is apprehended. Thus the tubers keep very well through the winter until required in the spring for re-starting into growth. This is generally done in March, the bulbs being all examined and then placed into boxes, as used for Celery, &c. If removed to a vinery in work they soon show signs of growth, and are, when fairly started, gradually hardened off till the protection of a cold frame is all that is needful. Early in May the bulbs are planted out into a cold frame with a north aspect. Here they grow luxuriantly and root freely, so that when removed to the beds they come up with large balls and hardly ever suffer when finally planted for the summer. Pots are never used for them, not even for seedlings of the first year after they leave the pans into which they were pricked off when large enough to handle. A batch of young plants is worked on every year to supply any vacancies caused by decay of the older bulbs. The seed is sown in bottom-heat towards the end of January, and when well up into the first rough leaves the seedlings are grown on rather more steadily, are eventually pricked off into a frame, and afterwards planted out in beds by themselves for the first season. Single varieties are preferable to the double ones for planting out, and named kinds are not necessary for making a good display. Of the evergreen or shrubby kinds, one of the best is *Princess Beatrice*, which flowers most profusely, its numerous blossoms of a pinkish white making

quite a distinct effect. The best way to propagate it is by division, as cuttings do not, although they strike freely, make bushy plants. *Ascotensis* is another useful kind of tall growth, with coral-red flowers freely produced. This kind strikes and makes good plants from cuttings for any purpose the same season. J. H.

Pæonies.—Although boxes and clusters of cut Pæony flowers make a brave show, yet they wear a very indifferent aspect to what is presented on the growing plants. I saw them in wonderfully fine form at Dropmore the other day, huge individual plants in all directions, but specially effective by scores in the quaint old flower garden there. I noted but three or four of the common Pæonies, crimson, rose, pink, and flesh-white. Plants carrying from fifteen to twenty large double flowers were indeed beautiful. The Moutan Pæonies in bloom with their large, loose, semi-double flowers were rather poor in my estimation as compared with the grand herbaceous forms. Although the flowers are so big and double, yet they are in no sense lumpy nor formal. The petals are not densely set, whilst beyond a certain irregularity of form the edges are much laciniated. The fine old crimson and the soft beautiful rose seemed to be the best of all, and when at their best it is very doubtful whether any hardy border plants can excel them for beauty. Not only are these Pæonies very hardy, but they are remarkably enduring. Such free doing things deserve encouragement, because they always give for but little trouble plenty of fine flowers and handsome clusters of leafage. Happily, too, the Pæony is too large flowered to be favoured for cutting for ordinary use, and the plants also seem impervious to fungoid or other enemies.—A. D.

Aquilegias.—What a great variety of pretty things is to be found in a good strain of single garden forms. I dislike the doubles as being so inelegant and stiff. Some of the finest of the garden varieties run the best species and hybrids close for lightness and grace, only needing the long spurs to make them all that can be desired. These mixed forms are earlier blooming than most of the species, the pretty, but somewhat miffy *cærulea* being the earliest of the latter. These garden varieties give a pure white form, which is, so far as colour is concerned, much purer than is the white form of *chrysanth* sent us from Germany as I have seen it, but I must wait until I have bloomed a batch of seedlings next year ere I pronounce a further opinion. A cross made a few years since between *chrysanth* and a pure white garden form resulted in the production of a cross-bred variety, the sepals of which were chiefly rose-tinted, and the corolla lemon-yellow. The finest cross without doubt is the product of fertilising *chrysanth* with *cærulea*, the blue and white variety resulting being one of the most beautiful as well as finest of all the *Aquilegias*. This blooms midway between *cærulea* and *chrysanth*, and is a remarkably robust grower and free bloomer. In the garden forms pale blue and purplish blue are very pleasing. So also are blue and white and red and white forms. The *Carnation striped* variety is a poor thing. *Aquilegias* are seen in their beauty chiefly when in strong plants some two or three years old. They like our strong clay soil thoroughly, and well repay good culture.—A.

Lilium umbellatum.—This is a garden name for a group of Lilies by many authorities regarded as hybrids between the Siberian *L. davuricum* and the common Orange Lily (*L. croceum*), though by some they are classed as varieties of *L. davuricum*. Whatever their origin, these forms of *L. umbellatum* are very showy at the present time, and one great point in their favour is, that they are perfectly hardy, and in no way particular as to soil, though they seem to do best in an opensandy loam, that is thoroughly well drained and at the same time not parched up during the summer. *L. umbellatum* has a stout stem plentifully furnished with leaves, and bearing an open head or cluster of cup-shaped blossoms, generally of a red or orange-red tint. Among the best varieties are *grandiflorum*, the lightest, and *incomparabile*, the dark-

est, and to these may be added *fulgidum*, a very bright flower, with erectum, a somewhat taller form with larger and more massive blossoms. Probably, however, owing to some of them being raised from seed, the nomenclature seems to be confused, and opinions are by no means unanimous as to the characters of each variety. They are all largely grown in Holland, and imported into this country in great numbers during the winter months, as owing to their cheapness, the certainty of their blooming, and their thorough hardiness, they find a ready sale. Where associated with and just rising up amongst low-growing shrubs these Lilies are seen to great advantage, but when they are obtained for this purpose it is just as well to get those classed as mixed bulbs, that is to say, those in which no attempt is made to keep the varieties separate from each other, for they are sold as such by most of the Dutch growers, and at a cheaper rate than the named varieties. Planted out under favourable conditions and allowed to remain undisturbed, these Lilies will usually improve year by year until they form large masses, but I have lately seen a few cases where they had flourished for many years, and while the preceding summer's display was as fine as ever, on the return of spring very few flower-stems were pushed up. An examination revealed the fact that the bulbs were attacked with some disease which caused them to become quite soft, watery, and of a peculiar green colour. It is very difficult to assign any reason for such conduct, as there was nothing in the surroundings to account for it in any way. Apart from their value as border Lilies, *L. umbellatum* and its varieties are often grown in pots, under which conditions they flower well, and may in this way be frequently seen hawked about the London streets.—H. P.

AQUILEGIA GLANDULOSA.

WILL someone inform me—if there is any secret requiring to be known—how to flower this beautiful species? Some three years ago I obtained half-a-dozen plants of Grigor's variety. They were received in the autumn and placed round the sides of a good sized pot. The following spring one of them bloomed. As soon as the only plant had gone out of flower, they were all placed in the open border where they have done well, but I have not been rewarded with bloom for two seasons. When visiting Mr. Samuel Barlow, at Stakehill, Manchester, a few days ago, I saw in his garden quite a bed of this species, a large number of plants from the same source, that had grown into larger size; probably there were five or six dozen, and only three or four had flowered. Mr. Barlow said the same thing occurred last year. The plants were in a fine fertile black loam, they had grown strongly, and everything appeared favourable to the production of a fine head of bloom, but there was a great scarcity of it. Close by were a half-dozen seedling plants raised by Mr. Barlow, much smaller in size than the established plants in the adjoining bed, and every one of these was bearing flowers. *A. glandulosa* is such a beautiful species, that it is a great disappointment when the plants do not produce blooms.

In 1848 a plant of this species was sent to the late Dr. Lindley for his inspection, and he described it as "perhaps the handsomest perennial in cultivation. Its stems rise about 2 feet high, and sometimes carry from fifty to eighty blossoms." Would that such specimens could be produced in the south. I have attended the great Whitsun exhibition at Manchester for several years, where hardy perennial plants are largely shown, and many of them of the choicest kinds, but I have never seen a specimen of *A. glandulosa* among them. There is surely some secret in blooming it so that a plant can carry two or three dozen blossoms even, or it would be found at Manchester. I think it deserves to be termed "the handsomest perennial in cultivation," and it is because this is my opinion I am very anxious to succeed better in blooming it than I have hitherto done.

This beautiful Columbine was figured in the *Florist* for November, 1855, and an excellent repre-

sentation of it is given. The flowers are shown as drooping. In Mr. Barlow's garden at Stakehill House they were quite erect when fully expanded, as erect as those of *A. chrysanth*. It is understood to be a native of some of the mountains of Chinese Tartary, and has been cultivated in the north of Scotland for a considerable time, and from a diminutive form, in which it is said to have first appeared in North Britain, not growing more than a foot in height, blooming sparingly, and the flowers not more than an inch across, it has by careful seeding and selection doubled its height of growth, and the finer forms of it carry blossoms each 2 inches and 3 inches in diameter. It evidently likes a cool and moist soil; one made of rich mellow loam with a little peat earth suits it best to all appearance. R. D.

AN AMATEUR'S ROCKERY.

I QUITE agree with the observations of "A Gloucestershire Parson" on the enjoyments of a small garden. It has ever been my lot to have one, and at times it would have been almost a figure of speech to call my small plot a garden at all. I for a few years had one on a cliff overhanging the sea; it had been a bit of Potato ground. I enclosed a portion of it with a rough fence, and there managed to grow some florists' flowers with tolerable success. At another time I had in this same one fenced off a small piece, a very small piece, of a field at the back of my house, and put up a very diminutive greenhouse, and yet here for the busiest, best years of my life I managed to grow a good many things during the last twenty years, for I am an old man now, having passed considerably the threescore and ten years of man's allotted life. I am one favourably situated, but I can safely say that all through my life flowers have been to me a wonderful source of enjoyment, have tended to lighten many cares, and to brighten up some of those dark hours which must come to us all, and I have gone over many a large garden where I am sure the owner did not get out of it half the enjoyment that I did. As I think it mostly happens with those whose gardens are small and means corresponding thereto, my chief objects of culture have been florists' flowers, while for the last twenty years I have been enabled to add the delights of alpine and herbaceous plants; and there is no part of my garden that gives me greater enjoyment in the earlier months of the year than does my rockery, and for the benefit of those who may be similarly situated I will now describe it and the aspect it now presents at the latter end of May. Many things have passed away and many more have to come on, but I shall confine myself to things at present in bloom. Now, first, as to the rockery itself. It is somewhere about 90 feet long by 6 feet, and faces east and west; at either end there is a slight turn round of about 6 feet, facing, of course, one north and the other side south. The ground is not level, but falls about two-thirds down, and in this, into which of course the rain runs, I have attempted to grow with some degree of success some moisture-loving plants, such as *Cypripedium spectabile*, *Orchis foliosa*, *Trillium grandiflorum*, &c. A large tree at the back of this portion of the rockery affords a little shade, but otherwise it is all fully exposed to the sun. Some people imagine that such plants and Ferns must be grown in the shade. There can be no greater mistake, and anyone who has seen some of our alpine gems growing in their native habitats knows how brilliant in sunlight they are for some months of the year, so that tourists going up to "Le Jardin" at Chamounix come back with their faces bronzed like a berry, and, in fact, the rockery ought to be well exposed, giving aspects of differing characters. The stone mostly used in its formation is Kentish rag, which is a sort of limestone, and the soil is a sandy loam. Of course, where it is necessary I fill some spaces with composts suitable to the plants. Thus I had some difficulty with the alpine species of *Dianthus*, but, following M. Correvon's directions in his "Plantes des Alpes," I hope that I have overcome the difficulty. As the rockery has now been made for some years, Moss has grown over the stones, they have become discoloured,

and so look much better than when it was first made. One difficulty I have which I also found in the herbaceous border, although it is more easily remedied there. The early flowering bulbs leave blank spaces which cannot be filled up—at least, I do not know how—as they can in the borders by planting out other things to succeed them. Thus I have a good-sized piece where *Anemone apennina* was very lovely in the spring, but now as it has all passed away there is a bare spot which I cannot fill up.

With these preliminary observations let me describe the rockery at the present time. At the northern end I have found the return piece facing north an excellent place for Primroses (*i.e.*, species); these have gone by, but I have some fine plants of an allied species, *Ranondia pyrenaica*, in lovely bloom, with its delicate, almost *Solanum*-like flowers. I saw the white form of this in Messrs. Paul and Son's collection at Manchester. *Ranondia pyrenaica* is planted under the shelter of a high stone, which protects it from the sun, it being found in the Pyrenees on the face of rocks facing the north. Beneath this I have had a lovely patch of *Gentiana verna*, two or three flowers of which being left, enable me to enumerate it as one of the plants in flower. Just above this on the highest part of the rockery is a good plant of *Diplopappus* with its bright golden foliage, while the corner of the rockery is covered with a large clump of *Phlox setacea*. Two or three feet further on is a good plant of *Phlox stellaria*, and as this has a pendent habit, I have placed it on the top with a large stone, over which it falls. It is very white and very free. Near it are plants of a pretty Saxifrage which I have had as *S. Macnabiana*, but as I see it was certificated the other day, I presume I must have got it wrongly named. Here also is the charming little *Silene alpina*, with its star-like flowers of purest white, and *Lychnis dioica*; also a plant of the giant Thrift (*Armeria cephalotes*). This I have had to reduce in size, as it had overgrown its neighbours. A little further down I have a most delightful bit of *Phlox setacea*, of a rich lavender colour, with as its neighbour on one side a large plant of *Iberis cordifolia*, and on the other is a nice plant of *P. Nelsoni*, pure white, and at the top of the rockery a plant of the Fumitory. Not far from these also is a clump of the very bright orange *Erigeron aurantiacus*. The plants are only seedling ones, but they are growing away nicely, and will, I have no doubt, ere long make good plants. Here, too, I have a nice plant of *Androsace villosa*, much more free flowering and quite as pretty as *A. sarmentosa*. Of this latter I have a large piece—that is, large for me—I should think 3 feet by 2 feet; but I have found that as it spreads it loses vigour in the centre of the plant and the rosettes do not flower, while at the edges they seem to do so freely. It does not, as I found some of the Saxifrages do, die off at the centre, but only becomes weakly. Does it require replanting? I now come to the lower part of the rockery. Here I have just before me now a grand batch of *Aubrietia greca* var. *Ingrami*. It is about 1 yard square, and nothing can exceed its beauty when in flower. I cut it away every year, but it soon fills up its place, and although it takes up rather too large a portion of my small rockery, yet I cannot bear to lessen its dimensions.

In the lowest portion and somewhat shaded, as I have already said, where I grow my *Cypripedium* spectabile and other plants that love moisture, I have at present in flower fine plants of *Dodecatheon Meadia*, and just on the other side of the walk a small plant of the white variety *alba*. Here also are *Geum montanum*, with its bright yellow flowers, and that most charming of all Saxifrages, *Wallacei*, which has formed a large patch of the most snowy whiteness, and with the yellow of *Viola cornuta* forms a pretty bit of colouring. On the piece that rises up from this to the south end of the rockery, I have now the following plants in flower: *Omphalodes Luciliae*, very charming in its colouring, a pale silvery blue, but I have found it somewhat disappointing in the smallness of its trusses, which do not contain more than four or five in flower at one time; nor has it increased very much with me in size of plant, remaining much the same as it has

been for some years. Here also is a large piece of *Androsace sarmentosa*, to which I have already alluded; also plants of the very beautiful *Anemone palmata*, both in its yellow and white forms. This is one of the most delightful species of a very charming family. I have also here a small plant of what I believe is destined to be a very conspicuous flower in our gardens—the rose-coloured *Aubrietia*, *A. Leichtlini*. It is of a very beautiful rose colour, seems equally as fine as the others, and will form a delightful contrast. Creeping along on the stones which form the edge of the rockery, there is the pretty little *Gypsophila repens*, with its clear white flowers, while at the extreme end there is a good plant of *Onosma taurica* now full of its graceful pendent yellow flowers. I had feared that this had succumbed to the winter's cold, but it has started out fresh as ever.

The back of the rockery I have left alone. Here Rock Roses have seeded and formed masses of various shades of colour from cream to scarlet. Here that insinuating fellow, *Anemone sylvestris*, has established itself after being rooted out from the rockery itself where it was overrunning everything. Here *Myosotis dissitiflora* forms a mass of lovely blue, and even *Anemone apennina* has travelled into this tangled mass, and I am sure that many persons would esteem this as not the least pleasing part of the rockery.

I have thus enumerated the plants which I have now in flower, and have only to add that I have many more things to come on to succeed these, but I think that after all this is the best season of the year for my small rockery, and what I have written will, I hope, induce others to attempt what has been to me a source of much enjoyment.

DELTA.

The Flag Iris (*I. pseudacorus*) is flowering grandly this year; large groups several feet over growing by the waterside have each scores of spikes of the bright yellow flowers which contrast well with other groups of the fine old *Paeonia officinalis* fl.-pl. growing in the Grass a little higher up the banks. The old Peony mentioned is one of the finest things we have amongst herbaceous plants for distant effect, and it beats all others of its class for planting amongst Grass. All it wants is a good start given it when planting. It requires two seasons to become thoroughly established, but after that it goes on for many years, producing abundance of flowers, each nearly a foot through. It is pleasant to watch the great flowers day by day, and to see them changing colour and getting paler and paler, until by the time they drop they have become almost white.—J. C. T.

The horned Poppy (*Glaucium luteum*).—A. D. Webster's confession of his inability to cultivate this (*GARDEN*, June 7, p. 529) is surprising to me, or at any rate quite contrary to my experience. Obviously, however, if it roots in gravel and chalk there would be a difficulty in extracting the plants with sufficient roots to ensure the successful transplanting and after-growth. Upon the sandy dunes along the Suffolk coast this plant is quite a feature, growing in broad masses, spreading into huge plants, which flower in the greatest profusion and seed freely. The seeds readily germinate in the sand and during the latter part of summer thousands of plants can be easily collected, as they are readily pulled out without injuring the roots. When transplanted into the garden they commence to grow away at once. I collected a lot late last summer and planted a group in the border. All the winter the plants were effective, hiding the ground with rosettes of pretty foliage. These plants are now coming into flower.—A. H.

Celsia cretica.—Writing of this plant (p. 528), a correspondent, "B. S.," recommends sowing in July and growing in pots through the winter, planting out in spring. With this my experience entirely differs, for though autumn-sown plants may flower early, they never attain the noble proportions which are seen in plants grown on without a check from early sown seed, and flowered during the autumn of the same year. We have such a wealth of summer-flowering plants that we can well afford

to do without the *Celsia* flowers at that season, especially as the foliage alone has a very fresh and pleasing appearance, but when the summer is on the wane and the garden gets less and less bright, groups of this *Celsia* stand out unique in their beauty and freshness, and all through October, November, and even well into December in favourable seasons, they are very fine, outlasting by weeks the Michaelmas Daisies and welcoming the arrival of the great Christmas Rose. There is no need whatever for cutting out the central spikes of plants which come into flower in the autumn, for they lengthen and flower as long as the side spikes do, and removing them only destroys the symmetry of the plants.—J. C. T.

THE FLOWER GARDEN.

No plants connected with summer bedding arrangements have as yet (June 7) made much progress, the cold nights experienced since the middle of May having kept them quite stationary. The morning of June 1 was very cold. In low-lying and damp situations in the immediate neighbourhood I hear the glass dropped to 25°, and bedding plants as well as many kitchen garden crops were very much cut up. The majority of our plants have been out since the middle of May, and would seem to have got hard, as they have escaped the 4° of frost registered here. We have extended the use of perennials to several beds, mixing them in some cases with other things. Thus two large beds partially planted with Pheasant-eyed Pinks have intervening spaces filled respectively with Fuchsias with dark corollas and Surprise Geranium. These will be bright all the summer, as after the Pinks have ceased flowering the foliage will form a pleasing contrast to the bloom of the Fuchsia and Geranium. Another bed is filled with alternate clumps of Pansies and Grenadin Carnation, a capital variety, useful alike in a bed or for cutting. The old crimson Clove occupies two large beds. In answer to a query in last week's *GARDEN* as to the relative merits of old v. young plants of this, I always find the latter throw by far the largest blooms, and I therefore treat it as an annual, making fresh beds every season. The grass should be layered early in July to ensure fine stocky plants for the autumnal transfer to next year's blooming quarters. An arrangement just now looking gay consists of clumps of a bright red *Pyrethrum* standing out from a carpet of Jefferson's white *Viola*. *Violas* are among the best of subjects for large beds if something is employed to break up their flat surface. *Pyrethrums*, as above mentioned, standard Fuchsias in variety, *Spiraea filipendula*, and *Galtonia radicans* are all useful for this purpose. A large bed that will be pretty presently is planted with a mixture of *Verbenas*, in red, purple, and white shades, with standard plants of *Eucalyptus globulus* dotted sparingly among them. Beds composed of plants with scented flowers or foliage are always appreciated, and these are composed of *Heliotropes*, lemon *Verbenas*, and scented *Pelargoniums* in variety. The indispensable *Mignonette* and the hardy Musk have also their special places.

Claremont.

E. BURRELL.

SHORT NOTES.—FLOWER.

Lilium umbellatum.—This, amongst dark-leaved shrubs, makes a fine contrast of rich colour. It is in full beauty at Kew, the bulbs having been planted amongst dark-leaved shrubs, and nothing in its way could be finer.

Scarlet Alum Root (*Heuchera sanguinea*) is planted in a bed of *Ceanothuses* at Kew, and the effect is striking. The graceful scarlet spikes of the *Heuchera* are a rich contrast to the deep green leaves of the shrubs. This hardy perennial is one of the finest of border plants. A large mass of it in the border shows its value for creating a bright show of colour.

Shirley Poppies.—Walking round the old flower garden at Dropmore the other day, I remarked to Mr. Herrin, "You have a quantity of the Shirley Poppies here." His reply was that the old man told him the strain had been there as long as they could remember, showing that even in Poppies there is little that is new

under the sun. Most of the shades found in the Shirley strain seem to be excellent at Dropmore. Vast quantities of the French Poppies are also grown at Dropmore; in fact, the stock has got such hold of the ground through self-seeding, that the hoe has to be vigorously plied to induce the plants to come to maturity in something like moderation. They are wondrously beautiful all the same when in full bloom.—A. D.

Aquilegia Munstead White. The white-flowered form of *Aquilegia vulgaris* known under this name is certainly one of the best of the Columbines, and as it comes very true from seed, there is no difficulty in raising a large stock of it. Of several hundreds raised last year, not 5 per cent. vary from the original. The flowers are quite white and rather larger than those

plant over 6 feet across, and with about 100 leaves on it. Unlike many of our fine-foliaged plants, such as the Gunneras, &c., this is thoroughly hardy, and requires no protection in winter. I feel sure that it would be extensively used if its good qualities were better known.—J. C. T.

CLEMATIS MONTANA.

This familiar climber is not so old as its frequency on walls and arches in gardens might lead one to suppose, as it was in 1831 that it was brought from Nepal. It soon became an

by nails and ties. Its early blooming character, fitness for all ordinary soils, and complete hardiness, save in very cold spots, have raised it to the position it holds in the garden. It must be a poor place that has not rambling over a verandah, trellis, arch, or wall the glorious *C. montana*. Its value for creating beautiful pictures in the garden is shown by the accompanying illustration.

This specimen, climbing over a stone porch entrance, was planted over thirty years ago in its present position, and blooms freely every year, covering the whole front of the house. It is planted in a border close to the wall, which is sheltered and obtains little surface water. The creeper is cut back once or twice a year. There are other creepers, as Honeysuckles, Wistaria, &c., intermingled with the Clematis. The photograph shows only a small portion of the creeper, as it spreads over a large area.

TREES AND SHRUBS.

NOTES FROM CASTLEWELLAN, CO. DOWN.

THE following are a few of the many shrubs which have flowered in the grounds here this spring. I find that shrubs in general have been nearly a month earlier than usual, owing, I should think, to the exceptionally dry autumn and winter we have had and the absence of severe frosts. Rhododendrons luxuriate in the soil here, and as they have been planted in large quantities they have been a great feature for the past couple of months. The Himalayan varieties, too, have flowered much better than I have known them to do for several years. *R. Thomsoni* and *R. niveum* were masses of flower, some of the bushes having between 200 and 300 trusses open at one time. Berberises have flowered well; large specimens of *stenophylla*, *dulcis* and *Darwini* were fine, backed up by masses of Portugal Laurels. In the home nursery a hedge of *B. Darwini* was covered with flowers. *Cydonia japonica* and *alba* were very beautiful against walls, the newer *C. Maulei* being also wreathed with its orange-scarlet flowers. It is not so vigorous as the older varieties, but it is a very desirable wall shrub, and is a month later in coming into flower.

Aster argophyllus requires the shelter of a wall, where it flowers every year. Its large, silvery Musk-scented foliage is very telling; in the open borders it gets very badly cut up. Another charming evergreen shrub, *Mitraria coccinea*, is flowering splendidly in sheltered borders just now; it produces its brilliant scarlet mitre-shaped flowers for many weeks in succession. It is in flower much earlier than usual this season. It also makes capital covering for low walls. A bush of *Staphylea colchica* about 7 feet high and nearly as much through has been very showy with its large clusters of beautiful white flowers for some time. *Abelia serrata* is a Chinese shrub, blooming in the open border about the middle of May; flowers whitish, changing to pink as they become old; it is a very desirable shrub, and requires little room. Very few flowering trees or shrubs are more beautiful than the different varieties of the flowering Plums. *Prunus Pissardi* is one of the earliest flowering trees we have, blooming as it does in February and March. *P. triloba* is a beautiful small tree, covered in early spring with clusters of lovely double pink flowers, sometimes changing to white. *P. sinensis flore-pleno* is another variety that should be extensively grown; it is of slender habit,



A porch covered with *Clematis montana*. From a photograph sent by Mr. E. C. Peacock, Bewdley Villa, Bath.

of the type. This is a good plant to naturalise, and it holds its own amongst the roughest Grass if the scythe is kept away from it long enough to allow of the foliage ripening fairly.—J. C. TALLACK.

Rheum palmatum.—The large palmate leaves of this are most striking. The flowers, small, of a creamy white colour, are borne on stalks which run about 6 feet high. They remind one forcibly of some of the *Spiræas*. I have been surprised at the very rapid increase in size of this plant, for a single crown, which a friend sent me less than two years ago, has developed into a fine, shapely

established favourite, and in the late days of May covers many a wall and gable with a sheet of white flowers, so thickly placed that scarcely a green leaf or twig is visible. It really requires no pruning. The plants if left alone turn out best, but if thinning out is required take care of the young wood that gives the finest flowers. We often see *C. montana* nailed tightly against a wall, the one way to lose its beauty; it should be trained freely and loosely to show off fully its charming gracefulness impossible if fettered

and has double white flowers. It is fully a month later in flowering than *P. triloba*. Another very handsome early flowering tree is the double white French flowering Cherry; the flowers keep fresh but a short time, which is greatly against it. *Rhodotypos kerrioides*, a Japanese shrub with a single white flower, makes a compact bush planted in good soil. It grows freely, and continues to flower for a considerable time. *Pittosporum Mayi* has flowered very freely this season; the purple inconspicuous flowers are very sweet, scenting the air for a long distance. *Leptospermum bullatum* is a very slender evergreen shrub from New Holland, and a specimen about 8 feet in height is covered with its Myrtle-like flowers. It requires an open, sunny aspect. *Ozothamnus rosmarinifolius*, a graceful shrub from Tasmania often seldom meets with, is quite hardy in the most exposed situations, giving a profusion of white flowers. *Choisya ternata* is a Mexican shrub, and makes a handsome specimen in a short time; the foliage is very good. It has passed several winters in the borders and flowers every season.

THOS. RYAN.

Castlewellan.

Cotoneaster bacillaris.—This is one of the larger or tree Cotoneasters, but, unlike *C. affinis* and *C. frigida*, it is more ornamental in flower than in fruit. It forms a bold, free-growing specimen, but is usually seen more as a large shrub than a tree, for several stems generally spring up from the base of the plant, all at first having an upright tendency, but after a time the head of the plant becomes somewhat open. The leaves are ovate in shape, while the flowers are white and being borne in clusters for some distance along the slender shoots—which partially droop with their weight—the upper portion of the plant appears to be quite a mass of white blossoms. Though the berries when ripe are of a brown colour, they impart an uncommon feature to the specimen.—T.

Styrax japonica.—This is a beautiful tree in the garden now, as this is the season when its bell-like flowers, of the purest white and borne freely on the under sides of the branches, make a pretty picture amongst the rich green leafage. It is in bloom now in the Coombe Wood Nursery of Messrs. J. Veitch and Sons, and although the tree is well known by name, it has found its way into very few gardens. It is said to grow in Japan to a tall tree, but the English specimens have not been planted long enough to show what they are capable of in this way. Some may know it best under the name of *S. serrulata*. It is of free growth in good soil, whilst it likes plenty of sun, succeeding best in the more southern counties of England.

Yellow Cucumber Tree (*Magnolia cordata*).—Closely following on the Asiatic or early-flowering forms of *Magnolia* comes this American species, which is smaller in growth and makes a far less imposing specimen than any other kind from the Western Hemisphere, unless it is the Swamp *Magnolia* (*M. glauca*). *M. cordata* is a low, rather open-headed tree, clothed with heart-shaped foliage, while the flowers are of a yellowish tint and faintly scented. They are each about 3 inches or 4 inches in diameter. *M. cordata* is native of a considerable tract of country in North America, being found in Northern Carolina, along the flanks of the Alleghany Mountains, and in Northern Alabama. According to Loudon, it was introduced into this country in 1800.—T.

Aralia Maximowiczii is a distinct hardy shrub, finer than half the sub-tropicals used in bedding out that have to be raised in heat and succumb to the first frost. It is quite hardy and came from Japan in 1874, so that it is yet a novelty to many. The growth is very vigorous, bushy, leafy, and handsome, as the leaves not only have a fine green colour, but are divided into about seven lobes, each of the length of between 3 inches and 4 inches, with the edges serrated. Some may know it best under

the name of *Acanthopanax ricinifolium*, and will easily recognise it by the spiny stem and boldly lobed leafage. In the light soil of Knaphill Nursery it thrives with vigour, and invites attention by the richness of its growth. It would make a group of great beauty on the outskirts of a lawn, and those who enjoy the sub-tropical bedding could use it in the arrangements with the satisfaction of knowing that the plant will stand English winters.

THE JUDAS TREE.

(*CERCIS SILIQUASTRUM*.)

ALTHOUGH of somewhat irregular and ungainly growth, yet the handsome flowers and foliage render this one of the most valuable of early-flowering trees. Within a radius of a dozen miles of London are many handsome specimens of this tree, several that have come under my notice recently having attained to almost perfect development, as is well exemplified in their great size, perfection of blooming, and wealth of flowers produced. Both in shape and colour the leaves of the Judas Tree are distinct from those of almost any other, they being of a bluish-green above and of a deep emerald or grass-green on the under sides; while the flowers, which are of a bright purplish-pink and clustered along the branches, have a most attractive appearance during May and early June. They are produced before the leaves, and so look all the more conspicuous.

There are many places suitable for growing the Judas Tree, it being by no means particular about the class of soil in which it is planted; while for even tolerably shady or exposed sites it would seem to be well suited. Generally speaking, the growth is slow, and, as is usually the case in the majority of trees, somewhat contorted or zigzag in formation; but this does not in any way detract from its beauty, and when in full foliage it is about as ornamental a low-growing tree as could well be desired. That it bears a great amount of shade and almost perfect want of sun with impunity I am able to vouch for, as our largest and best flowering specimens are growing beneath the dense summer shade of 90 feet high Oaks. In the churchyard, or rather in a garden adjoining it, at Hayes, Kent, there is a very beautiful specimen of the Judas Tree, but in this instance it is not planted in a sunless site, although tolerably well sheltered by surrounding tall-growing trees. When I last saw it the branches were literally covered with flowers, and which owing to their depth of colour were visible for a considerable length away from the village side. I am sure that many a lover of flowers pauses on passing this tree when in flower, and wonders quietly to what family it belongs.

The flowers, in colour and method of arrangement, are an exact counterpart of our common garden Mezeoreon, and therefore I suggest as a good popular name, instead of the almost meaningless one now borne by the plant, that it be called the "Mezeoreon Tree." Did a person know the Mezeoreon and also that there was a Mezeoreon Tree, I am fully convinced that when seeing the Judas Tree in full flower, they would have little difficulty in recognising it. When old, the Judas Tree has a flat and somewhat round-headed appearance, somewhat after the manner of an Apple or Quince tree, and it is always of pleasing contour, whether when in full foliage or during its deciduous season. For planting amongst choice trees and shrubs, this *Cercis* is of undoubted value, and it associates admirably with such subjects as the Manna Ash (*Fraxinus Ornus*), Azaleas, Laburnums, Lilacs, and not a few other of our early summer-flowering plants. It is scarce at present, but with a growing desire for the more ornamental and uncommon trees and shrubs it will not be long before so deserving trees as this, the Manna Ash, Indian Bean (*Catalpa*), and dozens of other neglected trees of small growth will find their way into our parks and gardens.

About soil for the Judas Tree I may say nothing, for it certainly requires no speciality in that way; but we have it doing best in light vegetable soil, overlying a great depth of gravel.

There is a white-flowered form, but I know no-

thing of it, save paying sweetly for a specimen or two.

A. D. WEBSTER.

THE VALUE OF HARDY RHODODENDRONS.

WHEN visiting Mr. Samuel Barlow, at Stakehill House, Manchester, a few days ago, I was surprised at the beauty of the blossoms and the fineness of the trusses of bloom on the Rhododendrons in the pleasure grounds of Stakehill House. That they should have produced such fine heads of bloom is a marvel, for so trying are the climate and atmosphere during winter, that the leaves are half brown, curled, and soot-begrimed. All round about are huge manufactories, chemical works, &c., with vast, tall shafts rising up in all directions, belching forth smoke laden with particles injurious to vegetation. Some of the Rhododendrons are practically deciduous, so largely do they become denuded of their leaves during the winter. And yet, as if vindicating their claim as one of the best subjects to be planted in smoky districts, they were flowering grandly, and the plants putting forth healthy young growths with vigorous abundance. If Rhododendrons will flourish at Stakehill, then they will exist and bloom anywhere, but Mr. Barlow took great pains at the outset to make a soil suited to their well-being. There are early and late-flowering varieties, and so the duration of bloom is continued over a considerable period. Their hardiness and their capacity to exist under extremely inimical conditions is abundantly illustrated.

The hardy Rhododendrons now so generally grown are descendants of hybrids produced by crosses and intercrosses between the hardy Indian *R. arboreum* and some hardy kinds, such as *R. ponticum*, *R. catawbiense*, *R. caucasicum*, *R. ferrugineum*, and others. It is from these the hybridiser has produced the greater part of the cultivated varieties, and in bringing the Rhododendron to its present high stage of quality and beauty some progress has been made in each advance. There has been reached some desirable quality, either in the shape or size of the flowers, in the brilliancy of their colours, and in the addition of plants that bloom earlier in point of time and in greater abundance, also in the direction of combining in one variety qualities previously existing in separate ones and in a hardier constitution.

This latter is a most desirable quality, for between Surrey and Lancashire there is such a difference of climate and atmospheric conditions, that a large amount of hardiness is necessary to withstand the trial of a Lancashire climate. That the use of *R. arboreum* as a pollen parent was the means of giving us the rich colours now found in the Rhododendron there can be no doubt; but it is the opinion of experienced raisers that the farther we get away from *R. arboreum*, the greater is the degree of vigour and hardiness of constitution, and this much without forgetting the manifest advantages derived from *R. arboreum*. It gave us colour and earliness of bloom, and these have been perpetuated and added to constitutional vigour.

I have known it asserted that were *R. arboreum* resorted to as an immediate parent once more, good results would flow. I submitted this assertion to a very successful raiser of Rhododendrons, and he is decided in his opinion no good results can flow therefrom. His experience of seedlings direct from, or but once removed from, *R. arboreum* is to the effect that they never bloom until they are twenty years old, and then very sparingly; that in the majority of seasons, and especially if the early part of the year is mild, the flowers, in consequence of being produced then, are liable to be destroyed or much damaged by wind, rain, and frost, and in very severe winters the plants are damaged, if not killed outright by frost. On the other hand, acknowledging that during the last twenty years some very beautiful varieties of thoroughly hardy Rhododendrons have been produced, he strongly recommends seedling from the best and hardiest of these for the purpose of producing seedlings, pointing out that they bloom abundantly, and when not more than three or four years from seed; that the

flowers seldom or never get cut off by frost, and from their being produced after spring has fairly set in, they are not liable to damage through frost or rough weather. And, further, while seedlings direct from or only once removed from *R. arboreum* are usually of rich and bright colours, the seedlings from present hardy types produce flowers of the most delicate as well as of the richest tints—from deep crimson to pure white, and many intermediate shades—and the plants are in no danger of being harmed by frost.

Well might Loudon say half a century ago that the hardy hybrid *Rhododendrons* are the pride of European gardens as they are of their native wilds. They are now more emphatically than ever the pride of European gardens, for since those words were written by Loudon the *Rhododendron* has found its way into gardens large and small, and they are employed with great effect in beautifying our public gardens and parks. They are among our finest evergreen shrubs, and they have become indispensable alike in the garden and the conservatory, for the employment of the *Rhododendron* for forcing is now generally practised.

It must not be thought that the raising of new varieties is confined solely to the great Surrey *Rhododendron* nurseries. At the recent Whitsun show at Manchester some very dwarf, hardy, free-flowering *Rhododendrons* were shown by Messrs. Isaac Davies and Son, nurserymen, of Ormskirk, who have attained fame in the north as raisers of new varieties. Quite small plants were seen laden with bloom, the colours of various shades, the individual flowers large and of the finest form, and the trusses handsome and imposing. R. D.

SHORT NOTES.—TREES AND SHRUBS.

Golden-leaved Box (*Buxus japonicus aureus*) is a fine variety for giving colour to the garden at this season. Its richness of leafage is decided, and at Knaphill the plant is used as an edging, a good use to put it to by reason of its vigorous and bright appearance.

Golden Oak (*Quercus concordia*).—This is one of the finest golden-leaved trees we have, and at this season its self-coloured foliage makes a rich effect. Its value can be seen in the Knaphill Nursery, where the Golden Oak is planted against green-leaved trees for contrast. The foliage is decidedly yellow, neither spotty nor weak, as in many variegated things.

Rhododendron Marchioness of Lansdowne.—This is the finest *Rhododendron* in cultivation, a charming variety with a noble truss of flowers, pale rose, with a large black spot on the upper petals. It also has a good habit, robust constitution, and makes a telling mass in the garden. It was remarkably striking amongst the many other fine kinds in the Knaphill Nursery the other day.

Wistaria multijuga.—This has been described as producing racemes of blossom over 2 feet in length. Though the racemes, however, are very long, and on strong plants will be probably quite the length mentioned, there is a greater space between the flowers, which are smaller and of a paler colour than in the better-known kind. Such being the case, even if both are equally free-blooming, the common one has a great advantage, and is not likely to be superseded by its newer relative. Next to the ordinary *W. sinensis* I should place its white-flowered variety, a pretty climber, and as far as I have seen, except in colour, a counterpart of the type.—T.

Weeping purple Beech is a fine tree, as may be seen in the Knaphill Nursery, where the branches come down to the ground, and make a graceful pendent mass of deep purple foliage. This is the true weeping Beech, a different thing to that which goes by this name in many nurseries. The best form touches the ground with its strictly pendulous branches, and the leaves are of the deepest colour, very rich against green foliage. A good weeping tree like this is valuable in the garden, and it should be made a note of for autumn planting. This is, however, a good time to visit nurseries, so that one can choose those trees that please most, not forgetting that too much coloured foliage in a garden is not desirable. The rich leafage of the purple Beech, however, gives a strong tone of colour to the land-

scape when the best form is obtained—that without any bronzy shade in it. Of course, the type, the ordinary purple Beech, is well known. There is at Knaphill possibly the finest specimen in the world of it—a noble tree, the perfection of shape and beauty. There is also a fine mass of seedling purple Beeches, all of the deepest colour, though one hears complaints that these trees are difficult to get. It is an admirable tree either small or fully grown, as from its youth the leafage has that peculiarly beautiful purple colour so intense in depth against green-foliaged trees.

STOVE AND GREENHOUSE.

PITCAIRNIAS.

This genus of Bromeliads contains upwards of 100 species, mostly slender growing plants with beautiful flowers. They are easily grown, and thrive in well-drained pots in a mixture of light turfy loam, rough peat, and leaf-mould. The plants should be grown into good large tufts, as in this state they are far more ornamental, each growth producing a spike of showy flowers. Pitcairniae have been too much neglected, and where they are to be found I have usually seen them huddled up out of the way, as if the owners were ashamed of them, and they are only brought into prominence when in flower. The following are a few kinds well deserving the attention of everyone:—

P. ANDREANA.—A plant of small growth, with drooping leaves, each about 18 inches long, deep green on the upper side with a few white scurfy spots, the under side quite white. The spike is erect, bearing numerous flowers, which are red at the base and bright yellow at the tips. It is said to be found in Guatemala and New Grenada.

P. CORALLINA.—In this plant the leaves are somewhat broad and plaited, narrowing below into a petiole, bright green above, slightly scurfy beneath; the flowers are produced on a dense raceme a foot or more long. The flowers are between 2 inches and 3 inches long and of a bright coral-red, which has given rise to its name. It comes from Chaco, in New Grenada.

P. FLAVESCENS.—This has a rosette of narrow leaves, which are each between 2 feet and 3 feet long, and hence my readers may understand how necessary it is that the plant be attended to to preserve these intact. The leaves are narrow and sharply pointed, the upper side bright green, below coated with a scurfy white powder. The flowers are large and showy, the calyx being bright yellow and the petals sulphur-yellow. It comes from Brazil.

P. LUTEA.—In this we have a plant with long and narrow leaves, bright green on both sides. Flowers in a dense raceme, the petals being bright yellow.

P. MARONI.—This, a hybrid form, the parents being *P. Altensteini* and *P. corallina*, affords a striking illustration of the honours which await anyone who will take up this class of plants. This hybrid was raised by M. Maron, a French gardener. It has broad, bright green leaves, and produces a long erect scape, bearing a very dense head of flowers, which are wholly bright coral-red.

P. MUSCOSA.—In this plant we have a very pretty species introduced upwards of fifty years ago. It has long green leaves, which are white beneath; the spikes stand above the leaves and bear a dense raceme of long bright red flowers. Brazil.

P. STAMINEA.—In this we have a still older plant than the last, it having been first brought home some seventy years ago. It is a plant as graceful as a *Fuchsia*, having narrow, bright green, recurved leaves; the slender peduncle is from a foot to 18 inches long, bearing a somewhat lax raceme of pendulous flowers; the calyx is green, with long bright red petals, which are rolled back at the tips, and thus the stamens and style, which are

also red, are left well exposed. It comes from Southern Brazil.

P. PUNGENS.—A very ornamental species, which first flowered with me in the Royal Botanic Gardens at Kew in 1862. The leaves are long and pointed, bright green above, somewhat powdery beneath, the lower leaves reduced to long sharp spines; scape erect, raceme dense, flowers bright orange-red. It is widely distributed in New Grenada.

P. TABULÆFORMIS.—This belongs to the section *Cephalopitcairnia* of Baker, and is a very singular plant, producing broadly oblong spatulate leaves, which are bright green and spread out flat, like a table-top, producing a terminal capitate head of flowers, which are long and bright scarlet. It is one of the most singular of the Bromeliads, coming from Mexico. W. H. G.

LESCHENAULTIA BILOBA MAJOR.

FOR some few years past this lovely blue variety has been well grown by Messrs. Balchin and Son, of Hassock's Gate, Keymer, and Brighton, Sussex. They have undoubtedly hit upon the right mode of cultivation for this fine Australian plant. Those examples staged by them this season at the metropolitan exhibitions have been finer even than in former years. They grow them at their country nursery under the Southdown Hills, and devote a house to their cultivation. The plants which they usually exhibit are from three to four years old, and some of the larger ones probably a year older. They are grown in peat and sand, similar to *Ericas* and such like plants. Some years ago when in Sussex myself I used to grow the same variety as an exhibition plant. It grew well with me in peat with a slight addition of loam, but did not flower quite so freely as those shown by Messrs. Balchin. In my case I imagine from the surroundings that it was not so fully exposed to the light and air as it should have been. The house, too, was inclined to be somewhat damp, being in bad repair. Under ordinarily good conditions it will give every satisfaction if proper attention be paid to it. It is a plant that "wants growing" undoubtedly, but, nevertheless, there is a great amount of satisfaction when once one succeeds with this or any other plant. One of the chief things to guard against is mildew, which will soon work sad havoc if not stopped by dusting with sulphur. Sharp currents of cold air are also prejudicial, the best plan being to keep the stock in the cold season a good distance away from the side ventilators; in the late spring and summer it does not so much matter. A close, stagnant atmosphere should always be guarded against. Plants of fairly good size may be grown out of doors in the summer after blooming, but should be housed before the autumn rains set in. In watering be cautious to avoid both extremes, neither let the plant suffer for want of water nor let it be in any way soddened. Shoots that have a tendency to grow away rather strongly should be pinched to keep the plant uniform. In staking some care is necessary, as the side branches are very liable to split when trying to increase the size of the plant. Shading is not necessary at any time, unless it be to prolong the beauty of the flowers. Another good variety is *L. formosa*, which has scarlet flowers, and is a most profuse bloomer; it is of more compact growth than the afore-named blue variety. Both may be grown in an ordinary collection of New Holland plants by observing the conditions alluded to. It is now some years since they used to be seen in good condition; the present advent, therefore, of the blue variety is all the more welcome.

J. H.

The greenhouse Cape Everlastings (*Aphelexis* and *Phœnocomia*).—The former of these will be in perfection during the present month, while the latter is generally in good condition through July and August. Thus where both are grown the flowering season may be extended from early in May until the end of August. These fine plants are now seldom seen in such good condition as they were a few years ago, yet in their season there is

hardly any plant that surpasses either for colour or usefulness in the greenhouse. From the time the first flowers commence to partially open the great thing to guard against is damp or drip; the latter is especially injurious to the bloom, and will cause the bright golden centres of the *Aphelexis* to soon change colour, and the *Phœnocomas* will also fade. In the case of the *Aphelexis*, when the flowers have to be removed, each one should be broken out close home, which will be nearly close to a young growth already advancing. It is a mistake to think that by cutting off the flowers just where the stem begins to elongate that another shoot will break forth there. The shoot will merely die back and leave the plant with stubby decaying wood in it. In the case of the *Phœnocomas* this care is not so necessary, but pinching of the stronger shoots is needful to keep the plants compact, as they do not, like the *Aphelexis*, break back on the older wood nearly so well. Potting when required should be seen to as soon as the plants are out of flower; sound fibrous peat and sand with some charcoal broken up about the size of nuts will suit them well. Pot very firmly, and never make a practice of giving large shifts. Expose fully to the sun in the open air for a few weeks when a good growth has been made. If the flowers are valued as Everlastings for use later on they should be cut before they fade, so as to preserve their beauty better. Cuttings of both strike freely in peat and sand, but not in a too close atmosphere; time must, however, be allowed, as they are rather slow-rooting subjects.—J. H.

MIGNONETTE.

WOULD you kindly let me know through your columns the best time to sow Mignonette for flowering at Christmas time.—ALEPH.

* * This is not an easy question to answer, for so much depends upon the position and locality it is to be grown in; also the treatment it is to receive. If it is to be grown in the ordinary way—that is, to flower in the pots that it is sown in—about the first or second week in August will be the best time for sowing. Sown at this time, it will under favourable conditions begin to come into flower some time before Christmas, especially if we are favoured with bright weather. While Mignonette cannot be advanced in any way by forcing, bright sunny weather will make all the difference in the time of flowering. It is better to have it a little in advance than to be too late in sowing, for unless the plants are strong and sturdy before the dull dark weather sets in, it will be impossible to get good spikes of bloom at mid-winter. When in Sussex I found no difficulty in having good Mignonette in December, but it is a very different thing within the radius of the London fogs. It is not altogether impossible to flower Mignonette near London during the winter, but if we get much fog, failure may be expected, for even though the bloom spikes may be well advanced, three or four days' fog will generally cause the flowers to go blind, and instead of making further progress, side shoots will be produced just below the bloom spikes.

For winter flowering the most reliable method is to sow the seed earlier, say about the first week in July, and pot the plants off singly, stopping them once or twice so as to form bushy little specimens. For this purpose the seed should be sown thinly in pans or pots. The soil should not be pressed so firmly as when it is to flower in the same pots, or it will be more difficult to get the young plants out with good roots. They should be potted off singly as soon as they are large enough to handle. If potted in 2½-inch pots the plants will require only one more shift before flowering; this should be done as soon as the pots are well filled with roots. One great difficulty in repotting Mignonette is, that the slender roots often adhere to the sides of the pots, and are torn off in shaking the plants out. To avoid this the pots must be quite clean, and at the time of repotting the soil should be fairly moist. In repotting the less the roots are disturbed the better, and when the plants are first potted off singly they require great care until they are re-established. Keep them well shaded and frequently sprinkled

for the first few days, then gradually expose them until they are properly established, after which too much light and air cannot be given. During the summer and autumn Mignonette will succeed best in pits with the pots plunged in ashes or fibre; but later on that which is intended for winter flowering should be placed on a shelf, as close to the glass as possible, in a cool house where plenty of air can be given. In the successful culture of Mignonette one of the most important points is that it should have a light, open position, and no artificial heat except to keep off frost. A rich porous compost should be used, and the pots filled firmly; watering must be carefully attended to, excess of moisture or drought being equally damaging.

There are now several fine varieties of Mignonette. Machet is one of the best, being dwarf and sturdy in habit, and having thick, bold trusses of bloom. Vilmorin's grandiflora is also a good variety. Miles's Spiral may also be recommended, especially for winter flowering. Parsons' White, which was one of the first to claim notice, has not been much improved. But names are of little value now; the great thing is to make sure of a good strain of seed, either of the white variety, of which the two latter are the best types, or the dwarf red variety, of which the two first mentioned are the best. Generally I prefer to limit the season of any particular flower, but I make an exception in favour of Mignonette, and throughout the year it is rarely that I am without a few trusses of bloom in my room.—F. H.

SHORT NOTES.—STOVE AND GREENHOUSE.

A good Heath is *Erica ventricosa* Bothwelliana. It has rich, pink-coloured, tubular flowers, deep crimson in the centre and produced in dense profusion. A large plant of it in full bloom is exceedingly beautiful. *Rosa* is in the same way, but not so fine as *Bothwelliana*.

Phyllocactus nitens.—This is a hybrid, one of the showy things that have been raised amongst *Phyllocactus*, a class that everyone who has a warm greenhouse should grow. This is in bloom in the Cactus house at Kew. It has a rich scarlet flower, with the inner segments shot with that brilliant violet lustre that we have more fully in the variety *J. T. Peacock*. The plants were each bearing several of these gorgeous blossoms.

Three good *Bertolonias* are *M. Finet*, the leaves deep green veined with rose—very pretty; *Mme. Ed. Pynaert*, somewhat the same, but more brilliant in colour, distinctly veined and spotted intense rose; and *Souvenir de Gand*, recently certificated by the Royal Horticultural Society. This has a deep green leaf brightened by crimson veins. *Bertolonias* are small-growing stove plants but a few inches high, and very showy, by reason of the beauty of the leafage.

Crinum zeylanicum.—This is an interesting and beautiful *Crinum*, not so bold and handsome as such a kind as *C. giganteum*, but sufficiently attractive for a stove. It is also called *C. Herbertianum*, and was introduced from Africa and tropical Asia as far back as 1771, having been named at first *Amaryllis ornata*. There is a plant in the stove at Kew, and a warm house is the place for it. The scape bears an umbel of from ten to twenty flowers, each of which is about 2 inches across, the segments narrow and of the purest white; on the outside of each there is a longitudinal band of deep rose. The flowers are also very fragrant. The leaves are each over 2 feet in length, deep green, and about 3 inches broad.

Choisya ternata under glass.—This plant has been referred to in THE GARDEN on several occasions, but chiefly as a wall plant, or for the open air in mild districts. It is, however, a very desirable subject for pot culture, and well deserves the protection of a cold house during winter. I force it slightly by placing it in ainery which is started about the middle of January. With this treatment the flowers begin to open towards the end of February. During March and April the plant will be at its best and finds a place in the conservatory. After flowering it is placed in some sheltered corner out of doors for a few days, and afterwards fully exposed till severe frost sets in. The hard, shining, dark green leaves of *Choisya ter-*

nata render it always a pleasant object. It is easily propagated by cuttings, and the only insect that is at all troublesome is red spider. This may be kept in check by syringing occasionally with soap-suds, or by frequently syringing with clear water.—L.

Russellia juncea.—This is a delightful stove climber, a type of graceful beauty. It is the commonest of the *Russellias*, but is not so often seen in stoves as might be supposed from its familiar name. There is a plant at Kew clothing one of the rafters with graceful pendent Rush-like growth, beautiful with scarlet tubular flowers in perfect keeping with the elegance of the leafage. It is a native of Mexico, may be propagated easily from cuttings in the spring, and will succeed well in a stove. There is usually a repetition of big *Tacsonias* and a few other things in gardens crammed into houses too small for them, but here we have one of the most graceful of rafter plants that does not take much room, and is worth looking at even when not in bloom.

GARDEN FLORA.

PLATE 758.

ARISEMAS.

(WITH A COLOURED PLATE OF *A. SPECIOSA*.)

THE *Arisema* genus has close affinity to the *Arums*, and the various species present remarkable and interesting characters. The majority are natives of the Himalayas and Sikkim, and must be grown in a stove, except such kinds as *A. ringens* and *A. triphylla*, which will succeed out of doors. They are not difficult to grow, and those who have not a few of the more beautiful kinds are without a remarkable class of plants, of which without question the species illustrated in the coloured plate is the most beautiful. If one *Arisema* is selected it should be *A. speciosa*, a species that is as rare as it is distinct and interesting, and when several plants are grown, a showy group may be formed in the stove. Fortunately, this class has been well cultivated in the Royal Gardens, Kew, where *A. speciosa* was during the winter a feature of interest in the stove. Our plate was prepared from one of those specimens, and visitors then were struck with the beauty of a representative of a class whose members were regarded more as botanical curiosities than useful garden plants. The plate of *A. speciosa* will show that we have a species that is at once an attractive and interesting plant during the winter months. This was introduced from the Himalayas, from whence many of the best kinds have been received, in 1872, and has a hooded spathe, very richly coloured with glossy purple, intensified by a series of silvery veins that proceed from the base and cut into this rich body colour, the spathe running into a tapering point, as shown in the plate. The spadix is remarkable; it is greenish and white in colour, and lengthens out into a delicate thread, quite 20 inches in length, of the deepest purple colour; then we have a distinct character in the mottled petioles and rich green leaflets, margined with the blood-red. It only grows about 2 feet in height, so that several can be grown without occupying much space. The *Arisemas*, like the *Arums*, have tuberous root-stalks, from

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew, February 17, 1890. Lithographed and printed by Guillaume Severeys.



ARISÆMA SPECIOSA.

which proceed the leaves, sometimes palmate, pedate, or peltate, and in some species very handsome by reason of their bright green colour. All are easily grown, and make rapid progress in a good soil, one made up of loam, a third portion of manure, and leaf soil, the whole lightened by a dash of sharp silver sand, promoting a free growth so necessary in quick-growing things of this character. One important point is an abundance of water during the season of growth, after which it may be relaxed, especially during the time of rest. After the leaves have died down, the pots in which the plants are growing may be packed away until required again to start into growth, either in the winter or spring. They come from the Himalayas, Sikkim, and the Indian Islands, revelling in the hot moist forests that teem with vegetable life. A few of the leading species are—

A. CONCINNA.—This came from Sikkim in 1871. The spathe in the female plant is barred, with

and hardy, a native of North America, from whence it came as far back as 1661. It is quite worth a place in a house, and is sometimes labelled *Arum zebrinum* and *Arum triphyllum*. Whatever its name, it is a useful kind; the spathe measuring about 4 inches in length, and marked with broad lines of purple-brown; the spadix is about 3 inches in length, and spotted with brown. It has long stout petioles with entire leaflets of three. This will do out of doors, and both in the open and under glass makes an interesting group.

Then we have such kinds as *galeata*, *Griffithi*, and *nepenthoides*, but the palm of the whole series must be given to *A. speciosa*.

ORCHARD AND FRUIT GARDEN.

THE BEST FLAVOURED STRAWBERRIES.

Of the large number of Strawberries now in cultivation, how many can be put in the front rank as regards flavour? Scarcely so many as one has fingers on his hand. Of late, the great endeavour of raisers has been to secure earliness and size, putting quality on one side. The latest important addition to

Strawberries is the true Pine flavour. The old Bicton White Pine is not half so much grown as it should be. It may not bear so heavily as many of the kinds cultivated so extensively, but in flavour it is excellent. Probably colour or rather want of it causes this really excellent Strawberry to be neglected, but I am sure that those who may once grow it will appreciate its quality; and although in the case of fruit grown for market colour must ever be of primary importance, in private gardens flavour should be the first consideration. The old Elton Pine and Frogmore Late Pine may safely be included in this short list. The first-named is probably still the best of preserving kinds, and the latter has the merit of being one of the very latest kinds in cultivation. Like British Queen, it does not flourish in all soils, and is liable to mildew on light ground that suffers from hot weather. It is a Strawberry that wants good cultivation and is only suitable for gardens where skill and much attention are bestowed on this fruit. I have seen it thriving and bearing as well as could be desired, and I have seen it in such poor condition as not to be worth the ground it occupied.

A Strawberry that I never see mentioned and that has good claims to be placed among the best flavoured kinds is Coddington Pine. It would, I am sure, be much grown both in private and market gardens were it better known. It bears abundantly, is hardy in constitution, very firm, and fine in colour throughout. This kind never appears to have been distributed by the trade, and is probably grown in but a few gardens. For preserving it has few equals, and the flesh being so firm the fruits travel well in the larger bulk in which Strawberries are sent away for preserving. If the deservedly popular President does not come into the front rank as regards flavour, it must be placed, I think, quite at the head of second quality kinds. In the open air the fine aroma is not always developed to perfection, but grown under the best conditions under glass it is a Strawberry fit for the most fastidious palate. Grow the plants well, let the fruit hang two or three days after colouring with a slightly shortened allowance of water, and President will have a flavour that leaves but little to be desired.

J. C.

Byfleet.

EARLY STRAWBERRIES.

I PICKED the first dish of Strawberries on June 3 and pickings from this variety (Black Prince) together with the last of the forced fruit, Filbert Pine, will furnish us with a supply until La Grosse Sucrée is ready out of doors. There is no variety with which I am acquainted that will match the Prince for earliness, except it be the old Alice Maud, and this is of such indifferent flavour as to be hardly worth growing. I shall be glad to know whether any of the new early varieties have been much earlier than June 3, and if so, if any of them can come up to the Prince in flavour. From this latter point of view this old favourite has held its own for many years, and in some establishments is in special request for dessert until British Queen is ready. The only drawback is its size, but when against this are set its earliness, flavour, and splendid colour, I fancy it is yet hard to beat. To grow it to perfection, the earliest and strongest runners must be selected and placed either in pots or on small squares of turf, giving these as much attention until well rooted as though they were destined for pot culture. Choose a south border for their reception (one cleared of Broccoli or winter Lettuce will do very well) and bastard trench it, incorporating as the work progresses well decomposed stable manure if the soil is stiff, or a mixture of cow manure and road sidings if the natural compost is light. Give a light or heavy treading as the nature of the soil requires, and plant 18 inches apart, mulching with long litter when the planting is finished. When the bloom stalks are well developed in spring thin them out, leaving only the strongest, and thin again when the fruit is fairly advanced. This may seem a considerable amount of trouble for outdoor fruit, but the variety Black Prince must have this little extra attention if large



Arisema ringens.

white or green colour, and in the male this gives way to a purplish tone, while it is curiously formed, being bent over at the mouth, and narrowed into a tail about 3 inches long. The foliage is characteristic. It reminds one of that of *Helleborus Bocconi*, and is divided up into narrow segments which proceed from petioles between 1 foot and 2 feet in height—a canopy of leafage.

A. CURVATA.—This is known also as *H. helleborifolia*, and came from the Himalayas at the same time as *A. concinna*. It is a species of large growth, rising 4 feet in height, and is distinguished by large bracts, marked with shades of green and red that sheathe the base of the stem. The scape is taller than the pedate leaves, and the spathe is coloured with green and white, the spadix taking the form of a purplish-red tail quite 1 foot long.

A. RINGENS OR A. PRÆCOX, of which an engraving is given, is a graceful Aroid, and certainly deserves culture as an ornamental plant. The leaves are ternate or three-lobed, the lobes broadly ovate, and lengthened into a long tail, the edges of the bright green leaflets wavy; the spathe is distinct, elongated, greyish-white overlaid with green stripes, the incurved margin of the mouth dark brown. Its luxuriant aspect and free growth will be seen from the illustration. It is hardy, synonymous also with *A. Sieboldi*, and comes from Japan.

A. TRIPHYLLA.—This is another useful species

a long list of varieties is a case in point, for Noble, although in all other respects an undoubted gain, is not nearly so good in flavour as many of the kinds commonly grown. I think that enough has been done for some time at least in the matter of securing size and earliness, for it is undeniable that as regards flavour we have made no advance within the memory of the oldest of the present generation of Strawberry growers. British Queen, one of the very oldest kinds in cultivation, is as much ahead of other kinds now as it was a quarter of a century ago. Dr. Hogg was to have supplanted it, but it appears to demand a combination of conditions for its well-being that are only to be found in the most favoured localities for Strawberry culture. Where it does succeed it should get good culture. An important point in the culture of British Queen is depth of soil, so that the roots can go down deeply in search of moisture, without which the plants are sure to be infested with red spider. The finest crop of this Strawberry I ever knew was grown on land that for many years had been laid down for pasture. The position was so low that water lay on the ground in wet winters. In order to guard against the evil effects of stagnant moisture the grower laid it up in beds, and the way in which British Queen grew and fruited under such circumstances was phenomenal. Stools two years old carried several pounds of fruit of the finest quality. What we want more of in

early fruit is required. La Grosse Sucrée is the best second early, and the above remarks on Black Prince, so far as the early selection of runners and planting are concerned, are applicable to this, but it requires no thinning, for the simple reason that in the case of one-year-old plants it only throws two or three bloom-stalks. Noble is showing some fine fruit; in point of earliness it is contemporary with La Grosse Sucrée.

Claremont.

E. BURRELL.

HARDY FRUIT TREES.

WITH what promises to be a growing season because of the abundant rains now falling and the comparative lack of fruit on the trees, a very interesting question will presently arise as to the probable effects of seasons of fruiting upon trees as compared with seasons of rest. With liberal rains and no excessive heat it seems most probable that all hardy fruit trees will as a result develop unusually liberal growth. Whilst some cultivators hold that a season of rest is essential for the recuperation of the fruit-producing energies of trees, others hold that there is no tree pruner or balancer like to a crop of fruit. Now the present season of rest, so far as fruit is concerned, is, unfortunately, not an isolated one. We have, in fact, had no considerable bulk of fruit for some two or three years. Last year the crops were especially light; therefore the assumed needful rest was very generally found. Very largely, too, it was taken advantage of by the trees, as bloom-buds were liberally formed, so much so in fact that if these bloom-buds had been sufficiently stout and fertile we might have had a good crop of hardy fruit this season. Whatever may have been the effects of the cold, dull, cheerless spring with occasional sharp frosts upon the bloom, and it could only have been harmful, I am still of opinion that in spite of having had last year what seemed to be, on the whole, a ripening season, yet the process of bud maturation was imperfectly performed, and our lack of fruit this year is due to that cause. Now the question to which the attention of fruit growers may just now be turned is, What is likely to be the probable effect of not only a second season of rest, but one of exceptional restfulness? So far as fruit production is concerned, for we have the thinnest fruit crop on record, will that restfulness be productive of bloom and fruit next year, or will it lead to the too free production of barren growth? In spite of some checks trees received from caterpillars, and out of which they are just coming not much the worse, I notice that all trees seem to be putting forth dense stout leafage, and almost luxuriance in outer shoots. The density of the leafage is, however, perhaps due to the free forming of fruit spurs, with which last year's wood seems to be thickly studded, and which must lead to a wealth of bloom next year, provided the spurs remain fruitless and do not get beyond that stage. But there seems to be some danger that with the abundance of sap now found in the trees, created at once by liberal rains, and unusual leafage, that what look to be fruit spurs now may presently burst into fuller growth and become side shoots. If that be so it will, indeed, be a misfortune. The stronger the leading shoots on the points of the fruiting branches are the better, as these help to absorb much of the ascending sap. To divert that sap into the fruit-forming buds would be only to create the evil we so much wish to avoid. Fruit growers will no doubt watch the action of their trees closely during the ensuing few weeks. After the almost luxuriant growth and leafage now put forth, we shall have special need for warm, dry weather and ripening sunshine. It is not enough that such favour should be vouchsafed for a week or two to produce mature fruit buds. We want a couple of months of warmth, because the work of building up and maturing fruit buds is probably much more largely done in July than in September, especially in a fruitless year.

A. D.

Blenheim Pippin.—Although Apples generally are a poor crop in this district, and seem to be very much so almost everywhere, yet some fine old trees of Blenheim Pippin growing in a Grass or-

chard belonging to Mr. James at Farnham Royal are carrying one of the best crops I have seen on any similar trees for years. These trees cover a considerable area, for their branches run out all round some 12 feet to 14 feet in length, the heads being rather broad than high; usually they fruit very well and carry a richly coloured sample. The Blenheim seems to be peculiarly at home on the chalk, and also on Grass. The trees would bear some hard thinning, but in the case of trees of this kind, too severe a thinning at one time is apt to simply reproduce luxuriant growth. For that reason, thinning should be proceeded with moderately, a little of the spare wood being cut out each year. Even if the Blenheim did fruit seldom, such a crop as these trees are producing, should all go well, repays the cost of culture for them of several years. Happily, once the Blenheim begins to fruit and the trees are doing fairly well, the variety fruits with fair regularity afterwards, so that it proves to be on the whole the safest and most profitable Apple to plant for endurance. The returns as to the general state of the fruit crops throughout the country will this season be looked for with exceeding interest. Some reports will be bad enough. It is hoped that some may be better, or otherwise the season's product will be most discouraging to all who may wish to promote hardy fruit culture.—A. DEAN.

STRAWBERRIES FOR MARKET.

ALTHOUGH the fruit reports for the current year concerning Apples, Pears, Plums, Cherries, &c., are of a discouraging nature, there appears to be, as a whole, a fair promise of Strawberries, and should the weather continue favourable, growers for market are calculating upon a fair crop of fruit. The rain we experienced last week came at an opportune time, for growers in the southern districts were beginning to feel the effects of a long dry spell. For at least a fortnight no rain worth mentioning had fallen, and in early districts where the plants had finished or nearly finished flowering, it was feared that the crop would suffer considerably from lack of moisture, especially where not well mulched or watered, and few market gardeners can afford to water to any extent. However, the weather proved favourable, and should it now remain bright and sunny for a week or so there will be an abundant supply of Strawberries upon the markets in a very short time, they having already begun to make their appearance in bulk from various sources.

The first consignment of open-air Strawberries generally comes from the neighbourhood of Southampton and other districts in the south of Hampshire, where enormous quantities are grown. The acreage of Strawberries under cultivation in that locality is much larger than is generally supposed, and a grower informs me that in the near future a considerable tract of land will probably be devoted to the culture of this popular fruit in that quarter, it being much more remunerative than either Apples, Pears, or Plums. The majority of the growers there mulch between the plants with straw, but one or two instances have recently come to my knowledge where flat tiles and slates were used in the place of straw among the early sorts, and the experiment proved highly satisfactory. By using tiles or slates the fruits not only ripen more quickly, but they are kept perfectly clean, and, moreover, free from slugs. This method cannot be carried out on a large scale, but owners of small gardens may adopt it advantageously. Following the Southampton consignments come those from the neighbourhood of Sandwich and other places in Kent, although, as a rule, the Kentish men are among the last of the southern growers in sending Strawberries to market. Middlesex contributes no small share of Strawberries, and these come to hand before the bulk of those from Kent, especially to the London markets. Although, perhaps, two-thirds of the Strawberries grown in Kent find their way to the metropolis, enormous quantities are despatched daily during the season to Manchester, Sheffield, and other northern and midland centres. The bulk of these go from Swanley Junction, and one writer on fruit culture states that upwards of 25,000 pecks have been sent from that station in one day during

a good season. In like manner immense quantities of Strawberries are despatched to London and other markets by the northern growers, these constituting the late supply. Cheshire is said to have at least a thousand acres of Strawberries under cultivation, and although Manchester, Liverpool, and other towns in the immediate districts consume most of the fruit raised there, not a few enterprising growers have sent Strawberries to London, but so far as I can ascertain the experiment did not altogether prove a success. This was partly due to the high railway tariff, but chiefly to the fact that as a market for quick and remunerative returns, the metropolis is decidedly inferior to Manchester. In Northumberland, too, hundreds of acres of Strawberries are grown, these being chiefly disposed of in Newcastle-on-Tyne. Besides those mentioned, there are, of course, many other districts devoted to Strawberry culture, these supplying the metropolitan and other markets.

The question of varieties grown for market is an important item for the would-be cultivator to study, and an interesting one to the ordinary reader. As far as I can see, appearance is the chief desideratum for market fruit, flavour being but a secondary consideration. So long as the fruits are put upon the markets of good size, clean appearance, and free from bruises, they never fail to meet with a ready sale, even though the flavour be inferior. That public taste should be so may appear strange to the ordinary observer, but it is, nevertheless, true. Of course there are exceptions where size and flavour are combined, but, as a rule, these varieties are confined to private gardens. British Queen is perhaps one of the best flavoured Strawberries that finds its way into the metropolitan markets, and if offered for sale early and in good condition it rarely fails to realise a high, or at least fair price. Three years ago good samples of this variety, grown outdoors, were sold in Covent Garden at the rate of 18s. per dozen 1-lb. punnets the second week in June. Only some districts are adapted to the growth of British Queen, however, since it will sometimes refuse to swell satisfactorily, and is, moreover, prone to mildew in certain localities. If there is one kind more popular than another in the London markets, it is Sir Joseph Paxton. As is well known, this variety is, under good management, a prodigious cropper and of handsome appearance. In addition to these good qualities, the fruits are firm, and travel remarkably well when properly packed, and this alone is a sufficient recommendation for the market grower. As to its quality, in flavour it is only second-rate, it being, according to my taste, best in rather cold seasons. Noble is now being regarded as a popular market variety, since it is a good cropper and of fine appearance, but there are others far before it, in point of flavour at any rate. Despite this it appears to answer the market grower's purposes well, and will no doubt be extensively cultivated. Keen's Seedling still remains a favourite in some districts, and is, perhaps, one of the best as far as flavour is concerned, while the same may be said in regard to President, an excellent all-round Strawberry. A variety named Latest of All, sent out by Mr. Laxton a year or two ago, is of good appearance and fair quality, but it does not appear to be largely grown. It is, I believe, a cross between British Queen and Helena Gloede, possessing the shape and flavour of the former and constitution of the latter. One or two growers of my acquaintance give Oxonian a place, among others, for producing a late supply, but the fruits are large and coarse, almost unfit for table. It is, nevertheless, a paying variety, since it produces enormous crops, is late, and meets with a ready sale.

Another point that should be borne in mind by growers who wish to be successful is the packing of the fruit. As has been said, fruits that are clean and fresh in appearance rarely fail to realise quick and remunerative returns, and to be placed upon the market thus they must be well and properly packed. Of course, between the packing of the forced Strawberries and those grown outside there is a material difference, the former being much more valuable, less abundant, and therefore requiring to be more carefully packed. In this case the

fruits are generally packed in leaves in small flat wooden or tin boxes, each receptacle holding one layer of fruit, and weighing on an average about 1 lb. This method, needless to say, cannot be practised in regard to the outdoor fruits, owing to the enormous quantities to be disposed of quickly. A rougher method is therefore adopted, but at the same time a visit to any of the principal markets during the Strawberry season will reveal the fact that the best packed fruits realise the highest prices, and, as a rule, meet with the quickest sale, they being in good condition, and therefore always in demand. The Middlesex growers are credited with adopting the best plan of packing Strawberries, and this method is worthy of notice by all who contemplate growing Strawberries for profit. They put the fruit in punnets in the usual manner, and then pack the latter in three layers in boxes divided into three divisions by light laths. The Southampton growers adopt a similar method, but in their case orange boxes are used, while the same plan is adopted by a few of the Kentish growers. This mode of packing is obviously far in advance of that generally practised by careless growers, namely, sending the fruit to market in bushel and half-bushel baskets. Packed, or rather thrown in thus, the fruit becomes smashed and unsaleable to a certain extent long ere it reaches its destination. Where it only has to be conveyed a short distance, the fruit, of course, may be put in baskets, but, if possible, it is advisable to use flat ones, or those which do not hold more than a peck or half-a-peck. These may appear unimportant items to the casual observer, but to those who desire to make a livelihood out of Strawberry growing, and a fair one can be made on suitable land, they are of paramount importance.

C. L.

RIPE PEACHES DROPPING.

THE accompanying Peaches fall stoneless off the tree in an orchard house. This is the third year they have done so. The fruits on the tree adjoining remain all right. Four or five years ago the same tree produced fine fruit. The tree looks perfectly healthy.—A. A. W.

* * Although there is nothing very remarkable in the dropping of Peaches when they are dead ripe, the three fruits which reached me this morning far advanced in decay prove positively that fertilisation was imperfect, that all three of the stones were split, and that gumming is the cause of the mischief. Some delicate varieties, notably Early Rivers, when quite healthy produce a large percentage of split stones, and when the roots get a little out of order it frequently happens that a liquid gum forms an apology for the kernel, in due course ferments and decays, when the fruit ripens prematurely. Stone-splitting, the result of imperfect fertilisation, although always due to some functional weakness in the tree, may, and does often exist when there is no sign of gumming; but when, as in this case, the kernels are one mass of liquid gum, we have before us the unquestionable fact that this most troublesome of all diseases is the one we have to deal with. If constitutional, and perceptible in the shoots and stem, especially at the union, an orchard house tree is hardly worth the keeping; but if, on the other hand, it is the result of indifferent cultural management, it is by no means improbable that a cure may be effected in a single season. Without seeing the tree it is quite impossible for me to define the cause, but from the preceding remarks the owner may, and if he thinks it worth the trouble he may proceed as follows: when clear of fruit the tree must be kept clean by syringing, and when the leaves are ripe it may be turned out of the pot or lifted from the border, divested of all wet, sour, and inert soil, either by picking or washing. The latter process I prefer, as soaking in a tub of water removes all the compost without doing injury to the tender rootlets and spongioles. Then with a sharp knife all faulty roots must be cut away or shortened back, and it will be ready for repotting or replanting in fresh compost, consisting of stiff calcareous loam, corrected by the addition of one-eighth of its bulk of old lime rubble. If poor, bone dust or a small percentage

of Thomson's Vine manure may be added, but on no account must animal manure be used, as rich food is favourable to gumming and canker. If the compost is used in a dry condition it may be rammed until it is as firm as the pasture from which it has been taken, well watered home, and the tree will give a good crop of fruit next autumn. It will not, however, be wise to force with the others, which must have been started early in January, but by giving a little rest in a temperate house it will be in perfect condition for forcing the following season. For additional details on gumming, which I need not repeat here, "A. A. W." might peruse an article by me (p. 535) in last week's issue of THE GARDEN.—W. COLEMAN.

THE WEEK'S WORK.

PLANT HOUSES.

GREENHOUSE.—TUBEROUS BEGONIAS.—Seed of a good strain will produce varieties of sufficient merit for planting out of doors. The habit of growth is as much worth taking into account as the form and colour of the flowers, and it is in this particular that the best of the trade growers' late productions excel. Closer, more compact growth, with smaller leaves than the earliest raised sorts possessed, are characteristics of most of the newer kinds. When the plants of the finest varieties come to hand they are usually small. There is no gain in over-potting, but pots of sufficient size should be given.

SEEDLINGS.—Where seedlings are grown, the plants that have been raised this year should now be moved to the pots in which they are to remain for the summer. Tuberous Begonias in all the stages of their growth must have an abundance of light by keeping them well up to the glass with little shading. Air should also be given them without stint. Plants that were started late make more sturdy growth when stood out of doors after the danger from frost is passed than when confined in a greenhouse, or an ordinary garden frame will answer, with the lights drawn off in the daytime, but put on when there are signs of heavy rain. As they come into bloom they can be moved to the greenhouse.

EARLY STARTED PLANTS.—It is generally best to start the largest tubers first. These will now be in full flower, and their roots will pretty well have exhausted the soil. To keep up the necessary growth that will enable them to bloom through the season give manure water once a week.

DAPHNE INDICA.—This does equally as well on its own roots as when grafted. If grown in an intermediate temperature all the year round, the shoots will now be firm enough for striking. Stout shoots with five or six leaves are the best; if weakly cuttings are used the plants will be slower in making headway. Remove the two bottom leaves, and make a clean cut at the base. Put several together in a pot or seed-pan filled with sand. Cover with a propagating glass; keep the sand moist, and do not give much heat till the base of the cuttings is callused. After this, an intermediate temperature, or a little more will induce them to strike. When well established, move singly into 3-inch pots filled with a mixture of good fibrous peat, four parts to one of rotten manure, and a liberal addition of sand. After potting, still keep them in a warm, moderately close atmosphere until they have taken well hold of the soil; more air may then be admitted, but continue to give them a genial growing temperature through the autumn and winter. Where this Daphne has only had greenhouse treatment, the wood will most likely not be firm enough to strike for several weeks yet.

STOVE.—ATACCIA CRISTATA.—The flowers of this plant are very singular and distinct. It will not succeed without more heat than many stove species need, and requires little room, an 8-inch pot being large enough for a strong specimen. This Ataccia is slow to increase, as it can only be propagated by the suckers, which are produced slowly, or by young crowns that will spring from an old stool after the head has

been removed. As the old leaves die off, the plant in time gets a bare stem 5 inches or 6 inches high. On this there will usually be found a number of short roots. If the top is cut away with several of these attached, and potted and kept a little close, the roots in question will soon take hold of the soil sufficiently to support the plant. The stool also will break into growth, pushing several crowns, that should be let go on until they have formed roots at the base of each, after which they may be removed and potted singly. Old specimens that are in the condition described will, if the top is now taken off, push crowns before the end of the summer that will be strong enough by next spring to make plants. When strong, this Ataccia produces side shoots or suckers that, after being allowed to remain until they have made a few roots at the base, may be taken off and treated as advised for the crowns. The soil which answers best is the fibrous matter from good brown peat, with much of the earthy portion removed, with four parts to one of charcoal or potsherds broken to the size of horse beans and some sand. The drainage must be liberal.

WINTER-FLOWERING PLANTS.—It is now time to pot the different kinds of plants that are propagated early for flowering in heat in winter.

ERANTHEMUM PULCHELLUM.—This Eranthemum should be grown wherever sufficient heat can be given. It is a free grower, plants that were struck in winter filling 9-inch or 10-inch pots. If they have been already stopped as advised, the points of any shoots that outgrow the others will now only need pinching back. It is somewhat erect in habit, and the side shoots may be tied out a little whilst they are soft enough to bend. Turfy loam, with a liberal addition of rotten manure and leaf-mould and enough sand to make the whole moderately light, will answer well for it.

PLUMBAGO ROSEA.—If the plants that were struck at the beginning of spring have been once or twice stopped, they will now have four or five shoots each, which are as many as necessary; 8-inch or 10-inch pots will in most cases be large enough for the plants to be grown on in and to flower in.

EUPHORBIA JACQUINLEFLORA.—To grow this fine winter bloomer well it should have a warm stove temperature all through the summer. Plants that have been struck three or four together in small pots as advised earlier should now be moved all together just as they are into 6-inch or 7-inch pots and grown on together. Under this system no stopping is advisable, but let the whole grow on with single stems. Good fresh loam with some rotten manure and sand is all that is required. The manure should in all cases for plants of this description be passed through a fine sieve, so as to admit of its being evenly mixed with the loam. Although this Euphorbia is a spare rooter, it will bear helping with manurial stimulants to a greater extent than many things. Treated in this way with the tops kept close to the glass, lowering the pots as the growth extends, the plants will attain double the strength that is usually seen, and produce flowers proportionate in quantity and of the most brilliant colour. T. B.

HARDY FRUIT GARDEN.

APRICOTS.—Pay particular attention to the pinching and shortening of the strongest shoots, not only to prevent confusion, but also to divert the sap into the weakest parts of the trees. Nail in young wood where space admits, especially if it be strong and likely to become too vigorous to the detriment of weaker growths, which must be left free and unfettered for some time to come. Also thin the fruit where set in clusters upon spurs; remove all coping boards and poles to give the foliage the full benefit of sunlight, fresh air, and rain; mulch where necessary, and keep the roots well supplied with water through the hose.

PEACHES.—If judiciously disbudded and pinched many of the spurs thus formed may now be taken off, especially if the fruit they were left to protect has been removed, not otherwise, as a tuft of leaves is of great use until after the final thinning and

the fruit is stoned. Lay in all leading shoots straight from the terminal points and heel in others to prevent them from being injured by storms of rain and wind. If any of these emanating from the centres of the trees show a tendency to grossness, pinch out the points, also shorten fruit-bearers, which will be removed when relieved of this load. As no rule can be laid down for the performance of this operation, I may generalise by saying it matters little whether the shoots are shortened back to 6 inches or 16 inches provided the advancing growths have plenty of light and room, and every part of the wall is evenly covered with foliage. The double object, I need not repeat, is increased size of fruit and plenty of room for the shoots intended to carry the crop next year. Ply the hose or garden engine freely and frequently about 5 p.m. after hot days, and see that the roots do not suffer from the want of water at any time, but most especially now the trees are in full growth.

PEARS.—Cordons and horizontal trained trees will now be sufficiently advanced to justify the pinching of all the strongest shoots, the secret of success consisting in the maintenance of an even flow of the sap. Another advantage is a riddance of grub and aphids, as the weak growths which should be left intact, the foliage and walls can be thoroughly drenched with the hose. Mulch all cordons with good manure and old-established trees with fresh horse litter, also water freely, as south and west borders in many gardens are now getting very dry. It is as yet too early to commence general thinning, but where the fruit is thickly set and the roots of the trees are in good condition, the crop may be considerably reduced by the removal of all the small and deformed fruits from each cluster, which eventually may be thinned down to one or two at most according to size when ripe and regular disposal over every part of the tree.

PLUMS with us are a complete failure, and the trees are badly affected by grub and blight. War with these pests when crops are satisfactory is irksome enough, but when we have to look forward to another season, a firm resolution must be brought to bear upon the performance of this necessary work. Crushing folded points and leaves and hand-picking is tedious labour, but the time has now arrived for the removal of all the strongest breastwood, which should be gathered up and burned, as a preliminary to copious washing out with the hose. Pure water laid on with force generally produces the desired effect, but fruit being so thin or *nil*, I would suggest one or two thorough cleansings with diluted soapsuds immediately after the trees are pruned.

CHERRIES of all kinds have set an abundance of fruit, and so far there is every promise of a good crop. Black-fly, moreover, is by no means troublesome, and it is just possible incessant hosing will keep it in check. A sharp eye notwithstanding must be kept on the trees as a few hours' neglect may jeopardise the crop. Its presence is easily detected by a curled condition of the points of the shoots, and so secure is its stronghold, that nothing short of dipping in tobacco water or some other insecticide is of any use. Having removed all superfluous growths, those retained should be immersed two nights in succession, when the better to get rid of the honeydew and filth the trees will require thorough washing with the hose. As early varieties will soon require protection, perfect freedom from insects and their excrement should be secured before the trees are enclosed with nets.

FIGS.—Where numerous shoots have been left full length and the points are barren of fruit many of them may still be shortened back to a good break nearer home. By adopting this plan a crowded condition of the trees may be prevented, and although the young shoots will not produce fruit this year if laid in full length and kept quite close to the wall, a good season will ripen the points with a fair prospect of a crop next season. More profitable shoots now swelling fruit, but which will not be wanted after the crop is gathered, may be pinched to three or four leaves, a proceeding which will increase the size, hasten maturity, and make

room for those starting from branches recently pruned. Trees growing on the let-alone system in hot, dry corners will not be nailed in, as a matter of course, but a profitable compromise may be made by a regular cutting back to a good growth of branches which have no fruit on their points.

BUSH FRUITS.—Gooseberries and Red and White Currants now making a profusion of young wood will derive great benefit from a partial thinning of the shoots, especially where the bushes are large and light and air cannot penetrate to the fruit. Ripening, moreover, will be facilitated, and the fruit will be sweet in proportion to the ingress of warmth from the sun. Trees on walls may be moderately pruned forthwith, for if left too long sudden exposure will result in the loss of the base leaves, when the quality of the fruit will not be good. Raspberries just now are suffering from drought, and the crop will be light and poor unless copiously hosed and watered until we have a change to rain. Thin the suckers where they are too plentiful, mulch well to keep in moisture and prevent the growth of weeds, and net before the birds get a taste of the fruit. Strawberries have flowered profusely, and the foliage being fresh and short in the stalk there is every prospect of a very heavy crop of fruit. Where heavily mulched or littered down prior to the last rain the roots so far are fairly satisfactory, but showery weather just now would be a godsend, as crops of all kinds on the heaviest land are on the dry side. Thin well for extra fine fruit, tie up the trusses to keep it free from grit and secure from mice and slugs. Give the stools a thorough soaking and put on the nets.

FRUITS UNDER GLASS.

FIGS.

TREES from which the first crop of fruit has been gathered must be thoroughly and repeatedly syringed to free them from insects, often very troublesome when this opportunity is neglected. Red spider and brown scale most commonly met with should be vigorously dealt with, the first with pure water in a stream strong enough to break the web; the second with a hard stumpy paint-brush, dipped from time to time in a strong solution of Gishurst compound, or equally efficacious methylated spirits, which will kill all it touches without hurting the tender foliage. If bug, also at home in the Fig house, is present, the same wood spirit may be used, but instead of plying it once or twice the trees must be looked over two or three times a week until the second crop is ripe, when the trees and every part of the house may be well syringed with a reduced emulsion of soft soap and paraffin. Having cleansed the trees, remove all loose top-dressing and replace it with fresh, but avoid disturbing the pots, as roots now working in the decaying plunging material will prevent dropping should watering at any time be neglected. If heavy, thin the crop, otherwise the fruit will be small, and remove all useless spray, but discontinue pinching unless a shoot be very strong, as the stubby points now formed will give the first crop next season.

Trained trees upon which the fruit is ripe must be regularly supplied with tepid water, and the syringe may be laid on where the Figs have not commenced changing colour, also upon the main stems, walls, and floors, especially after hot days, when night air can be admitted pretty freely. Then, by way of counteracting the effect of damp, maintain a steady warmth on the pipes, and open the top and bottom ventilators. If trained on the extension principle, lay in the shoots full length, and allow all the Figs which show in June to swell to maturity. Later shows may be rubbed off as they appear, as they will get too forward to stand through the winter, whilst others, sometimes two, will form where these have been taken off, and being much later they should not be larger than Peas when the leaves fall. Trees in cases and cold houses never give more than one crop, but if well managed this should be a good one. Extension training answers best, but the shoots must be kept

thin, as the secret of success lies in getting them well ripened.

MELONS

now ripening must have more dry, warm air, less water both in the soil and atmosphere, and plenty of heat, especially about the roots, as it is to sudden depressions through the last stages that indifferant flavour may be attributed. Dry fire-heat, of course, is a great factor in setting and ripening the fruit, as superfluous moisture can be driven off at any time in a few hours, and yet with this modern aid the quality is not better now than it was fifty years ago. Express growers of the present day no doubt are handicapped by numerous hybrids, the result of crossing and recrossing until they have neither constitution nor colour; whereas our forefathers having less choice stuck to their Beechwood or Victory of Bath, and thoroughly up in the management of manure beds, never allowed the bottom heat to wane. If early ripening is of great importance, the plants may be kept on the verge of flagging, but otherwise they should have just sufficient water and atmospheric moisture to keep the foliage fresh and healthy until after the fruit is cut from them.

Successional plants in various stages must be kept progressing under a steady bottom heat of 80°, a top heat of 80° to 85°, and 90° after closing, with plenty of moisture and water also at 80° at all times save the setting period when the roots in hills or ridges may be kept slightly on the dry side until the crop is secured.

Plants in pots or boxes surrounded by fermenting material do not require this check, as they always set well in summer, and being more subject to spider they should be copiously syringed when the house is closed on fine afternoons. Pot Melons should always be grown as single cordons, three fruits to a pot, and not a lateral should be allowed to grow after the Melons attain the size of pigeons' eggs. This stage reached, each pot should be top-dressed with good loam and bone dust, a food to which the roots are partial, especially when it is firmly rammed. Weak stimulating liquid guano or soot water must be regularly used for feeding the roots, also for filling the pans and damping down the floors. Keep the house scrupulously clean and free from all other plants, particularly those subject to aphids, the most troublesome insect we have had to contend with this year. Melons are by no means the best of subjects for fumigating.

CUCUMBERS.

Where pits and frames are giving the summer supply and all the hot-water houses are occupied by Melons, daily attention to the several details of management should be confided to one person, and then there will be no difficulty in obtaining a decent fruit when it is wanted. The Cucumber, like all other fast-growing tropical plants, requires constant attention to keep it in order and fruitful condition, but once allow it to become crowded in its limited box, or infested with insects, and it will prove a source of annoyance throughout the summer. The mainspring of success is embodied in bottom heat from the bed and linings, and this must be kept right by regular renovation before the temperature shows signs of declining. Then comes covering from sunset to sunrise, for it must be borne in mind that there is no hot-water border to fall back upon, and all gardeners know how frequently the mercury descends to a very low point, even in our hottest summers. These operations are entirely mechanical, and may be managed by any handy man who will renew the back lining this week, the front lining the week following, and put on the mats before sun heat escapes from the frames. A little night air is the safety-valve against dangerous steam, but it should be shut off when the frames are uncovered and resumed when the temperature begins to rise; 70° is the minimum, 80° to 85° the maximum with air, and 90° to 95° after closing, with sun heat and the afternoon bath, care being taken that the water is thoroughly warm. Manipulation, a daily operation, including pinching at the first joint in advance of the fruit, thinning out useless spray, training to the trellis, and cutting the fruit, should always precede closing, whilst fertilisation, when it is considered

necessary, is best performed when the frame has reached the maximum and the flowers are dry. Frame Cucumbers should never require morning syringing, but in very hot dry weather it may be well to damp round the insides of the frames, not only as a preventive of exhaustion, but frequently to carry them through the day without shade. If the latter is absolutely necessary it must be very light, say from 10 o'clock until 2 p.m., when it will be time to reduce the air as manipulation proceeds. Bearing plants will take a thorough overhead watering twice in the course of the week; on alternate days the syringe will suffice.

W. C.

THE KITCHEN GARDEN.

CELERY.—When the plants are well prepared by being pricked out on shallow beds of soil and manure, plenty of air being given as soon as they are well established, they can be transplanted at all times, but the work can best be done in dull, showery weather. A good watering should be given before the plants are interfered with, rainfall rarely being heavy enough to well moisten the beds at this time of year. Each plant can then be cut out with a good square of soil and roots, and should be duly cleared of weeds, lower small leaves, and all suckers. If there has not been sufficient rainfall to moisten lumpy soil in the trench, well water this a few hours previous to planting; it will then crumble down finely and the work can be done expeditiously and well. A good watering given after planting will fix the soil about the roots, and in dry, hot weather nightly overhead waterings varied by an occasional soaking promotes a quick, strong growth.

CELERY TRENCHES *versus* BEDS.—If extra fine Celery is needed more than ordinary room must be given the plants. When grown in trenches a single row only ought to be planted in each, the plants being disposed 15 inches to 18 inches apart. The trenches for these may be 18 inches wide and not less than 4-feet spaces between the trenches be allowed. For all ordinary purposes smaller Celery answers as well or even better than very large, wasteful stalks, and it may therefore be grown much more thickly on the ground. Very little is gained by planting two rows in a trench, as it will be found that nearly as many plants can be grown in a single row and with less trouble in moulding up. For a single row we also make the trenches about 18 inches wide, and, finding it necessary to bank up heavily in order to be certain of keeping the Celery, 4-feet spaces are allowed between the trenches, these, however, being closely cropped during the summer with Lettuces, kidney Beans, and dwarf Peas. Where garden ground is limited, the plan of growing Celery in wide trenches or beds is to be commended. These beds may be 6 feet wide with 6-feet spaces between, and in other respects prepared similarly to the narrow trenches. They would hold four or five rows of plants, or, better still, they may be planted a foot apart each way, always, however, in straight lines across the bed, or it will be a very difficult matter to mould them up properly. In each and every case a good spit of manure should be forked into the bottom of the trench and the plants put out before they become much drawn.

ANOTHER METHOD OF GROWING CELERY.—Much of the extra fine Celery seen at the late summer and autumn shows is grown in a very different manner to the ordinary produce. Not only are extra pains taken in the rearing of the plants, but the beds for them are particularly well prepared, and when finished are well above the level of the surrounding garden soil. A space about 8 feet square is marked out in a convenient sunny spot, stout stakes being placed at each corner and one midway between, to these being nailed a wide stout board. All the best of the surface soil is then thrown out, and the sub-soil if clayey removed, there being when finished a depth of about 18 inches, and which is again filled with a rich loamy compost, to which charred garden rubbish has been freely added. Failing fresh loam in quantity, mix the best of the surface soil with

good solid manure, some loam, and the burnt rubbish. Put out the plants not less than 15 inches apart each way, keep them well supplied with water, varied later on with soot water or liquid manure. The blanching is very effectively and most cleanly accomplished by means of brown paper bandages, and in frosty weather Bracken or dry litter can be packed among the paper-bound plants.

BEE.—Birds and slugs are very partial to young Beet, and we always experience a difficulty in securing a good, even plant. Fortunately, the thinnings, when about 4 inches high, transplant readily, this being especially the case with the Turnip-rooted forms. In all instances advantage ought to be taken of a showery time to complete both the thinning out and the transplanting where necessary. Very large roots not being the most appreciated, it is advisable to leave the plants somewhat thickly, a distance of about 6 inches apart in the rows usually being ample. Those transplanted ought to be kept well supplied with water till growing afresh, and soot and lime be freely dusted over them in order to keep off slugs.

WATERING PEAS.—From this date rainfall rarely reaches the roots of Peas, and watering to be effective must be commenced before the plants give signs of standing in need of it. It is a simple matter to test the ground about the roots, and if it crumbles freely in the hand the time has arrived for watering. Use pond or softened water if possible, and enough of it to well moisten the soil. Showery weather is the best time for applying liquid manure, and in any case it is worse than useless to give this unless the ground has been previously moistened either by rain or with the aid of the watering-pot. Blood manure has a most stimulating effect on Peas. It should either be spread along the rows and washed in, or freely diluted with water and applied. A heavy mulching of manure is of good service after a soaking of water or liquid manure has been given.

POTATOES.—These are doing well, soaking rains having come just at the right time. Weeds also are thriving, and these must be kept down either by hoeing or pulling up by the hand. Lumpy ground crumbles down readily after rain, and every opportunity should be taken of well breaking up these lumps. Heavy moulding up of the rows is an undoubted preventive of disease, but the soil should be drawn from near the centre of the spaces between the rows, so as not to interfere with the surface roots, tuber-bearing or otherwise.

W. I.

KITCHEN GARDEN.

POPULARITY OF SALADS.

As a nation we certainly are not such great salad-eaters as our neighbours the French, but as far as my observation goes I should say English people, as a rule, rarely fail to do justice to a good salad whenever the opportunity occurs. It is the wretched makeshifts too often met with that do so much towards hindering the spread of the desire for good salad. Lettuce must be the principal ingredient in a salad made throughout the summer and early autumn months, but if the bulk of this is hard, green, and poorly flavoured, it is not to be wondered at if few speak in its praise. It is a great pity the markets generally are not better served with suitable ingredients for making a good salad. I am assured on good authority that French gardeners excel the English in one particular only, and that is in the cultivation of salad vegetables. The former spare no pains and devote much glass as well as good garden ground to the production of Lettuce and Endive in particular all the year round, the latter caring very little more about their salading than they do for various other less important crops. The mistake so many of us have at one time made, or are still doing, is to place the Cos Lettuce before the Cabbage varieties, the latter being exten-

sively grown only when the former cannot be had in a fairly presentable state. In reality the Cabbage varieties are much to be preferred all the year round, and seeing that they can be had in a perfect condition with far less trouble than must often be expended on the Cos forms, it ought to be an easier matter than it often is to wean gardeners from their prejudice in favour of the latter. It is sometimes urged that the Cabbage Lettuces are the first to become flabby and hard in a salad, and there may be



Neapolitan Cabbage Lettuce.

some truth in this, though only when they are cut in a half-grown state. If grown properly, firm, beautifully blanched, sweet, and crisp hearts are the result, and with the aid of these a perfect salad can be formed. Cabbage Lettuces, in addition to hearting in more quickly in the spring and far more surely in the autumn than Cos varieties, are also equally reliable during the hottest summer weather, not unfrequently keeping better or refraining from running to seed so soon as any of the strains of Paris White, Green or Brown Cos. The Neapolitan section of the former stands dry hot weather remarkably well. Other good Cabbage Lettuces will be found in New York and Grand Admiral, one of the best for summer use. In my estimation, the Early Paris Market is the most valuable Lettuce in cultivation, this excellent Cabbage variety being much the best for frame culture, as it forces well either in the autumn, during the winter, or in the spring, and we are growing it extensively as a summer crop. The Dwarf Brown Forcing is also good for frame or hand-light culture, but does not equal my favourite. Veitch's Perfect Gem is quite distinct from any other Cabbage Lettuce I have



Tom Thumb or Stone Tennis-ball Lettuce.

yet grown, and at the present time (June 11) it is exceptionally good. It forms grand solid hearts, no Cos variety approaching it either in point of appearance or quality. This, again, is suitable for summer and autumn culture. Tom Thumb and All the Year Round are hardy, close-growing varieties, these being very serviceable in the autumn and for storing in frames. With regard to Cos varieties, I will merely remark that the black-seeded Brown Cos is one of the best for both summer and autumn crops, this, if grown to a good size and tied up in due course, blanching perfectly, the quality also being good.

Endive badly grown and poorly blanched is poor, indigestible stuff, but grown to its full

size and the hearts blanched perfectly, as they very easily may be, it is only slightly inferior to Lettuce. Especially is this the case with the Broad-leaved Batavian, not half enough of this being grown in the majority of gardens. The green curled forms, however, are not to be despised, and a good word ought to be spoken in favour of the newer Louviers Laciniated.

There is, in addition to the foregoing, quite a long list of salad vegetables, though tastes differ considerably as to the value of the greater portion of these. The most popular for mixing with Lettuce and Endive are Mustard and Cress, Chicory, young Onions, Chives, Shallots, Garlic, Tarragon, and Chervil, a very little of the last six named going a long way towards flavouring a salad. Beet, Celery, Tomatoes, Radishes, Cucumber and Watercress are frequently used in mixed salads, and in some few instances there is also a demand for Sorrel, Artichokes, Corn Salad and the roots of Rampion.

Where so many err is in forming salads long before they are needed, the ingredients being either kept in water much longer than is good for them, this making them hard and tough, or else they are saturated by the dressing, which certainly does not improve the salad. In not a few instances that have come under my notice the salading has been cut up far too finely, minced, in fact, though, as it happens, no greater mistake could be made. The materials used, the Lettuce and Endive in particular, after being carefully washed ought to be well dried in a clean cloth and the leaves then just snapped in two with the hand. If the dressing is poured into the bowl when first made, it should remain at the bottom till just before it is required for use, this being the time to stir the salad. The refrigerator is the best place to keep either fresh materials or a prepared salad till it is wanted, exposure to warmth, light, and air soon militating against the crispness of the salading and the bright flavour of the dressing.

What I have attempted to prove is that many growers of salading as well as those who mix the ingredients are equally responsible for the unpopularity of the salad in this country as compared with France, but if a general improvement were effected by both classes we should soon hear a very different statement.

I. M. H.

Early market Peas.—Harrison's Eclipse has done so well with the market growers in this district this season as a first early Pea, that many of them not only now prefer it to Sangster's No. 1, but will sow it solely for earliest pickings in the future until a kind superior to it is raised. Not only is the vine more robust, but the pods are larger and more abundant. Sown later than Sangster's No. 1, it has come in fully as early, with all the advantages of a finer crop. Eclipse is classed as a blue round; not that colour shows in the green Peas particularly, but the seed is bluish in colour. The fact that it is classed among the blues secures for a good sample from 3d. to 6d. more per bushel than whites obtain. So much or so little is a consideration when 6d. per bushel is paid for gathering, whilst the ruling price when the first of the main breadths were sent into the market was from 3s. 6d. to 4s. per bushel. That is a low start, but owing to the moist weather it may be recouped in the quantity sold, although the exceeding thinness of plants in many breadths this season has to be taken into account. Whilst Eclipse bids fair to be so excellent a first field early, there is still room for a much better successor than is Harrison's Glory, a dwarf prolific blue round, but hard and flavourless. A good-flavoured hardy wrinkled marrow, as early as Glory and as cheap, is sadly wanted. By the time this latter is over there can be plenty of good marrows in gathering, but these are handicapped by the seed cost. For that reason many hardy rounds are still grown for

market, because the risk with large breadths is so much less, and they better withstand cold weather. —A. D.

ORCHIDS.

CATTLEYA MOSSIÆ.

This is a species or variety, whichever it may please my readers to call it, and years ago it was thought much more of by Orchid growers than at the present time. Mr. Smee, of The Grange, Carshalton, has made a speciality of this kind, and is always open to receive a fresh form. His standard of excellence is so high, however, that it is with difficulty a variety can be produced which does not find a counterpart in his collection. The very best and richest coloured variety bears the name of Mrs. Smee. The flowers are large, each measuring 9 inches across, three being always borne on a peduncle together. The sepals and petals are large and broad, soft rose throughout; lip very large and long, the edges much frilled, the sides stained with rich orange; the centre deep magenta, from which spread many streaks and rays of deep purple-magenta.

C. Mossiæ is a native of Venezuela, and has been known since the year 1836, having been named by Sir Wm. Hooker after Mr. Moss, of Liverpool, in whose collection it first flowered. The plant became somewhat plentiful, and about 1855-6 one Birschall went to Caraccas, and in its neighbourhood collected many Orchids, and amongst them C. Mossiæ. From amongst these, I believe, came the first plants of C. Wagereri. Mr. Robert Warner, of Broomfield, Chelmsford, made C. Mossiæ a special favourite, and I must say the finest show I have ever seen of this plant and the finest varieties were in this collection. Here in 1864 Mr. Moore, of the Botanic Gardens at Chelsea, named some three dozen kinds. Soon after this the great love for Cattleyas decreased, and C. Mossiæ was neglected with many others, and I believe the Broomfield collection became dispersed. Now again, I am glad to say, C. Mossiæ has come into favour. There is little wonder that this kind is such a favourite, for it has just the very essence which endears a plant to Orchid growers, viz., its uncertainty of colour. This will do more to effect good sales of imported stock than anything else, and everyone is hoping as the buds develop to see a grand flower appear, whilst in the old days its habit of blooming through the months of May and June made it a valuable plant for exhibition. I have shown this species with three and four dozen flowers upon a single plant at the London shows. In Mr. Smee's garden there are at the present time several notable examples. Amongst them may be noted:—

C. MOSSIÆ ARNOLDIANA.—This has a very large flower, with white sepals and petals and a beautiful frilled lip, which is stained in front pale yellow, on which are a few lines of purple; this becomes of a rich orange in the centre of the lip, and the colour and markings become bright rich purple. It is a very excellent variety.

C. MOSSIÆ WAGERERI.—In this the whole flower is pure white, saving the sides of the beautifully frilled lip, which are stained with yellow.

C. MOSSIÆ REINECKIANA.—The sepals and petals of this are pure white, lip lilac or mauve, the throat and front lobe rich bright yellow veined with crimson and bright purple.

C. MOSSIÆ ROTHSCHILDIANA.—This is a large and bright flower, approaching to the form named Mrs. Smee. It is very striking with its orange-stained lip, rich purple centre, and white marginal fringe.

The above and many other fine forms exist in

the collection, some named and some unnamed. All of them are deserving of attention from some point of view, and the owner, moreover, knows them, and can at once interest one with a description of their peculiar points of beauty. The Cattleya house here has been built specially for these plants. It has glass down to the ground, so that an abundance of light can be admitted to them, and it is admirably ventilated and shaded, so that I think in the course of a year or two we may see some remarkable specimens.

W. H. GOWER.

Odontoglossum elegans.—This beautiful plant was shown at the Temple by Mr. Pollett, of Fernside, Bickley. It is a supposed natural hybrid; one of its parents is said to be the lovely *O. cirrhosum*. The flower looks something like an enlarged example of that species, the sepals having a pale yellow ground, transversely barred and blotched with deep reddish brown, the petals broader, blotched with brownish crimson on a yellow ground, lip narrow, of the same colour as the sepals and petals, the crest rich yellow, and the column white. It is a charming kind, and well deserves the attention of growers.

Sobralia macrantha (Woolley's variety).—I am in receipt of a magnificent flower of this plant from Mr. J. Taylor, and I am very pleased to see that the genus appears to be gaining favour. The flower sent is very large—nearly 6 inches long, the spreading lobe of the lip $2\frac{1}{2}$ inches long and 3 inches broad, the colour being a rich purplish crimson, the mouth of the tube white, passing into orange. Mr. Taylor says its growths are between 2 feet and 3 feet high, and that he now has fourteen flowers open. I should like to know the total number of blooms this plant produces during the season. The flower of *Odontoglossum vexillarium* accompanying it is that of an ordinary form, but it has nothing notable about it.—W.

Uropedium Lindenii.—This singular plant is now flowering in the establishment of Messrs. Seeger and Tropp, Dulwich. I cannot entertain the opinion of this being an abnormal state of *Cypripedium caudatum*. It is too widely spread, and, moreover, I do not think a plant of this species has ever been found growing with *C. caudatum*, which the plant generally represents, saving that instead of a pouch it has a long additional petal-like segment, so that the plant has apparently three petals instead of two petals and a pouch-like lip. It thrives under similar conditions to the long-tailed Lady's Slipper.—W.

Odontoglossum Smeeanum.—This is a beautiful kind, bearing a long, many-flowered raceme of large, well formed, and beautifully spotted blooms. The plant has been variously named by experts *O. Andersonianum*, to which it certainly does not bear the slightest resemblance; again, *O. Marriottianum*, to which it is equally unlike, and it has also been called *O. Wilckeanum*. The sepals and petals are about equal, the ground colour white, freely spotted and blotched with bright brown; lip broad and exactly like that of *O. crispum*, with high shoulders at the base, the crest being barred with yellow; the ground colour is white, spotted about the crest with bright brown, and bearing a large spot of the same colour in front. In both the forms *Andersonianum* and *Ruckerianum* the side shoulders of the lip fall away, and the apex of the lip is longer and more pointed. It is a beautiful variety and quite constant, as a drawing of the plant made last year quite corresponds with the flowers now open.—W. H. G.

Cymbidium pendulum atro-purpureum.—This form, now flowering with the Messrs. Veitch & Sons in their nurseries at Chelsea, has stout, leathery leaves and long pendulous racemes of flowers, which are very attractive. The sepals and petals are yellowish-brown, streaked in the centre with crimson; side lobes erect, deep rosy-purple, front lobe white, recurved, tipped with purplish-crimson; disc yellow, with a couple of raised crimson lines traversing it. It is very handsome, lasts long in full

beauty, and requires warmth. It is said to come from the Indian Islands.—H.

THUNIAS.

No other group of Orchids of similar size exceeds in general usefulness the few species and varieties included under this genus. If given proper treatment they flower abundantly and remain in beauty for a long time, whilst their foliage is as handsome as it is distinct amongst Orchids. Owing to the structural similarity of the flowers with those of *Phaius*, this group has by Bentham been merged into that genus. So very distinct are they, however, from *Phaius* proper, that for practical purposes at least it is much preferable to keep them separate. Their deciduous habit, terminal racemes, and leafy stems, as well as their cultural requirements, render them quite distinct from those *Phaiuses* of which *P. grandifolius* is the best known representative. Although some five or six forms are known under specific names, they are probably no more than varieties of or hybrids between two reliable species, viz., *T. alba* and *T. Bensoniæ*. They are all similar in habit and foliage, the stems being from 1 foot to 3 feet in height, tapering from the base upwards, and clothed with two opposite rows of pale green leaves more or less glaucous beneath, and which fall away in autumn. The short, drooping, sub-corymbose racemes are produced from the tops of the stems about the time growth is completed. The sepals and petals are spreading and arranged in a somewhat fan-shaped method above the lip, the latter having the side lobes rolled over the column and the middle one expanded.

The easy cultivation of these plants and their capability of quickly recovering from the effects of wrong treatment add greatly to their value. About March young growths will usually be seen pushing from the base of the previous season's stem, and as soon as these are an inch or so high repotting should be done. All the old soil should be shaken off and only sufficient roots left to allow them to be fixed firmly in the new compost. The stems may be sorted according to size, and the largest planted three or four together in an 8-inch pot, or if preferred singly in a 6-inch one. When more than one are potted together they ought to be arranged so that the young shoots face outwards, and, to keep the stems firmer, a stake should be pushed into the centre to which the tops of all may be tied. The compost I have found most suitable for robust plants of *T. alba* and *T. Marshalliæ* is a mixture of equal parts of loam and peat fibre to which is added a little chopped Sphagnum and silver sand. For *T. Bensoniæ* and weaker samples of the other kinds a greater proportion of peat may be used. It is the practice of some cultivators to entirely dispense with loam, but after using it for several years I am able to attest its value for these plants. Care should be taken, however, by shaking and sifting to remove the greater part of the earthy particles, for although gross-feeding plants, they resent a close or heavy compost. After potting, the plants should have a moist position in the intermediate house, and no water must be given until the roots have penetrated into the new soil. It is the same with these plants as with *Calanthes* and *Pleiones*: an overdose of water in the early stages of growth is fatal to success. Afterwards the supply may be generally increased until in full growth it should be given without stint; mature water may also be given once a week. In autumn, when the leaves begin to decay, the amount of moisture must be gradually reduced until the foliage has all fallen, and for a few months none at all is required. It is at this

time, however, that *Thunias* are often most neglected. This is a great mistake, for, next to the strength and health of the plants, the main factors in the production of abundance of bloom are the thorough ripening and resting of the old stems. They require a light dry position in a cool house, such as a shelf in a vinery at rest. Every year a considerable proportion of the stems will produce two young ones, this method of increase being sufficient to keep up the stock in most gardens. *Thunias* are also readily propagated by cutting the old stems into lengths and inserting them in sand. By keeping them close for a few weeks offshoots push forth, and these when sufficiently strong may be potted up and treated in the ordinary way.

T. ALBA.—Judging from my experience, this species in its typical form cannot be so strongly recommended as the others. Although decidedly handsome, it frequently fails to open its flowers to their full extent, owing to the stout, boat-shaped bract which encloses the base. The sepals and petals are white, the lip also being white, but prettily veined on the front lobe and on the disc with pale purple. Its flowering season is during May and June. It is a native of Nepal, where it is found in considerable quantities growing upon trees.

T. MARSHALLIÆ.—This, which is properly a variety of the preceding, is the best of all *Thunias* available for general cultivation, other forms of equal merit not being sufficiently common. Its pseudobulbs and leaves are similar to those of *T. alba*, but the flowers are much larger, their diameter sometimes exceeding 5 inches. All the parts are of the purest white, excepting the beautifully frilled front lobe of the lip, which is of a rich golden yellow, profusely veined with deep orange-red. I have had as many as fifteen flowers on a raceme. It was introduced from Moulmein, and plants are now in flower at Kew.

T. BENSONIÆ.—This is a very beautiful species, with the habit and foliage of the preceding. The flowers are quite distinct. The pointed narrowly oblong sepals and petals are of a bright red-purple, paler towards the base. The major portion of the prettily frilled labellum is also of the same colour, but it is white at the base and the crest is yellow. The flowers are each some 4 inches across, and over a dozen of them are occasionally produced on a raceme. It is a native of Rangoon, and flowered first with Messrs. Veitch in 1867.

Of the remaining kinds, *T. Veitchiana* may be mentioned as a beautiful hybrid between *T. Marshalliæ* and *T. Bensoniæ*, at present, however, very rare. It is fairly intermediate between the parents, the sepals and petals being of a pale mauve. *T. Dodgsoni* is a very fine variety of *T. alba*, also rare. *T. pulchra* is a Reichenbachian species, not so meritorious, according to my experience, as the original description would lead one to believe. It is not unlike *T. alba*, but the flowers are of a more creamy white; it has also the habit of only half-expanding its flowers. W. T. B.

Masdevallia Harryana Seegari.—It is quite time *Masdevallias* were taken in hand, or all these good and brilliant flowers will have passed away out of recognition. The above variety is a most brilliant and substantial flower, being thick and fleshy in texture and of good size, the colour being rich deep crimson-magenta with a yellow throat. M. H. brilliantissima is another very fine variety, rich bright magenta with a purplish tinge.

Cypripedium præstans.—This plant has much the appearance of *C. Elliottianum* in its habit of growth, but its flowers render it very distinct, the petals being depressed, and not standing at right angles, as in *Elliottianum*, and in their being spirally twisted, and bearing on both edges numerous wart-like spots; the pouch is also lighter, and to me it is a more pleasing flower. A plant of this beautiful species was recently exhibited at the Temple show.

Aerides Savageanum.—I was pleased to re-

ceive a flower of this plant from Mr. Sander. I was told a long time ago that it was thoroughly distinct and new, and its flowers prove such to be the case. It is a somewhat small species, and belongs to the odoratum section; the dorsal sepal and the petals about equal, creamy-white at the base, flushed with deep crimson, and streaked down the centre with the same colour; lip deep crimson; spur green, straight, and projecting forward.—W.

AN ORCHID MEADOW.

I READ with pleasure Mr. A. D. Webster's interesting notes (*GARDEN*, May 31, p. 517) upon the wild flowers in Kent, and especially those concerning the Orchids. But, fortunately, Kent has not the monopoly of good things, even among Orchids, and a meadow here in Suffolk of only a few acres can show a rich variety of Orchids as well as other wild flowers. The soil is rich, deep, and fairly moist, and there are some shallow ponds filled with Rushes, &c., along the side nearest the wood. From March until the hay season a succession of beautiful flowers is maintained. First to appear is the early Orchis (*O. mascula*). It is very abundant and most profusely flowered, and where the meadow slopes down to the water the spikes are very fine, and are seen to great advantage. Before the early Orchis has faded the green-winged species (*O. Morio*) is in flower. It does not grow so tall, nor produce so telling an effect, but it has many charms. In a small, but selected gathering, innumerable shades of pink, and rose, and deepest crimson are represented, and white-flowered forms are not uncommon. Lastly, this Orchid has a most delightful scent, loading the air with a delicate and pleasant fragrance. Owing to the presence of water we can enjoy the spotted Hand Orchis (*O. maculata*) in its full development. Along the pond margins its roots find copious moisture. That moisture is necessary for this Orchid is abundantly proved by comparing the plants situated near it with those in more open and drier situations. Those in the latter place are pretty, but by the waterside the spikes reach a yard in height; the flowering portion is proportionately long, and often bears between 200 and 300 flowers. This fine Orchid can be cultivated in the garden border, whilst those who have a stream or pond at command should plant it on the margin, for it will assuredly spring up year after year, and gladden with its lovely flowers. But whilst this Orchis is so attractive by the waterside, at the same time in the more open parts of the meadows another fine Orchis (*O. conopsea*) rises high above long Grass. This species, too, has a sweet and powerful fragrance which pervades the air. The flower-spikes are very long and of a pretty pyramidal shape. The flowers, thinly placed upon the spike, are smaller than those of most species, and have a characteristic short or blunted spur. In colour they are extremely variable, embracing shades of crimson-rose and palest pink. Some of the lighter flesh-coloured forms are very chaste and beautiful. In walking about the meadow gathering this Orchis a musk-like odour is occasionally detected, and this proceeds from the Frog Orchis (*Habenaria viridis*). It is very abundant, but the reverse of showy, as it is dwarf, and consequently does not rise above the long Grass, and the flowers have a greenish hue. Its scent, however, betrays it, and that is the only charm it has. Associated with it, but still less interesting, merely a curiosity, is the Twayblade (*Listera ovata*). It is the last and least member of the Orchid family which finds a home in this meadow. In addition to Orchids in April, a waving mass of Cowslips quite colours the meadow, and later on the Meadow Saxifrage (*S. granulata*) spreads out in broad white masses. The Stitchwort (*Stellaria holostea*) is also abundant, and helps to swell the long list of pretty things, whilst the last feature we are permitted to enjoy before all is cut down for hay is broad masses of the Ox-eye Daisy. Above all, the tall blue Scabious nods gracefully in the summer's breeze. A. H.

Phalænopsis speciosa maculata.—This is a charming plant now flowering in Mr. Smee's garden. The sepals and petals are pure white, beautifully

spotted with lilac-mauve. It is one of the brush-tipped species. Many of these plants, and this one in particular, are placed upon pieces of old stone, and they are thriving well on this material and rooting admirably; indeed, I think that Phalenopsids will prefer this to having their roots bedded in wet and stagnant mould.—G.

PASSION FLOWERS FOR CUTTING.

MANY of the Passion Flowers are very useful for cutting. Flowers of *P. quadrangularis* arranged with their own leaves in flat dishes, glasses, &c., are very beautiful. The flowers keep best if gathered two or three hours before noon, placing them in water or on damp Moss, and slightly sprinkling or rather dewing them over with water. Those of *P. alata* do equally well under the same treatment. Many other varieties will keep open for a shorter period, and with less certainty, under similar treatment. Such varieties as *P. kermesina*, *racemosa*, and *princeps* are more effective cut in branches of any desired length, the leaves and flowers depending from baskets,

bundles, but in the early spring the sap floods the channels with new life, and a fresh raceme is thrown out from the extreme point of last year's flower-stems. This goes on year after year, while other pendants of dazzling brightness spring forth near the base of the flower-stems. Those also that have been shortened back sometimes break into fresh clusters of blossoms. Many of these, however, die back, and, unless obliged to be cut for the flowers, none of the old flowering branches should be cut. When the new flower-stems shoot forth, any dead points beyond may be removed. Another great advantage from this successional elongation of the flower-bearing branchlets is that almost any length of raceme may be secured for twisting round the stems of stands or vases. This enables the decorator to place the flowering blossoms of this brilliant plant in telling positions to which shorter flower-stems, that must from necessity have one end in the water, could never have reached. Many of

had all gorged themselves and burst, but I know that it took several weeks before the last one died. During those weeks I turned out the contents of the box and examined them several times, and each time the number of wireworms had diminished. Even, however, if it had not this effect upon them the fact that they like it is sufficient, because it is easy to place pieces of oilcake as a trap for them in the way Mr. Wilson described.—A. H.

FERNS.

HYPODERRIS BROWNI.

I WAS very pleased to see this Fern in Messrs. Birkenhead's collection at the Temple show recently, as I had not seen the plant growing for a long time. It is said to be a native of the Isle of Trinidad and British Guiana. From the latter country, however, I have never seen it, but I have frequently obtained it from Trinidad, where I do not think the species can be very uncommon. It has long remained the only species in the genus, and is so still, I suppose. Another plant gathered by Dr. Seemann in Nicaragua, and named after him is recorded. This, however, I have never seen. The plant in question (*H. Brownei*) would appear to have been first introduced to our gardens about forty years ago, so that it became a popular plant between that time and 1860, at which time Ferns were decidedly popular, but it would seem that the genus was established by Robert Brown some 20 years earlier. The plant would appear to have some affinity with the genus *Woodsia*, although in general appearance there is no affinity, the fronds having somewhat the appearance of a simple state, or a small tri-lobed form of *Aspidium trifoliatum*. The fronds are produced from a scaly and creeping rhizome, and attain a height of 12 inches or 18 inches. I have occasionally seen them 2 feet high, but this is exceptional. I think they are sometimes simple, but more frequently hastately three-lobed, the central lobe being some 3 inches across, whilst the side lobes at the base are usually about half this width, and only about half the length. The veins are peculiarly netted, and the sori scattered somewhat promiscuously over the entire under surface. The cultivation of this species is not attended with any difficulty. It may be grown as a pot plant or in the open fernery, but wherever it is grown the drainage must be exceptionally good, for the plant requires strong heat, and I have noticed that when badly drained the soft pale green of the fronds was apt to become discoloured and black, which is a great disfigurement. The soil should be a mixture of light, turfy loam and fibrous peat, made fairly sandy.

W. H. GOWER.



Cut flowering sprays of *Passiflora princeps* and *P. quadrangularis*.

vases, &c., or twisted around them, as in the illustration. With one end in water, the flowers will frequently keep open, as in the case of single flowers treated as advised, and should they close, the closed blossoms with the advancing buds and leaves are very beautiful. My favourite Passion Flower for foliage is *P. kermesina*. It is all that a leaf and branch need be for effective decoration. Fine, pliable, with small exquisitely cut and coloured leaves, its elegance and beauty are beyond praise. It matters little whether the flowers of *P. princeps* are open or not. They have a most unique effect, depending over the sides of high stands, or wreathing their stems.

P. PRINCEPS flowers freely when properly treated. It should not be pruned much, and none of the old flower-stems must ever be removed. It flowers again and again on the same flower-stalk; hence, unless for use as cut flowers, none of these should ever be removed. In the winter season they hang in withered

the common Passion Flowers have beautiful foliage, and sometimes the blooms of *P. cœrulea* and other common varieties will keep open for a lengthened period. Though these lack the brilliance and size of those I have just indicated, the whole of the Passion Flowers are beautiful and interesting. While I advise that the massive cup-like sorts, such as *P. alata* and *P. quadrangularis*, should be placed simply on their backs on damp Moss or in water, occasionally profusely flowered branches of either have a grand effect depending over the side of silver or other stands, or vases wreathed with *Stephanotis* or other light-coloured flowers. T.

Oilcake for wireworms.—It may interest Mr. G. F. Wilson to know that wireworms will eat oilcake until they burst, as I have verified the fact by actual experience. I obtained a dozen wireworms and placed them in a box with some pieces of oilcake, covering over with a little soil to keep it moist. I cannot now remember how long it was before they

Gymnogramma Mayi.—In "W. H. G.'s" note on *Gymnogrammas* (GARDEN June 7, p. 525) he expresses surprise at seeing the above name to what he considers *G. peruviana argyrophylla*. "W. H. G." further states that this varies considerably, sometimes having yellow powder instead of white. I am quite aware that the *Gymnogrammas* do vary in character considerably, but I must say that I was not a little surprised to see it stated that a silver-leaved variety may have yellow fronds. I know that *G. peruviana* is by some considered a variety of *G. calomelanos*, and that to this species *G. chrysophylla* is also supposed to belong. It is extremely difficult to decide between species and varieties, and that is why *G. Mayi* was not given a specific name before the name of the variety. With regard to its identity with *G. peruviana argyrophylla*, the two varieties as grown here are quite distinct, *G. p. argyrophylla* being of a dwarfier and more compact habit of growth, and very delicate: the fronds are also densely covered on both surfaces with silvery white powder, and in the numerous

seedlings raised at different times very little variation can be seen. *G. Mayi* was obtained from spores of *G. Wettenthaliana* (the crested variety of *G. sulphurea*), and is distinct from anything that I have seen under the name of either of those mentioned above. Its great recommendation is, that it is remarkably free growing, under the same treatment producing much larger fronds than *G. p. argyrophylla*; the powder is of a sulphur hue, and is not so abundant as in *G. p. argyrophylla*. Besides the variety alluded to by "W. H. G.," there were several other varieties of this genus in H. B. May's group, among the prettiest being *G. Alstoni*, *G. Parsonsi* (the crested gold Fern), *G. Wettenthaliana*, and *G. schizophylla gloriosa*. I find that seedlings of *G. s. gloriosa* vary in character. Among the seedlings here I could pick out plants which would correspond with the *G. elegantissima* shown by Messrs. Birkenhead. Garden varieties of Ferns are now so numerous, that it requires some care in selecting anything for a new name, and even then it may be found that an old variety has been given a new name. It is to be hoped that at the forthcoming conference thoroughly representative collections will be brought together and the nomenclature corrected, so as to avoid the frequent mistakes and errors now to be found in almost every collection of Ferns.—A. HEMSLEY, *Dyson's Lane Nurseries*.

SHORT NOTES.—FERNS.

Trichomanes radicans (W. S.).—I have little doubt but this is your Filmy Fern from Jamaica. It is a plant which I have frequently received from the same country; the species is variable and very widely distributed. None of the tropical forms to my thinking are so beautiful as our own form of the Killarney Fern.—G.

Drymoglossum piloselloides (H. G.).—I have little doubt but this is your plant. I have identical specimens gathered both by Wilford and Oldham in Japan. It is one of the prettiest of the little climbing Ferns, producing two kinds of fronds, the barren ones being roundish, thick, and fleshy, the fertile, long and narrow. I have always grown this plant in a little warmth. I think too much heat is bad for it.—G.

Platynerium biforme (S. W. T.).—I am sorry you should have cut a frond from this plant, because its dimensions would have satisfied me that you have been deceived in your purchase. The frond sent is from *P. Stemmaria*. As noted in a previous number, this is the plant which has through some mistake got confounded in English gardens with *P. biforme*, and you are another victim to the error. No two plants can be more dissimilar.—W. H. G.

Gymnogramma triangularis.—A friend sends me fronds which have been made this spring from a plant which stood out all last winter. It would not have been such a severe test of weather had not such a hard frost set in with March. My plant of this species is unfortunately dead. All my other Ferns, however, have survived. Let me advise my readers to cover its crown with leaves, when I think its hardiness in our climate may be assured.—W.

Lindsæa reniformis.—A curious Fern, which some years ago was in the collection of Messrs. Backhouse, of York. In general aspect the plant resembles *Adiantum reniforme*. It requires a considerable amount of moisture, as it comes, I believe, from British Guiana. *Lindsæas*, I believe, are lovers of limestone, and will not grow without it; hence the failures in establishing the various members of this genus.—W. H.

Loxoma Cunninghamii.—I am in receipt of a letter from Harburg, in Germany, asking me if I can supply fertile fronds or plants. I cannot; my herbarium will not permit of any diminution, and the specimens would not be recent enough to ensure fertile spores. Mr. Matthews, of Dunedin, New Zealand, has living plants of this species, and I am sure he would be happy to send plants of it to Harburg, or any other part of Europe. Perhaps my correspondent will apply to him.—G.

Trichomanes lucens.—This is a most lovely species, of which I have received specimens from the district in which *Odontoglossum vexillarium* is

found, and I cannot understand why we have not received living plants long ago. It can only be accounted for from the fact that there are but few buyers of these plants when they do arrive. The plant has a somewhat creeping stem, and produces fronds 18 inches long and 3 inches or 4 inches broad, the under side clothed with long hairs. It is a magnificent species, and one which I have long wished to see in cultivation.—W. H. G.

Gleichenia alpina.—What has become of this plant? I do not think it has ever been thoroughly established, but in 1864 the late Mr. Stuart Low gave me some specimens and had some living plants. It would be a valuable addition to our outdoor fernery, as this species has always been accounted hardy; at any rate it would be if the crowns and rhizomes were covered with dry leaves. I think it is time Mr. Matthews, of Dunedin, New Zealand, let our Fern growers know the gems he has in stock, and which he could send them, travelling between the two countries now being so much better than it used to be some thirty years ago.—H. G.

PROPOSED FRUIT SHOW IN LONDON.

On the invitation of Sir James Whitehead, Bart., Master of the Fruiterers' Company, a meeting, at which most of the leading fruit-growers were present, was held in the Guildhall, to consider the advisability of holding an exhibition of home-grown fruit in the city of London during the ensuing autumn. Sir James Whitehead presided, and in a lucid address explained the objects in view. He pointed out that the cultivation of useful hardy fruits is not now practised in nearly so many gardens of cottagers and farmers as was the case a generation ago. He did not know the reason of that, but his observations, in the northern counties more particularly, led him to believe such was the fact. He thought it must be to the advantage of families in rural districts to have a larger and better supply of fruit grown on their homesteads. During his mayoralty last year he made an appeal to the public to raise a sufficient fund for yielding an annual income to be applied to the furtherance of that object. At the present time subscriptions amounted to about £1500. He wished to draw public attention to the desire of the Fruiterers' Company to increase that fund, and the best method of doing so was the question they had to consider. The proposition to hold a fruit show under the company's auspices in the city had been favourably received, and if it was considered practicable by the practical men around him he should do his best, as would his colleagues, to make it a success. He wished it to be distinctly understood that they had no idea of being in opposition to, or acting in conflict with, any existing society or association which was working to the same good end, but the Fruiterers' Company had done a little, and desired to do more, and he therefore asked for co-operation and suggestions.

The first question that arose was whether there would be any fruit to show this year, and it was stated that several districts were practically destitute of fruit, especially of the larger kinds; but when Mr. Smee ventured to say he could fill half the Guildhall with Apples from one county (Surrey) and Mr. Bunyard said the other half could be filled from Kent if needed, the question was settled, and there was a general consensus of opinion that, no matter how sparse the crops, sufficient fruit was always forthcoming for exhibiting when adequate inducements were offered to cultivators.

The following resolution, proposed by Mr. Smee, seconded by Mr. Rivers, was passed unanimously:—

That this meeting of a committee of the Fruiterers' Company and of practical fruit growers is of opinion that an exhibition of home-grown fruit, implements, &c., held in the City of London in the autumn of the present year would tend to increase the interest of the general public in the cultivation of fruit in our homesteads and cottage gardens.

A sub-committee was appointed to act with the Fruiterers' Company in carrying out the above resolution.

The commissioners of the 1852 exhibition and the Royal Horticultural Society.—In a paper circulated at the great Temple show are these words, "With the Prince President seems to have passed away gradually also, as far as our society is concerned, the commissioners' friendliness." This is unjust to the memory of my old friend General Scott, who was one of the truest friends the society has ever had, and, as he was at one time both secretary to H.M. Commissioners and also to the society, an influential one. It is too long a question to be gone into now. In 1874 I published a pamphlet on "The Royal Horticultural Society as it is and as it might be." If I ever get time to continue the story, it will be seen that something can be said on H.M. Commissioners' side of the question.—GEORGE F. WILSON.

Gardeners' Royal Benevolent Institution.—The fifty-first anniversary festival of this institution was held on Thursday evening, June 21, at the Albion, Aldersgate Street, when about two hundred of the leading English horticulturists, as well as several from Belgium, were present. The chair was taken by the treasurer, Mr. H. J. Veitch, who in the course of his remarks said that the annual subscriptions in 1850 were £542, while last year they amounted to £1328. In 1850 the donations were £206; last year they were £3400. The invested capital in 1859 was £250, and last year £23,000. The secretary reported that the subscriptions that night amounted to close upon £3000. The chairman's list amounted to £1220, while the gardeners had contributed no less than £770.

Hall and Fraser Fund.—It will be in the recollection of our readers that a fund was opened some time since for the benefit of the widows and families of Mr. Hall and Mr. Fraser, who, by a most unfortunate accident, were drowned in the Clyde in September last. The total amount collected was £460 17s. 6d.; the expenses for printing appeals, postage, &c., amounted to £6 17s. 6d., thence leaving a balance of £454, which has been equally divided between the two families, and the amounts invested in Grand Trunk Railway of Canada 4 per cent. debenture stock. Mr. William Thomson, Jun., of Clovenfords, N.B., has kindly consented to act as joint trustee with Mrs. Fraser for the sum invested for her benefit.

Tufted Pansies in the parks.—The increased use of hardy flowers and the almost total extinction of the pattern carpet bedding are healthy signs. This year the tufted Pansy, that used to be known as the *Viola*, has been worked into many arrangements. It is planted freely in Hyde Park, used principally as a groundwork to Fuchsias or other things, and as an edging, with a variety of similar, but paler or deeper shade for contrast. A bed of a blue variety and double white Stock makes a fine show, and a mass of the variety Holyrood amongst a salmon-pink Pelargonium is a good mixture; whilst still better is a pale lavender-coloured variety with dark-leaved Fuchsias. A handsome bed is composed of tall plants of Ivy-leaved Pelargonium Mne. Crousse, almost 3 feet in height, loosely trained, and in good flower, with blue Pansy for the groundwork. The kinds most frequently used are Cliveden Purple, deep claret in colour; Mrs. Turner, light lavender; Blue Bell, and Beauty of Chipping Norton, blue with a deeper coloured centre.

Mr. James Clarke.—Many will regret to hear of the death, at the age of sixty-four, of this well-known raiser of Potatoes, who has given us, amongst other fine kinds, the famous Magnum Bonum. He had long suffered from poor health.

Tufted Pansies.—Will "A. H." please say if he leaves his Pansies in the ground from year to year in the same way as herbaceous plants are left, or if it is better to take cuttings every autumn and throw the old plants away? It is in the case, can anyone tell me if it ever answers to treat the stronger varieties of Pansy as herbaceous plants?—F. M. W.

Names of plants.—J. Batchelor.—The Manna Ash (*Fraxinus ornus*).—Anon.—1. Rose Safrano à fleur rouge; 2. send better specimen.—H.—*Oncidium sphacelatum*.—T. W. We do not name *Colusces*.—Subscriber.—1. *Cotoneaster Hookeriana*; 2. *Leycesteria formosa*; 3. No, it is not Tarragon.—*Orchid in brown tin box*.—*Aerides crassifolium*.—F.—Jerusalem Sage (*Phlomis fruticosa*).

WOODS AND FORESTS.

THE NEW FOREST.

MR. AUBERON HERBERT, Old House, Berry Wood, Ringwood, writing to the *Daily Telegraph* in reference to the evidence which he gave recently on the subject of wasteful expenditure in the New Forest, says:—

We are thoroughly extravagant in our management, and then cut old trees, sell leaf mould, and commit other iniquities to make up for our extravagance. I drew considerable official wrath down on my head the other day, by pointing out to a select committee that a large body of underkeepers (twelve, I believe, but am not sure) were not entered in the accounts as keepers. As a fact, they are entered under "Maintenance: Labour." Why is this done? Because the expenditure on the shooting—including the keepers—exceeds the receipts, and it is held advisable, I presume, that the public should not be aware of this fact. If you take the men at twelve; their wages at 15s. a week; the cottages for seventeen keepers at £7 (the seventeen include five keepers entered in the accounts), and other game expenses (entered in the accounts), you get a sum of about £1,060, which exceeds the receipts from shooting licences by about £380. Therefore the country has the privilege of paying, for somebody's shooting, nearly £400 a year. But the real loss is larger. At a very moderate estimate the value of the forest shooting in itself (let merely for wild shooting) might be placed at £350, and the value of the part reserved to the Crown at £150. Therefore we pay for somebody's shooting about £880 per annum.

Now take another example of waste. We may put forest receipts roughly at from £11,000 to £12,000 per annum. Of course, they can be made to vary indefinitely. The harder you thin the older plantations, and the more you cut in the old woods, the more an unthrifty steward can swell the receipts. For producing this sum we pay about £1830 (to which perhaps we have to add something, say at a guess £100, for superannuation) for local superintendence. Out of this sum we provide a deputy surveyor, a clerk, three assistant deputy surveyors, and twelve woodmen—these last not labourers, but overlookers of labour. The excess of superintendence speaks for itself, being about 15 or 16 per cent. of the receipts, without touching labour at all. If we had any desire to be frugal, and to save public money, the first thing to do would be to appoint a head officer at a lower rate—say, including everything, £450. The lower rate is most important, as it would mean that the head officer would look after the daily work in the plantations himself. In this case—of a working head—the three assistants might altogether disappear. The clerical work might be slightly increased; and, instead of twelve, we might have five woodmen, rather more highly paid than at present. This number should be quite sufficient, as we have under 18,000 acres of plantation. If I remember rightly, Brown in his book assigns one forester to 4000 or 5000 acres; and you must notice that amongst our plantations we have a large proportion of such an age that they only want slight occasional cuttings for the market. We do no planting, and the superintendence therefore is less than in an ordinary forest. On such an establishment—head, £450; clerks, £170; five foresters, £500; say, total £1120—there would be a saving of £700, or, perhaps, including superannuation, £800. Total saving over all nearly £1600 or £1700 per annum. But this, you may say, requires great organic changes. Quite so; but for what purpose do offices of woods and forests and treasuries exist, except it be to discover these overgrown and unnecessary establishments, and take steps—with a proper regard for existing interests—to put things on a better footing?

At the same time, notwithstanding our improper expenditure, some of the plantations are in an exceedingly neglected state. Before giving evidence, I took a skilled opinion on this point. I can show

you places where hundreds of pounds have been lost. Why? Because supervision is in fault; and because we systematically waste money, and so have not got it to spend on the regular plantation work—a state of things bad for the plantations and bad for the labourers.

THE ELM.

As timber trees, the Scotch and English Elms occupy a high position, the wood of both species being valuable. The seed of the Scotch Elm (*Ulmus montana*) in most parts of the country is now ripe and ready for collecting, and from the exceptionally fine weather which we have experienced of late, it appears to be of excellent quality. As soon as the seeds are gathered, they should be sown broadcast in beds about 4 feet wide and covered with fine soil to the depth of about half an inch. It is always best to sow rather thickly, and if the plants should appear to be too much crowded they can easily be thinned in the course of weeding. Should dry weather set in after the seeds have been sown, the bed had better be occasionally watered and a few evergreen branches used to shade the surface from the burning rays of the sun. If well attended to in this way, the young plants generally make their appearance above ground in about a week or eight days. A light sandy soil free from weeds should be chosen for the seed-bed. During next winter or spring the seedlings may be removed and planted in nursery lines about 5 inches or 6 inches apart, and 18 inches between the rows, to give space for weeding and cleaning, which should always be well attended to, in order to encourage the healthy growth of the plants. When the seedlings have been a couple of years in the lines, they are then generally fit to be removed and planted in their permanent quarters.

The contour of the Scotch Elm when grown as an isolated specimen is bold and majestic, with a uniform rounded head, and although some of its branches are liable to be ruptured by wind, yet the tree is seldom torn up by the roots, although exposed to the full sweep of the blast.

The English Elm (*U. campestris*) is distinct from the Scotch variety, and although it is thoroughly hardy, yet it seldom ripens its seed in this country, and on this account it is generally propagated by layers which spring from roots or stools left in the ground. The habit of the tree is more upright than that of the Scotch Elm. The stems of old matured trees often exhibit fine clean cylindrical shafts for a distance of some 60 feet from the ground. The wood of both kinds of trees is used for a great variety of purposes, and although the price fluctuates considerably according to supply and demand, yet good sound stuff of a fair size generally commands a ready sale at prices ranging from 1s. to 2s. 6d. per cubic foot, and sizes fit for beetling beams 11 feet long and 22 inches in diameter will realise 50s. to 60s. each. When planted on dry gravelly ground, loose sandy soil, or damp retentive clay, the English Elm is apt to contract heart rot, and in order to prevent this as much as possible, both kinds of trees had better be planted on sound loamy ground, thoroughly drained and free from stagnant water. Old matured Elm trees, especially such as are beginning to show marks of decay, are liable to be damaged by the Elm beetle (*Scolytus destructor*). This little miner bores a hole until it reaches the inner bark, when it then excavates a space of sufficient size to deposit its eggs. When these are hatched in autumn the grubs or larvae eat their way in a different direction from the original nest or tunnel, and thus form a series of sub-cortical channels, often in pretty close proximity to each other, yet they never break through nor interfere with each other's runs.

Trees that are known to be infested with this insect had better be cut down, and the bark removed at once and burned, in order, as far as possible, to prevent the beetles increasing in numbers.

J. B. WEBSTER.

The Natal forests.—An elaborate report on these by Mr. H. G. Fourcade has just been issued. He arrives at the following conclusions: (1) The

Natal forests, more particularly the timber forests, are well worth preserving, whether from an economic or climatic point of view, and the Government alone is competent to undertake the work. (2) The condition of the forests is, for the most part, lamentable, and the result of past abuses; their destruction is proceeding apace, and the following measures are recommended to ensure their preservation and utilisation to the best advantage: (a) the survey and demarcation of the principal forests; (b) their protection from fires, from depredations, from destruction by natives or cattle, by means of suitable measures, such as the clearing of fire belts, the establishment of small wattle plantations, the prohibition of wattle-cutting and cattle-grazing, with the aid of proper supervision and special legislation; (c) the closure of the forests pending survey, demarcation, and settlement; (d) the adoption of sound methods of forestry to secure a steady yield, improvement of the forest, and most profitable management; (e) the utilisation of colonial woods for railway sleepers. (3) Plantations of Conifers and hard woods, designed to supply the future requirements of the country, can be made profitably along railway lines in the upland and the midland districts. (4) The most urgent work of a Forest Department in Natal would be to save what is left of the native forests, and plantation work should be deferred till it can be undertaken without detriment to the progress of survey and demarcation.—*Nature*.

SHORT NOTES.—WOODS AND FORESTS.

Indian forests.—According to the last official return on the subject, there were in India at the close of 1889 54,917 square miles of forest demarcated and reserved by the State. The area has increased especially since 1887-8. In that year it was only 17,705 square miles; in the following year it amounted to 40,425 square miles, in consequence of the energetic operations carried on in the central provinces. These latter have now the largest area of reserved forests of any province in India. It amounts to 19,712 square miles. Bombay coming next with 10,236. The areas elsewhere are: In Lower Burmah, 5111; Bengal, 4988; Madras, 3727; North-western Provinces and Oude, 3727; Assam, 3447; the Punjab, 1535; and Berar, 1059 square miles.

Nurses for trees.—With good nursing almost any shrubs or trees may be made to grow anywhere. Without it there are hundreds of places where it is hopeless to attempt to grow rare coniferous or common trees, such as Oaks, for instance. Whatever does best in the neighbourhood—whether it be Larch, Spruce, Scotch Fir, Birch, or even Broom—that is the best plant to use for nursing and sheltering the trees or shrubs we wish to predominate ultimately. Plant choice trees in the positions and at the distances we wish them to occupy, but plant the nurses everywhere. Let them fill all the intervening spaces, almost embracing the permanent plants on all sides, without actually touching them. The function of these nurses is to help the other trees to grow, just as ours taught us to walk. But in arboreal matters the nurse is often allowed to grow over and smother the tree it was meant to help; and so there has been a rebound against the whole system of nursing, and we constantly see trees of rare form and surpassing beauty planted in the most exposed positions. Is it any wonder that, thus exposed, they refuse to grow, become stunted, or die? Good nursing is the secret of arboreal as of animal health; but when the tree or man is once vigorous enough to grow or walk alone, nurses must be dispensed with.—*F*.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

MARECHAL NIEL ROSE.

HAVING so often written of the value of double working for the *Maréchal Niel* Rose, it is disappointing to read an article on this Rose by "C. L." and to find in it no reference to that method of treatment. The tendency of this Rose to canker is proverbial, and is not confined to budded plants. I have found it on those on their own roots and have attributed it to the general incapacity of the plants to make roots sufficient to utilise the great downward sap flow produced by the wealth of foliage these plants produce. I have not the slightest appearance of canker on plants budded for years where double budded. There is in such case an even development of stem and stock, which is not found when single worked. A stem of *Maréchal Niel* just above the Brier stock is three times the size of the Brier stem below, but in the case of *Maréchal Niel* on Lamarque and Mme. Berard, both originally worked on to the Brier, there is no such incongruity; indeed the wood growth is uniform throughout. I have mentioned before that as an intermediate stock Lamarque breaks very freely and wants a lot of looking after. This year I have put in several buds of *Maréchal Niel* on shoots which have broken hard back, and from these buds I hope to get shoots this season several feet long. To help them I have also cut back the whole of the great body of growth so hard to the original buds, that in some cases only a length of 6 inches of the old wood is left. I look to that to break presently and drive up shoots to the top of the house. It is only by such drastic treatment that *Maréchal Niel* can be induced to bloom well and freely. Certainly no other Rose produces such good flowers from so small wood, but in numerous cases when the old wood is very hard it refuses to break at all, or else produces barren shoots. Because of the sap force found in double-worked plants, especially where the Brier is the original stock, it is very easy with plenty of root-feeding to drive up these fine shoots from hard wood. Last year I cut back a stem as big as my wrist with a saw—in fact, took a big branch clean out, and shoots some 6 feet in length broke from just below the severance, making fine blooming wood. If I had cut even harder back the result would have been better, because so much growth was still left to carry away the sap. It is a distinct advantage to those who force *Maréchal Niel* that they can hard prune their plants a month earlier than I can, because mine bloom naturally in a cold house, and I cannot prune earlier than the first week in June. Still the growth which can be got during the three summer months is remarkable when there is plenty of root power behind it. I find Mme. Berard as a second stock does not break shoots so freely as does Lamarque. The first is as shy as the latter is free; in fact, it is much too free, as I have to rub many shoots off during the season in spite of the free growth of the *Maréchal Niel* upon it. When Mme. Berard does push a base shoot or two, they are invariably very strong, take buds well, and soon force a strong growth from the bud. There are numerous other strong growing Roses which would doubtless make first-rate subsidiary stocks for the *Maréchal*, but I doubt

whether any primary stocks, because of their deep rooting propensities, are better than Briers.—A. D.

— It is impossible to over-estimate the superb qualities of this finest of all our golden Roses. Form, colour, size, fragrance may be pronounced perfect. But as if to remind us that the earth is not as yet a paradise for golden Roses, the *Maréchal Niel* is not without serious flaws in its constitution. Or can these serious flaws be but the opposite sides of one common malady—excessive strength unwisely squandered? This seems more than probable. The *Maréchal Niel* is a giant in strength and a spend-thrift in prodigality, whether in making wood or producing bloom. Nothing in either direction seems beyond its powers to attempt or achieve. All goes merrily for a time. Very strong growths and harvests of bloom are noted and admired, and afterwards come the stunt, the collapse, the end. Such in brief has been the rise and fall of thousands of famous *Maréchal Niel* Roses up and down the country. Is there not a cause? There is; and I believe it may mostly be found in that mysterious borderland between inordinate growth and enormous production. A great gardener a good friend of mine once said that he had learned far more from his failures than his successes, and probably he was right. Success is apt to hide up the paths by which it was reached beneath prizes and trophies, the very prodigality of its produce, the mere profusion of its beauty. But the baldness and leanness of failure lay bare the seamy side of life, and much more may be learned from the thread-bare seams of the latter than its gorgeously decorated fringes. This lesson is writ large across the sudden rise and fall of most *Maréchal Niel* Roses. They first had a period of abnormal vigour, then a prodigal time of beauty, when golden Roses were as common as Blackberries in the hedgerows in autumn, and finally a season of decrepitude, decay, and death. These seasons or conditions succeed each other so rapidly and with so much constancy and certainty, that it is only logical to assume that they are linked together as cause and effect. In other words, the youthful luxuriance, and the reckless drafts drawn on it for gold, more gold, and yet more and larger golden Roses in the early history of the plant led directly to its early wreckage and ruin. The huge warts that constrict the life out of the plants are but vigour in a wrong form in the wrong place, throttling instead of fostering and renewing their life. The conversion of vital sap into golden Roses has been so rapid and so immense, that sufficient living fluid has not been left to clear and purify the main thoroughfares, that is the sap vessels, nor to sweep the sluggish stream along with sufficient momentum; hence obstructions, impurities, lack of food, monstrous warts, imbecility, death.

If this diagnosis of the disease that ruins our *Maréchal Niel* Roses be correct, it follows that the remedy is largely in the hands of Rose growers. As prevention is better than cure, it would be wise to begin by checking its natural tendency to an excess of vigour. Nothing has been more common than for growers to pander to this natural tendency. Because the *Maréchal* could make 20 feet or 30 feet in a season, force it to make 40 feet or 60 feet through stimulating manures and a fostering atmosphere. As reasonably attempt to preserve the wind and limbs of a favourite horse by always pushing it up to its extreme speed. Greater safety may be found alike for horses and Roses by curbing them in with a limited diet and a firm hand than by spurring them on to the utmost of either strength or speed.

And then, having got vigour of shoot, it is not always wise to take the full measure of golden Roses out of it. The *Maréchal Niel* under favourable conditions is probably the most profuse bloomer in existence. Taking size and substance as well as number of blooms into account, it assuredly yields a greater weight of bloom than any other Rose.

The blooms should therefore be severely reduced by thinning. The rosarian has his reward at once in fine blooms, and is doubly enriched through the

improved health and longer life of his plants. Through moderating vigour by planting in less stimulating soils and husbanding it afterwards by a wiser adjustment of burdens to backs, that is, Roses to branches, it may yet be possible to shunt the warts and other constitutional flaws that so grievously disfigure the beauty and shorten the lives of this the finest and best of all our golden Roses.

Meanwhile, we can hardly do better than go on propagating and planting the *Maréchal Niel* Rose wherever suitable places can be found for it inside and out. It will often be found after many days that the places we thought most suitable will prove least so, and *vice versa*. Hence, if we go on propagating and planting at all seasons and in all directions, the net result—and it is one of the richest and best within the entire range of the rosarian—will be a full supply of *Maréchal Niel* Roses for six or nine months out of the twelve.—D. T. F.

ROSES ON TREES.

LAST summer I saw some fine effects produced by Roses blooming among low-growing trees. In one instance a plant had taken to a Laburnum and the clusters of white bloom showing out from among the leaves of the tree had a most pleasing appearance. But better even than this was the unrestricted growth of white cluster Roses in a group of shrubs and trees. Evidently this group was formed many years ago, and neither trees nor Roses had been touched with the knife. The natural vigour and endurance of the Roses, allowed to extend at will, had enabled them to cope with greedy neighbours, and use them as a support. They formed great masses of bloom some yards through, and in no position have I ever seen Roses create such a pleasing effect. I should say that in places they had run up to a height of 30 feet. Naturally, all Roses would not do for employment in this way. Probably in the above instance the Roses had been trained to poles, and these decaying, the plants had to find support in another way. The important point in adopting this way of utilising Roses is to give them a good start. Putting them among established trees without any particular care could not have the desired result, owing to the more or less parched condition of the ground during the summer-time, as well as deficiency of nutriment. By replacing the impoverished soil with some rich compost and employing strong plants, a good growth will be made the first year, and afterwards these vigorous-growing Roses may be relied on to take care of themselves. J. C. B.

Rose Reve d'Or.—A splendid specimen of this grand climbing Rose is now in full flower at Ganwick, Potter's Bar. It was planted by Mr. Short, who is an enthusiastic amateur, and takes a great interest in everything relating to gardening, only seven years since on his house, the aspect being S.W. The plant now covers a space 17 yards by 7 yards. It is in robust health and completely covered with flowers of good quality in all stages of development, and presents a sight not soon to be forgotten; indeed, it is by far the finest specimen of its kind I have ever met with. Close by on the same border are some grand clumps of *Tropæolum speciosum*, so fully described in a recent number of THE GARDEN. It grows so freely, that Mr. Short assured me he had to annually take out large quantities to keep it within bounds.—E. BECKETT.

Rose William Allen Richardson.—For affording choice buds for button-holes, this Rose is unsurpassed, as the buds, when about a quarter open, are unique in colouring and most exquisite in form, the ground shading of the petals being a rich coppery-yellow, and the edges tipped with creamy-white. The first plants I had grew badly, and I was afraid it was a bad doer, but those I have obtained since and others I have seen elsewhere are growing strongly and have flowered most freely. Like all the other climbing Roses, W. A. Richardson flowers from the young shoots, and, therefore, the more of these there are that can be

laid in full length the more bloom will there be. Those we have outdoors are on walls, the one on a southern aspect and the other east, so as to give a succession. Although the buds are so lovely when opening, the flowers, when even partly expanded, are poor, as the rich colour goes off.—S. D.

ROSES IN THE FLOWER GARDEN.

IN "D. T. F.'s" article in *THE GARDEN*, June 14 (p. 543), he tells us some of the things the exhibitor must be doing if he would have fine blooms. We may enjoy the queen of flowers upon the exhibition table, but to attain this there must be the sacrifice of buds, as "D. T. F." explains, and even more, there must be those copious waterings and rich mulchings till the atmosphere of the Rose garden is nauseous and suggestive of the manure yard. But though this high culture will be kept up by the exhibitor, it is not necessary in order to have an abundance of fine Roses in free and graceful masses. Grown in masses the Rose may be made the leading feature, and in its different sections will keep up a constant supply of bloom from June till October. Instead of, as heretofore, relegating the Roses to some obscure spot far away from the house and perhaps in the kitchen garden borders, they might be and should be given the best spot in the garden and as near the house as possible, for apart from their beauty and fragrance, Roses in masses have an effect in the garden landscape that no words can describe. Not only in beds, but in borders also close under the windows of the house we are growing Tea Roses, each kind in a group of not less than twelve plants. Give Tea Roses the best spot in the garden and beds that contain from 2 feet to 3 feet of maiden loam and they will grow and flower the whole season through.

Between Tea Roses as we have been accustomed to see them confined to glass houses and pot culture, and as we see them and grow them in glorious masses, no comparison can possibly be made, so great is the difference and so enormous the increase in health, quantity, and quality of the blooms. For example, Marie Van Houtte grown under glass is not half so delightful, nor has it a tithe of the beauty we see and enjoy in the charming sun-dyed blossoms that hang in many-flowered clusters upon vigorous bushes in the open beds. The same applies with equal or greater force to other less known, but equally fine kinds that are deserving of open-air culture in the best possible way. There is no reason why the best Roses should not be extensively grown, for unless in a few exceptional localities they are quite hardy, cheap, and also easily increased if that is desired, as suitable shoots selected at the right time strike easily. It is now an undisputed fact that most Roses do quite as well, and perhaps in the end better, upon their own roots, for if they are a little longer in forming fine bushes they do not trouble us with suckers that need removal, but send up instead vigorous shoots that will produce huge masses of flower. Every year serves but to further convince me of the value of Tea Roses in the flower garden, and when relieved by and associated with a selection of the best hardy and other flowering plants such a garden leaves nothing to be desired. Truly perpetual as are the Tea Roses, they have not a monopoly of this desirable quality. It is rare to see good monthly Roses in gardens, yet of late years the quantity of these has been considerably augmented by the addition of free-flowering new and improved kinds. Those who are yet doubtful as to the hardness of the Teas may find satisfaction in the monthly varieties, whose hardness is never questioned, whilst for freedom and continuity of bloom they cannot be surpassed. True in this section we have not the form and colour which the Teas show, but still the variety is great and increasing. They readily lend themselves to bold groupings, and are capable of producing a telling effect that can be appreciated either close at hand or at a distance. Many of these will strike almost as easy as Willows, and certainly a stock of a good kind could be as easily obtained as that of a choice Pelargonium. We have

a large bed of the best monthlies in groups associated with Lavender, and it promises to be this year what it was last, a glowing mass of blossom the whole season through.

Then there are the best Hybrid Perpetual Roses. They may not be so generally useful as the Teas and monthlies, being less truly perpetual, yet a place must be found for them, and the better the site the better and greater the display. Moreover, when exhibition is not the end and aim, a number of kinds is less needful, and even among this section it is possible and desirable to make a good selection of varieties that are free and continuous in blooming. A. H.

NOTES ON ROSES.

EARLY SUMMER ROSES.

THESE are most useful now, and have been for the past three weeks, with promise of a large quantity of bloom, which will fairly carry the supply through the month of June, when the Hybrid Perpetuals can be had in quantity. For cutting, these beautiful Roses are most valuable, most of them being of robust growth and flowering upon nearly the whole length of strong shoots made the previous season after making a short lateral growth. These Roses in many cases need but little pruning, hardly any of them requiring to be treated as the Perpetuals are. Amongst those that produce very fine flowers, for instance, may be named Charles Lawson, Coupe d'Hébé, Paul Perras, and Paul Ricaut, all hybrid Bourbons. These may all be grown as pillar or climbing Roses, retaining as much as possible of the strong and well ripened wood, and merely thinning out the weakly shoots. They are splendid subjects for training upon arches over walks where there is plenty of room for their extension. To these, and closely resembling them as to vigorous growth, should be added Blaire No. 2, Brennus, Chénéolé, Juno, Mme. Plantier (a lovely pure white Rose, flowering in large clusters, very freely produced, and beautifully scented), and Mme. Riviere, all hybrid China Roses. The hybrid Bourbons are distinguished from the latter class by the greater substance of their foliage and flowers, but both bloom most profusely. They also thrive in almost any soil of moderate quality and will continue for years to grow vigorously in positions where many of the Perpetuals would soon be exhausted. I have these and others that have their roots amongst those of some Yew trees that have been in their present position for many years. I cannot ascertain how long these Roses have been growing with the Yews, but of some I can safely say from thirty-five to forty years. My system has been to let them grow away all the season in their own way, never pruning them at all, merely thinning out the weakly shoots and dead pieces every spring, if possible. In this way, with no restriction, they have increased in vigour, and bid fair to continue going on for many years to come. When in flower they are splendid objects; the mere fact of their not being in many cases autumn bloomers is amply compensated for by the early period of their flowering and the prodigious quantity of bloom that is produced upon large bushes so early in the season. For poor soils they can be specially recommended, whilst for covering arches or as screens they are most valuable, and quickly cover a large amount of space. I feel sure that where a trial is given, their merits will be quickly recognised, and that they will be as much appreciated for the beauty and vigour of their growth as for the delightful fragrance of their flowers.

THE GALICA OR FRENCH ROSES.

These beautiful Roses were once found in nearly every garden of but moderate pretensions even; but now they have had to give way to the more fashionable Perpetuals. Nevertheless, the former have their especial merits as garden Roses, and are well worthy of more attention than they now receive. True, they do not flower in the autumn, but in their season hardly any Perpetual can be compared with them in the fine display which they make both in the profusion of their flowers and their fine colours. Boule de Nanteuil, for instance, is a worthy repre-

sentative of this class with its crimson-purple flowers, so also are Adèle Prevost, a silvery blush; Duchesse de Buccleuch, a dark rose; Gloire de Colmar, rich velvety crimson; Napoleon, deep rose, shaded purple; Éillet Parfait, pure white, with broad crimson stripe; Ohl, a rich velvety crimson, very double; and Transon Goubault, bright crimson. To my mind, the best place to grow these old-fashioned Roses is with the herbaceous plants, with which I think they would associate very well, flowering at a useful season in advance of many other kinds. Grouped in this manner they would look well in bloom, and afterwards their handsome foliage will make amends for a second crop of bloom. They need but little disturbing at the roots, and if when they are first planted they are put in rather deeply they will soon establish themselves upon their own roots. They can afterwards be kept well within bounds by liberal pruning, to which they have no objection, but rather the reverse.

MOSS ROSES.

Whether taken in the bud or left until the bloom has fully developed these Roses are alike valuable for cutting, affording, as they do, a most pleasing change to nearly every other Rose. They are amongst the most fragrant of all summer Roses, and are quite distinct in this respect from the Perpetuals. They have, it is true, a tendency to fade rather quickly, but if picked before they are fully expanded this is partially compensated for. They thrive best in a rich soil, and where this is not obtainable their cultivation should be limited. Dwarfs are preferable to standards at all times, and will be found to be more enduring and also more vigorous. The compact growing kinds should be pruned freely, the stronger ones more moderately. The following are a good selection for general cultivation: Celina, brilliant crimson; Crested, beautifully fringed buds; Lanei, bright crimson, large and double; Little Gem, a miniature kind, very small and double; Reine Blanche, very hardy; White Bath, pure white; Captain Ingram, velvety purple; Gloire des Mousseuses, light rose; and Marie de Blois, a bright rose. The last three are the strongest growers, and should therefore be so arranged for at planting time. Moss Roses make suitable margins to shrubs, or they may be conveniently planted amongst the dwarfier growing kinds of the same with good effect.

AUSTRIAN BRIERS.

Included in this class are the Persian Yellow and Harrisoni, two most valuable early flowering Roses of hardy constitution, and which with a moderate amount of care produce an abundant crop of bloom. I have them growing together in a bed almost by themselves, with an edging of *Nemophila insignis*, sown early so as to be in bloom at about the same time. My practice is never to prune the strong shoots, but peg them down when growth is completed, thinning out all weakly pieces early in the spring. Thus grown they flower profusely, and although a long stem cannot in most cases be obtained, they are much appreciated as cut flowers. In order that they may last when cut as long as possible, they should be taken when just expanding, and early in the day is better than later on. I have not succeeded in growing the copper-coloured Austrian to my satisfaction. I am under the impression, however, that being of more weakly and delicate growth than the first named kinds it would thrive better if grown upon rockwork, where it could be kept drier at the root in the winter. J. H.

SHORT NOTES.—ROSES.

Layering Roses in China.—The Chinese method of layering Roses is as follows: Late in the summer they select a vigorous shoot of the same year's growth and tongue it; then put in a pebble to keep the slit open and bind a handful of fresh moss around the tongue, keeping it constantly moistened. In about six weeks it will have struck roots and can be planted without disturbing the mossy covering.

Rose Homere.—With all due respect to "D. T. F." I totally disagree with his laudation of this Rose. I grant that occasionally you get from a young shoot a

bunch of very fair flowers, but it is quite the exception, the rule being that the Rose is faulty in shape, and "rots" more often than any Rose I know. I have given away all mine, and I find that the best judges ("D. T. F.") being "the exception which proves the rule" are unanimous in denouncing it as unsatisfactory. By the way, why did not Mr. Girdlestone include Marie Baumann in the best H.P.'s? Most people would class her in the first six. I do not think this is going to be a season of exceptionally large blooms.—CHARLES J. GRAHAME, Croydon.

Rose Gloire de Dijon.—Going along the high-road the other day, I could not but admire some plants of that fine old Rose Gloire de Dijon, which were growing on some iron palisading, which they had threaded in and out, and thrown their long shoots far and wide. As they had had very little training, there was nothing stiff about them, and the show they made was magnificent, as the plants were full of flower. Considering the fitness of this and other climbing or strong-habited Roses for this kind of work, or for running on fences of different descriptions, or for forming screens, the wonder is that they are not more used. Pruning and restricting spoil many plants, and what we want is more freedom, and nothing looks better than a vigorous Rose climbing about up an old tree at will. In pleasure grounds, when grown in this way, they are unsurpassed, and form quite a feature, and no one who sees them can fail to admire them.—S. D.

NOTES OF THE WEEK.

Tuberoses.—I have sent you a few Tuberoses for your inspection, from spikes having from thirty to thirty-six flowers on each spike.—W. RICHARDSON, Hassocks.

*** Very fine flowers.—Ed.

Flowers from Dublin.—Mr. Greenwood Pim sends us from his Monkstown garden the bright scarlet Tritonia, an interesting Cape bulb for the garden, and the trailing Androsace lanuginosa, grown there as a border plant; also a spike of the finest of all Irises, *I. ochroleuca*.

Aerides Godefroyæ.—This is a charming Aerides, one plant scenting a house with its strong fragrance. A plant is in bloom in Messrs. Veitch's nursery at Chelsea, and bears a long spike of flowers, very bright in colour, white, tipped with rich rose.

A sad boating accident, by which three young men in the nurseries of Messrs. J. Veitch and Sons, Chelsea, lost their lives, occurred last Thursday week evening (June 19) in the Thames at Chelsea. There were six in the boat, but only three were saved, and those drowned were singularly expert swimmers.

Cattleyas are making a show with Messrs. Veitch and Sons, but the full beauty of the display is over. There are splendid forms of *C. Mossiæ*, *gigas*, and *Mendeli* in bloom, also of *Lælia purpurata*. *C. M. Reineckiana* is a delicate form, pure white, except the lip, which is coloured with magenta, yellow at the throat. *C. Wagneri* is also in beauty.

Tomato Horsford's Prelude.—The finest crop we have seen of this was recently in the Syon House Gardens, Isleworth. There are two houses for the most part filled with this variety, which crops splendidly, bearing strings of medium-sized fruits of first-rate quality. The seed was sown the first week in January and gathering commenced the first week in May.

Mr. J. G. Baker.—We are pleased to hear that Mr. Baker, F.R.S., has been appointed keeper of the herbarium and library at the Royal Gardens, Kew, in the place of Professor Oliver, who lately resigned. In January, 1866, Mr. Baker was made first assistant in the herbarium, and thus will bring a long experience to bear in his present position. No one was better fitted for the post, and his appointment is an acknowledgment of his valuable botanical work, now extending over many years.

Opening of Dulwich Park.—Lord Rosebery opened this new park at Dulwich recently. It will be remembered that the land on which the park has been formed was the gift of the Governors of Dulwich College to the late Metropolitan Board of Works, on condition that it should be laid out as a park. The park is 72 acres in extent, and the money so far expended upon it has been about

£32,916. Under the Act of Parliament which relates to this park both music and public speaking are forbidden. In addition to the usual paths, &c., there are a lake, a horse ride, two lodges, and carriage roads. It is something to be thankful for that the place will not be disfigured by a bandstand, such as we have in Southwark Park, a colossal affair at the main entrance.

Flowers from Cheshire.—We are sending you by post a truss of the beautiful *Campanula persicifolia alba grandiflora*, which we think is rather rare. We also send with it blooms of the pretty little *Calceolaria alpina*, *Senecio speciosus*, *Phlomis Russellianus*, and *Lathyrus Drummondii*.—WM. CLIBRAN & SON.

*** An interesting selection. The *Lathyrus* is a bright flower, useful for trellises and arbours.—Ed.

***Campanula persicifolia grandiflora*.**—A white *Campanula* of very great beauty is now out in the garden at Oakwood, Wisley. We had it in the spring of 1889 from Messrs. Backhouse under the name of *Campanula persicifolia grandiflora*. The plant is but a small one, or I would have sent a flower-stem.—GEORGE F. WILSON.

—Flowers of this have been sent to us by Messrs W. Clibran and Son, The Nurseries, Altrincham. They are of great size and pure white. It is a noble border plant, especially in a large mass. The flowers are four times the size of those of the old Peach-leaved *Campanula*.

Lilies from Tottenham.—I have sent you up a box of *Lilium Washingtonianum* and the variety *purpureum*, showing the great variation there is in the colour. I have a large stock now in flower, and I think they are doing far better, on the whole, than they have ever done. I have also sent you *Lilium Hansoni*. I have some hundreds in flower, showing what a fine Lily it is. They have been out all the winter without any protection whatever, scarcely a leaf injured on any of the plants.—THOMAS S. WARE.

*** A fine spike of *Lilium Hansoni* and a number of flowers of *L. Washingtonianum*, showing how the flowers of this vary, some pure cream white, spotted sparsely with deep crimson, others of a deep rose.

A seedling Cactus.—I enclose a flower of a seedling Cactus, a cross between a white-flowered, sweet-smelling kind, the seed-bearer, and *Ackermannii*. Except in colour the plant has all the characteristics of the former; the flower, a delicate rose, retains the sweet scent of the white. This is the first time of its flowering. The plant being crowded with other seedlings in the pot and having had three flowers on the same stem, may account for its not equalling the white in size. I shall be glad of your opinion as to its merits; it seems a pleasing variety. I send it in the bud state, but no doubt it will open in water.—W. L. S., Leicester.

*** A pleasing colour, but not equal to such a variety as *J. T. Peacock* and others that we have seen.—Ed.

The Madonna Lily (*L. candidum*) diseased.

—Last year I had some magnificent clumps of *Lilium candidum*, which had flowered well for two or three years. All looked healthy and well, and early in the year made strong growth. Gradually, however, disease has attacked them all; with some, the foliage rotted right away before throwing up the flowering-stem, others grew on sound for a longer time, but the disease came later and the stems are all rotting off. A few may flower, but the leaves are withered and decayed, and they look most sickly. Should I leave the bulbs alone, and will they possibly come right another year? I fear somehow that *Lilium umbellatum* will be affected next year. I have some large clumps of *umbellatum grandiflorum* flowering splendidly, but I notice some of the leaves have begun to turn brown and decay, although the blooms are at their height. They are close to some *Lilium candidum* clumps. *Lilium testaceum*, too, seems affected, the leaves turning yellow and brown, although the buds are nothing like open yet. Any hints you or your readers can give me will be gratefully received. I

am told the disease is well known, and the bulbs will probably flower all right next year.—LOXWOOD.

Veronicas.—I have never seen the shrubby Veronicas so beautiful or so full of flower as they are at the present time, and one cannot help wondering at the comparative neglect they receive at the hands of amateurs. It is true the flowers are mostly white and small, but they are produced in such numbers and the hues of the foliage are so varied and distinct, that one can grow them all and still have the necessary variety. Such species as *V. Hulkeana* and *Fairfieldi* are amongst the most ornamental flowering kinds, though from their straggling habit not so useful as winter shrubs. These Veronicas, of which there is a large number with neat compact habits, would be found most useful for window-boxes, &c., during winter, the foliage being so varied in shape and colour as to make a most interesting group. Veronicas stand any amount of cutting back or trimming, and may be kept in shape with very little trouble.—K.

***Polemonium flavum*,** contrary to expectation, has turned out a really useful border subject; the exceptional colour of its medium-sized flowers and its fine compact habit mark it among the choicest of our summer border plants. The flowers continue an unusually long time even for a *Polemonium*, and contrast well with those of the other species of this genus. *P. flavum*, when fully established on a sandy soil and in a sunny exposed position, makes a grand show, and is one of the attractions in the mixed border at Kew just now. We have repeatedly lost numbers of plants in shady or damp situations, but since shifting them to the border they have grown and flowered very freely. *P. himalayanicum* is a much better border plant than the old *P. caeruleum*, although the latter need not be altogether discarded on this account if there is room to grow both, the flowers being larger, of a deeper colour, and very handsome when seen in groups. It flowers later than *P. caeruleum*. *P. Richardsoni* is useful for the rockery, as it flowers so freely and is so easily increased.

Dwarf Cistuses.—I am glad to see these receiving the notice they do. That they deserve it no one will gainsay who has seen a well-grown specimen of either *Cistus lusitanicus*, *florentinus*, *crispus*, or even the commonest of all, *C. villosus*, which when seen in groups is a remarkable sight. It is true the flowers of all the species are fugitive, but their characteristic beauty in summer and their quiet shades of green in winter make up tenfold to those even who consider the fallen flowers an inconvenience. As rock plants the sunnier and drier the position the better. Cistuses are not strong feeders, like many flowering shrubs, and are capable of standing very severe weather if planted in dry exposed places. *C. cyprius*, *C. laurifolius* and *var. maculatus*, *C. monspeliensis*, *purpureus*, and others are equally beautiful. They are increased by cuttings which root readily under a hand-light in the open.—K.

Kentias at Sydney, New South Wales.—

Mr. Charles Moore, who sends us some fine photographs of these, one of which we intend to figure, from the well-stored garden he has directed so long and so ably, writes as follows: "I send by this mail a packet containing photographs of plants in this establishment, showing their general appearance, structure, and growth, which may perhaps be of some interest to you. As regards the Palms, there seems to me to be some doubt among English cultivators as to the difference between *Kentia Forsteriana* and *Kentia Belmoreana*—plants indigenous to Lord Howe Island, both being now extensively cultivated in Europe. The distinctions between these two plants are well seen in the photographs; if these were illustrated in the papers all doubts as to their being distinct species would, I think, be dispelled. *Seaforthia elegans* and its variety are intended to show the general appearance of each. The one with large panicles is the same as that figured in the *Botanical Magazine*, the plant from which the drawing was made having been raised at Kew from seed obtained from the middle coast districts of this colony. The one with smaller pani-

cles, which I consider only a variety of the former, is found in our more northern districts. There does not appear to me any real botanical distinction between them. The two groups of Agaves are given to show the characteristics of the different species when in flower."

Cypripedium spectabile in Gloucestershire.—Readers of THE GARDEN may be interested to know that a fine specimen of *Cypripedium spectabile* is now in bloom in a garden in Gloucestershire. The plant has three flower-stems; the tallest is between 19 inches and 20 inches high, and has borne two blossoms; each of the other stems has produced one bloom. All four flowers are perfect in symmetry and colouring. — MARY SEYMOUR, *Northwoods, Winterbourne, Bristol.*

A Rose fair in aid of the Gardeners' Orphan Fund will be held in connection with the Croydon Horticultural Society's annual show on Wednesday next in the grounds of Brickwood House, Addiscombe Road, Croydon. Contributions of Roses or other cut blooms for sale will be thankfully received by the honorary local secretary, Mr. G. W. Cummins, The Grange, Wallington. Last year the sum of £12 was given to this charity from the sale at the fair. Packages should be addressed "Rose Fair Tent," Croydon Horticultural Society, Brickwood House, Addiscombe Road, Croydon.

English Irises from seed.—Some three or four years ago I raised a few of these from my own seed. They are now just opening and are incomparably stronger and more healthy in appearance than the plants grown from Dutch bulbs, although the latter have been some years established in the same border. These Irises seed very freely and produce a very good variety of colours in their flowers. The imported ones show a great tendency with me to turn yellow in their foliage, which disfigures them very much. The seedlings seem much less inclined to do this; hence, I would say, grow them from seed. — GREENWOOD.

Pentstemons.—The numerous additions within the last few years to this noble genus have considerably enhanced its value in gardens. *P. puniceus* with its stout erect stems, innumerable brilliant scarlet blossoms, and oblong, blunt, glaucous leaves is a noble species, and looks as if it would be more easily managed than *P. Murrayanus*; if so it will be a decided acquisition. *P. rotundifolius*, of much the same type, but with round leaves, is also a charming species and a good border flower. *P. deustus*, with its peculiar looking white flowers and dwarf neat habit, is more suited for the rockery, and makes a lovely little group. *P. diffusus*, with dull rose-purple flowers, *P. glaber*, pale bluish purple, with long narrow leaves, acuminate, ovatus, &c., are all worth a place. The shrubby species, such as *Menziesi*, *Scouleri*, *Lewisii*, &c., are best suited for rockeries. — K.

Rose Cloth of Gold.—Yesterday I was shown a fine bloom of Cloth of Gold Rose. It was from a tree on the wall of an old farmhouse in this parish. The tree is probably now thirty years old. Though shy in blooming, it generally bears several blossoms every year. I presume it would be heresy to say that it is a finer flower than *Maréchal Niel*, but nevertheless that is my opinion. It certainly is a magnificent Rose. I have a *Maréchal Niel* against the wall of my house, and this year it is blooming magnificently. I could cut from 150 to 200 blooms at this moment. The flowers are very fine in colour, but inferior to those of Cloth of Gold. My Roses, on the whole, especially *Marie Van Houtte* (a special favourite of mine), are very fine this year. I have also had a more than good display of Irises. — RICHARD HOOPER, *Upton Rectory, Didcot.*

The yellow Tree Lupine.—I note your remarks upon the old yellow Tree Lupine in your last number. I have a fine bush of it 2 yards long, 5 feet high at least, and 1 yard through, one continuous sheet of yellow. You have omitted to mention one of its greatest charms, its honey-sweet perfume. The bush is growing in a border of very poor clayey garden soil, and no pains are taken with its cultivation. Every year the plant seeds freely, and a few self-sown young plants which

come up round it are kept in case of accident. It is not thoroughly hardy, as the frost regularly kills about half of it, at least in Shropshire. Next to it in the same border the old double white Rocket is growing luxuriantly, and the combined odours of the two plants are indescribable. — H., *Bishop's Castle, Shropshire.*

Columbines (Aquilegias).—The more one grows these the further he seems from a satisfactory understanding of them. I have tried pretty well all the kinds under the so-called names, and after two or three years the collection resolves itself into *chrysantha*, *vulgaris*, *alpina*, *glandulosa*, and a host of the most remarkable hybrids I have yet seen. There are crosses between *chrysantha* and *cærulea*, *glandulosa*, *vulgaris*, *sibirica*, &c.; indeed, as before stated, they are nearly all hybrids of some kind or other. I only hope that no enterprising nurseryman will take them up and attempt to name them, as appears to be the fashion at present with every variable garden plant. I do not believe that *Aquilegias* can be had true from seed unless only one kind be grown in a garden. — K.

Rodgersia podophylla is, in our opinion, absolutely without a rival as a hardy ornamental foliaged plant. How rarely does one, however, see it in its best character, as we saw it the other day in the rockery at Kew, growing by the side of a running stream, the leaves as large almost as those of a *Rhubarb*, gracefully cut, fringed, and beautifully bronzed. Though a most charming subject now, it is in autumn that its real beauty is seen. We have often seen it grown in shade so as to get the necessary moisture, but in such a situation it rarely colours at all, and it is only in full sun with its toes in water that its real charm can be realised. Its flowers are also very handsome, the heads being large and quite as effective as those of *Spiræa Aruncus*. It may be increased to almost any extent by division of the rhizomes.

Iris ochroleuca.—This, perhaps the most stately of all the Iris tribe, is flowering with me this year with unusual freedom, for generally it is, in my experience, rather a shy bloomer. One strong clump is bearing five spikes, others three, &c., each nearly 6 feet high, and with an average of four flowers and buds. The foliage resembles that of our native *I. pseudacorus* in shape, but it is larger and inclined to be somewhat glaucous; it has a peculiar slight twist in its growth, which is extremely graceful. The colour of the blossoms, which are each about 6 inches in diameter, is white, clear yellow, and buff, shading imperceptibly through one into the other; hence, it can be readily imagined that a strong piece, furnished with abundant elegant foliage and surmounted by a number of tall flowering stems, forms a beautiful garden ornament at this season. I enclose the top of a spike; the whole flowering portion was too long to cut. I may say that my soil is a heavy clay, baking hard in summer and lying on a granite basis. — GREENWOOD PIM, *Monkstown, Co. Dublin.*

Proposed boulevards in London.—A meeting has been held recently at the residence of Miss Octavia Hill, Nottingham Place, Marylebone, to consider a scheme for the formation of boulevards in the Euston and Marylebone roads. The history of these roads is interesting. The "New Road" from Paddington to Islington was formed under Parliamentary powers in the year 1756, and the Act which called it into existence contained a clause forbidding the erection of any building by any proprietor or occupier within 50 feet of the highway. This enactment was repealed three-quarters of a century later in a consolidating Turnpike Act, passed in the year 1827, which enacted that no building should, without the consent of the Metropolitan Board, be erected within 50 feet of the highway, unless the general line of buildings ran at a like distance, in which case there was to be no advance on such general line. Since 1862, therefore, the Metropolitan Board and their successors, the County Council, have had it in their power to prevent any encroachment on the long gardens which extend from the houses to the footway in the Euston and Marylebone roads. The Metropolitan Board suffered shops to be run out on the

ground floor, and the consequence is that in parts of the road, though the original building line can be traced, scarcely a yard of open garden ground is left. It is feared that other applications to run out shops may be made. The opportunity arises for constructing a series of boulevards, which might rival those of Paris. A design by the late Mr. Robert Marnock, the eminent landscape gardener, was produced at the meeting—a double row of trees on either side of the main road, with side roads and footpaths, to give access to the houses and shops on either side. The subject may shortly be pressed on the consideration of the County Council. At the recent meeting it was resolved to form a committee to advance the objects in view, and a report on the financial aspects of the scheme was called for.

Burchellia capensis.—This plant was first brought to this country from the Cape of Good Hope in 1818, where it is known commonly as the "Buffalo-horn," on account of the hardness of its wood. It is rather remarkable that a plant possessing so many good qualities should have been so long neglected, and at present be so little known. It is a shrub of bushy habit, with handsome rich green foliage, the leaves being each about 4 inches long, ovate and opposite. The flower-heads are produced in late spring from the points of the previous season's shoots, each being about 2 inches across. Individually the flowers are a little over an inch long, tubular, and of a deep orange-scarlet, which shows up most effectively against the deep green foliage. The genus belongs to *Rubiaceæ*, and was named in honour of Mr. W. Burchell, who travelled as a botanist in South Africa and Brazil in the early part of the century. *B. capensis* thrives in a warm greenhouse, and should be potted in light loamy soil. It is readily propagated by cuttings. Plants have been flowering for several weeks at Kew.

Late-flowering Azaleas.—We have received a boxful of flowers of hybrid seedling Azaleas of *A. occidentalis* from the Knaphill Nursery. A rich variety of colours, freedom of bloom, and delightful scent belong to these flowers. Large masses, as may be seen in Mr. Waterer's nursery, show the value of these shrubs for the garden. The colours range from white to deep rose and crimson, with many intermediate shades—soft yellow, pink, and blush. We have no finer class of shrubs flowering at this season, and breaks of them in gardens create a distinct feature. Such beautiful things should be common instead of scarce, as they are at present. A plate of vars. of *A. occidentalis* was given in THE GARDEN, Nov. 3, 1888.

Jacobæan Lily.—We send you herewith a curious example of a Jacobæan Lily (*Amaryllis formosissima*) flowering in a dry state without having made any roots or received any nourishment. The bulb sent was harvested last autumn, and has been on a dry shelf ever since. — MESSRS. BARR AND SON.

* * A healthy, but rootless bulb was sent in full flower. — ED.

The Edelweiss.—I send a small gathering of Edelweiss from the open ground here. It is finer than I ever saw it on the Alps. Here the plant is easily grown and good, and the blooms are never greenish, as with some. They are only so off the chalk. — W. H., *Millmead Nursery, Guildford, Surrey.*

* * Very well grown. — ED.

Miltonia vexillaria.—In the College Gardens, Dublin, Mr. Burbidge has two specimens of this in bloom. One is carrying fifty and the other twenty-seven flowers.

Lælia purpurata.—Some very fine blooms of this species come to us from Mr. King, gardener to Major Fisher. The single flower is from a superb variety. It has a very richly coloured lip, with yellow throat and white sepals and petals; whilst another form sent is a very dark variety with white, or nearly white throat.

Jankæa Heldreichii.—This is the name of Max Leichtlin's new introduction, and not *Tankæa Heldreichii*, as given in my note in THE GARDEN, June 7 (p. 521). The largest flower of my white *Ramondia* has a diameter of about 1½ inches. — O. FORSTER, *Lehenhof.*

TREES AND SHRUBS.

THE SILVER FIRS.

In regard to the kinds of evergreen trees that it is advisable to select for most parts of this country a good deal of discrimination is needed.

having been so largely planted in recent times, and generally in the most prominent positions in the grounds to which they have been introduced, where consequently the failures that ensued have been the more conspicuous. When new trees are introduced those who take an interest in such matters naturally are disposed

Firs must ever be held in high estimation by those engaged in planting for effect. The following are the most valuable kinds:—

ABIES PECTINATA (the common Silver Fir).—One of the most stately tall-growing trees we possess. It thrives satisfactorily over a wide range of the kingdom, provided it is sufficiently sheltered and the soil is suitable. After it has attained sufficient age to show its true character it forms a straight, massive trunk, but the branches generally get somewhat thin of foliage.

A. MAGNIFICA (here figured) forms a tall and stately tree. It is quite hardy, and rarely suffers from late spring frosts, as is the case with many fine Firs that start into growth early in the season. It is a distinct and handsome ornamental tree for the lawn or park.

A. NORDMANNIANA.—This, which ranks as one of the finest of all the Silver Firs, is nearly allied to *A. pectinata*, yet it has so far shown no disposition to become thin of foliage, but quite the reverse, as it retains its dense covering of leaves in a way that, combined with the deep green healthy colour, renders it one of the most telling evergreen trees ever brought into this country.

A. NOBILIS, one of the grandest of the Silver Firs, is perfectly hardy, and when once established it grows freely in a great variety of soils and in many aspects. It produces its beautiful cones while in a young state, and seedling plants can be raised without difficulty.

A. GRANDIS.—This is a magnificent tree in its native land, and has proved to be one of the finest of the Silver Firs in this country; its habit is not so dense as that of some others of the newer kinds of Silver Firs, and in this respect it forms an excellent contrast.

A. PINSAPO.—In general appearance this differs considerably from the other species. The foliage is short and closely set on the shoots, which are so numerous as to give the tree an extremely dense appearance. It is a slower grower than most of the allied kinds, and does not get nearly so high. The foliage sometimes suffers from severe frosts in some parts of England, but in localities where it is not thus affected it makes a beautiful specimen for a lawn. B.



Tree of *Abies magnifica* in the gardens at Castlewellan, Co. Down, Ireland. Engraved for THE GARDEN from a photograph sent by the Earl of Annesley.

Although in planting it is well to secure as much variety as possible, still it is better to confine the kinds to such as may be relied on to maintain a healthy, thriving condition. Needless to say it is the Conifers that have caused the most disappointment through their

to possess them, and it is as well that their ability to succeed should be as widely tested as possible. But until this is fairly proved it is a mistake to place them, as is often done, in positions where they can least be spared. Amongst desirable coniferous trees the Silver

Zenobia speciosa is a beautiful shrub of the Heath family, reaching when fully grown not more than a height of about 3 feet, and having small pale green leaves, in happy contrast to the bell-shaped flowers. In the variety *pulverulenta*, however, the foliage is almost pure white, and this is preferable to the common kind. When in full flower there are few prettier things in the shrubbery than these two *Zenobias*. The waxy white flowers are like little bells, reminding one of those of Lily of the Valley, and they remain in beauty some time. A plant one mass of bloom in the Royal Gardens, Kew, makes a charming picture near the arboretum, and it will thrive well in a peaty soil. As it is a native of the Southern United States it cannot be accounted very hardy, but ordinary winters will not hurt it.

Weigela hortensis nivea.—This is a beautiful shrub when in full bloom, as we saw it the other day in the Knaphill Nursery. It is one of the best of a pretty class of shrubs, and comes from Japan. It is of somewhat loose spreading growth, the leaves large. The pure white flowers are produced freely in the late spring and summer months. There is another white form named *candida*, which we believe is usually grown in preference to the other, but both are desirable in the garden. *W. candida* is of rather an upright habit and blooms profusely, opening of a greenish colour, but changing to pure white. The two are quite distinct, but *W. nivea* is the more difficult to raise from cuttings. Weigelas are seldom well treated in gardens. The common *W. rosea* is usually planted to the exclusion of all others, while such beautiful kinds as those mentioned are ignored. The proper place for these shrubs is in groups on the lawn or on the margin of shrubberies, where they are allowed to develop into spreading bushes with

graceful drooping branches, and where they are not crowded by neighbouring things. In a good soil and open position they will grow to a height of 10 feet, but some pruning will be required to remove all but the strongest stems and branches that give the finest flowers. Those who have only *W. rosea*, the one that seems to be in every garden, should also grow some of the less known forms.

PROPAGATING HARDY SHRUBS.

THERE is one way of propagating hardy shrubs little recognised. I allude to the propagation by means of young growing shoots put in during the summer months, the great advantage of which is that the atmospheric surroundings being then favourable to quick striking, they are, as a rule, well rooted previous to the winter setting in, and many of them can, if required, be established in small pots before that time. An ordinary garden frame is just the thing for this purpose if in a situation where it is shaded during the hottest part of the day. As air-tight a frame as possible should be chosen, as the cuttings must not flag. Where considerable quantities of one kind are struck, some sandy soil may be placed in the bottom of the frame, pressed down firmly, and the cuttings inserted therein, but when the frame is intended for a varied assortment of plants, by far the better plan is to put the cuttings in pots, as no doubt some kinds will take much longer than others to strike. In preparing the pots for the cuttings, mix together about equal quantities of loam, peat, or leaf-mould and sand, when the compost thus prepared should be sifted through a sieve with a quarter-inch mesh, or if this is not available, half-inch will do. The pots, having some broken crocks placed in the bottom for about one-third of their depth, should be prepared in the usual way. In taking the cuttings, a length of 4 inches to 6 inches will be found the best size. When prepared in this way the cuttings should be dibbled in as thickly as possible without overcrowding, care being taken that the soil is pressed firmly around the base of each. The best time to take the cuttings is just as the young shoots become slightly woody. After the cuttings are put in and watered they should be removed to the frame, which must be shut quite close and shaded entirely from the sun, as without shading even a few minutes' sunshine will injure many of the young leaves. The after treatment consists in removing the lights every morning, or at least every other day, and the usual attention. The frame should be thoroughly cleaned for the reception of the cuttings, a good plan being to renew the ashes on which the pots are to stand to the depth of 1 inch or 2 inches, and to wash the brick or woodwork, as the case may be, of the interior with hot lime, as it destroys all insects, and tends to produce a healthy atmosphere around the cuttings. Of course a propagating house is more convenient than a garden frame for striking these cuttings, but this last is available in most cases, while a house devoted to such purposes is, as a rule, to be found only in trade establishments where great numbers are raised. In taking the cuttings all weak and attenuated shoots such as are found towards the base of many shrubs should be avoided, as they do not strike root so well, and besides, even if they succeed, they make slow progress. The very stout, succulent shoots should not be taken, as they are apt to decay.

With regard to the different subjects for which the above mentioned mode of propagation is available, I must say that the list is a large one, though, as a matter of course, some can be more readily increased in this way than others. This treatment is especially suitable for *Euonymuses*, *Veronicas*, *Box*, *Phillyrea*, *Vilmoriniana*, *Privets*, nearly all the *Viburnums*, and hosts of other subjects. Many of the hardy *Ericaceæ* can be so propagated, but in their case the most suitable compost is sandy peat. One of the easiest of this class to strike is the pretty *Andromeda japonica*, which, singularly enough, roots very much more readily than its near relative, the North American *Andromeda floribunda*. As a rule, however, the plants belonging to the

order *Ericaceæ* require a longer time to strike than most others. The Mexican Orange Flower (*Choisya ternata*) succeeds perfectly under such treatment, and so I find does the beautiful *Cytisus scoparius* *Andreanus*, which has attracted so much attention recently, and of which plants on their own roots are certainly preferable to those grafted on the *Laburnum*, which seems to be the mode of increasing it employed by some. Hollies are not very amenable to this treatment, unless it is the little *Ilex crenata*, which roots readily enough, but the others, even if they strike, remain long before doing so. That Holly-like shrub, however, *Osmanthus ilicifolius*, in all its forms roots readily enough. Other plants that may be mentioned are most of the *Barberries*, *Lilacs*, *Philadelphus*, *Escallonias*, *Deutzias*, *Weigelas*—in short, anything may be given a trial, and with suitable attention there will be few failures. It is surprising the quantity and the varied assortment of plants that can be turned out from an ordinary garden frame when it is devoted entirely to propagating. T.

THE BEST SHRUBBY SPIRÆAS.

ATTENTION is directed on p. 558 of THE GARDEN to the great beauty of some of the shrubby *Spiræas*, and the fact that their merits are, as a rule, overlooked by planters. A good assortment will maintain a display of bloom from early spring until the autumn. In making a selection of the finest shrubby *Spiræas* to give a succession of bloom, I should name the following as the best: *Spiræa Thunbergii* is the earliest to flower of the whole group. It is a graceful bush, the shoots being long, slender, and arching. This species is succeeded by *S. prunifolia* fl.-pl., which has double flowers; the single-flowered form does not appear to be in cultivation. The *Spiræa* in question forms a spreading bush 6 feet high. Unlike most of its immediate allies, the foliage of this dies off deeply tinted in the autumn. Following closely after these two, the blossoms of several others rapidly unfold, *S. trilobata* amongst the number (see GARDEN, June 14, p. 559). This is quite dwarf against *S. opulifolia*, which is one of the giants of the genus, for when fully developed it forms a large shrub 10 feet or more in height. The leaves are not unlike those of the Guelder Rose (*Viburnum Opulus*), and the flowers are somewhat in the same way, but not borne in such globular clusters. Beside the blossoms, the reddish inflated seed capsules of this species form later on a prominent feature. The golden-leaved variety of this differs from the type, besides the colours of its leaves, in being altogether a smaller growing shrub. The yellow-tinted leaves are attractive in the spring, but later on they lose much of their bright colouring, and in time become green. Of *S. hypericifolia* there are several forms, one of the best being *flagelliformis*. In this the flowers are borne in small corymbs, disposed thickly on short laterals throughout the greater part of the long, slender, gracefully-arching shoots. The blossoms are pure white. One of the brightest of its class is *S. splendens*, usually flowering towards the end of June and in July. It is a dense-growing shrub, about a yard high, while the flowers are borne in closely packed terminal corymbs. The colour is rich carmine-pink, and when seen in a mass it is bright and telling. *S. ariæfolia* is a big kind, which flowers about the latter part of June or in July. The specimen is a mass of cream-coloured plumes when in full bloom.

There are several *Spiræas* belonging to the callosa group, the best of which have bright coloured blossoms. *S. callosa*, also known as *S. japonica*, is an upright bush, reaching a height of 5 feet or 6 feet, and bearing flat corymbs of bright rosy-red blossoms. The best varieties are, *rubra*, very deeply coloured; *pallida*, one of the palest; and *paniculata*, in which the flowers are borne more in panicles than in flattened corymbs. There is also a form of this which from its richly coloured blossoms is known as *paniculata rubra*. *S. Fortunei* is the same as *S. callosa* and *S. japonica*, and the two varieties last mentioned, viz., *paniculata* and *paniculata rubra*, are generally known under the specific name of *Fortunei*. The rich tints on the young

leaves of this group make a bright picture of colour when the plant is lit up by the sun. The brightest colour is on plants fully exposed. A pretty little *Spiræa* seldom seen more than 1 foot or 18 inches in height is *S. callosa alba*, but it differs in many respects besides the colour of the blossoms from the other members of the callosa or japonica group. The flowers are pure white, usually at their best in July, but after that a scattered succession is often kept up; indeed, I have had it nicely in flower up till November. The leaves are entirely without the rich tinge of the other forms during their earlier stages. *S. Douglasi*, which has rosy-red flowers, and is illustrated by a coloured plate in THE GARDEN, March 17, 1883, is a handsome shrub, forming a large clump of densely packed shoots, clothed with more or less of tomentose leaves, and each shoot terminated by a large spike of flowers. It varies widely, but the richest coloured form is usually of good sturdy growth. The names of *S. tomentosa*, *Menziesi*, and *Nobleana* occur as distinct species, or as varieties of the latter. *S. nutans*, a Nepalese species, flowering about the early part of July, is well worthy of a place. This makes a bush 6 feet or 8 feet high, the principal shoots being upright at first, but drooping towards the points, whilst the minor branchlets are still more pendulous. The leaves are small, while the pure white flowers are borne in great profusion. They are arranged in dense flattened clusters, and extend for a considerable distance along the shoots, thus making a goodly show. A pretty *Spiræa*, which should, perhaps, have been included under the head of *S. japonica*, is *S. Bumalda*, which rarely exceeds 2 feet in height, and bears its bright pink blossoms very freely. It is a July flowering species. Another is the curious miniature *S. crispifolia* or *bullata*, a dwarf shrub, better fitted for a nook on the rockwork than for the open border. This forms a dense mass less than 1 foot high, every twig of which is terminated by a cluster of its pretty carmine-pink blossoms, bright crimson in the bud. There is a small class of shrubby *Spiræas* remarkable for their pinnate foliage, and consisting of the Himalayan *S. Lindleyana* and the Siberian *S. sorbifolia*. This grows to a height of from 3 feet to 6 feet, and succeeds best in a cool, moist soil. It soon pushes up a considerable number of shoots and forms a dense mass of large, pinnate bright green leaves, overtopped by loose terminal panicles of small white flowers. A *Spiræa*, by some regarded as a variety of the preceding and by others looked upon as a distinct species, is *alpina*, *grandiflora*, or *Pallasi*, for by each of these names it is known. It differs from *S. sorbifolia* in the foliage being lighter, the individual blooms double the size, and of a purer white, while it blooms a fortnight or so earlier than *S. sorbifolia*. The third to mention of this class is the beautiful *S. Lindleyana*, a much larger shrub, for in good soil it will reach a height of 10 feet or 12 feet. The usual flowering season is during the latter half of July, or sometimes in August, at which time the number of flowering shrubs in bloom is small. While all the *Spiræas* delight in cool, fairly moist soil this is more necessary for *Lindley's Spiræa* than the others, as the foliage must be fresh and green at the time of flowering. Some of the species which bloom early in the season will at that time be fresh, even in moderately dry spots, though they will probably suffer during the hot weather of July or August, at which time *S. Lindleyana* is in full bloom. T.

Retinospora filifera aurea.—This is one of the newest additions to the golden *Retinosporas*, and is, except in colour, a counterpart of the type, which is one of the most distinct and ornamental of medium-growing Conifers. It is admirably adapted for planting as a single specimen in Grass, where it usually becomes of a bluntly pyramidal shape, a singular appearance being presented by the long, pendulous, thread-like branchlets, often terminated by tufts of little shoots. This *Retinospora* and the weeping *Biota pendula* when small much resemble each other.—H. P.

Olearia macrodonta is a pleasing shrub, not much known yet, as it is only about five or six years ago that it was introduced from New Zea-

land, where it is called *O. dentata* a different thing to the *O. dentata* of Australia, that is grown in the Scilly Isles and southern counties. *O. macrodonta* may be seen on a sunny wall at Kew, and is doubtless hardy in the warmer counties of England, though in colder and more northern districts it would possibly suffer in winter. It is perfectly hardy at Cork in Mr. Gumbleton's garden, and when in vigorous health it has a beauty essentially its own. The plant at Kew is not very large, but it makes a pretty picture with the profusion of large Holly-like leaves of a silvery green colour, the under sides almost white. Besides this attractive foliage, we have at this season a free display of dense heads of small white flowers. It will grow to a height of 20 feet.

ORCHIDS.

CATTLEYA MENDELI.

A READER of THE GARDEN recently remarked to me, "I should very much like to know how to tell the difference between *C. Mossiæ*, *C. Mendeli*, and *C. Trianæ*." By an Orchid grower these types are easily distinguished, independent of the different times of flowering. *C. Trianæ* has the front lobe of the lip less produced, and frilled in a less degree than any of the other kinds; it has also, I think, a more shallow bi-lobed lip. The colour of the front lobe of *Trianæ* is generally continuous, and, as a rule, it is carried up round the margins, which meet over the column. Behind this is a distinct line of yellow of some shade, and which usually pervades the entire throat. This plant, which on its introduction bore the name of quadricolor, bloomed first in the collection of the late Mr. S. Rucker, of Wandsworth. It flowers in late winter and early spring, and is usually past before *C. Mossiæ* and *C. Mendeli* begin to push up their flowers. Many superb forms have been noted and named in this country. In *C. Mossiæ* the lip is very large and open, and deeply bi-lobed in front; the central part of the flower usually has a yellow streak from the centre to the base, and often a broad band of orange-yellow extending down the sides of the front lobe, leaving the centre of a more or less brilliant, rich velvety purple, veined either with a deeper purple or lilac, and always having the frilled and undulated margin paler than the central portion. *C. Mendeli* has its lip very much prolonged in the front lobe; the colour pervades the whole of the front, but ceases near the throat, and is backed by either yellow or white, or a combination of them both. I have not said anything respecting growth, although this differs considerably, and the majority of growers can easily detect the differences in the three kinds from the growth alone. The three forms are found so far apart, that it is no wonder that differences in habit and appearance exist. *C. Mendeli* and all its varieties are fine ornamental plants, and can be as easily grown as *C. Mossiæ* and *C. Trianæ*. After the flowering season the plants should be encouraged to grow vigorously, in order that the bulbs may be made up and finished before the winter sets in. During the summer months *C. Mendeli* enjoys heat and moisture in the air, but care must be taken not to rot the roots nor to make the soil sour by too much water. This I am convinced is the reason why *Cattleyas* so often come to grief.

I have always been in the habit of using some Sphagnum in the soil for *Cattleyas*, and have never been troubled with root-rotting. During the winter months very little water should be given, but care must be taken that the plants do not become too dry, as this causes the bulbs

to shrivel, thus weakening the flowers and turning many of the leaves yellow. I do not like to use the syringe for sprinkling *Cattleyas* overhead; they stand too erect under cultivation to allow of this being done with any good results; the sheaths enveloping the young growths being large, hold a quantity of water, which lies in them to the great injury of the young growths. In their native home this would be obviated by a greater amount of air, which would absorb the extra moisture. At any rate, I have always found *Cattleyas* and *Lælias* thrive best when the use of the syringe was confined to sprinkling between the pots and the bases of the pseudo-bulbs. The numerous and distinct varieties that are found to exist amongst them are entirely due to the various seedlings which spring up from time to time. I here append a few of the beautiful forms of *C. Mendeli* which have been recorded:—

C. MENDELI GRANDIFLORA differs from the type in having very large flowers, each of which measures some 8 inches across; the petals are very broad, much frilled and undulated, and, together with the sepals, pure white; lip also white, the front lobe having a solid blotch of deep magenta-rose in front. This is sharply defined by its yellow throat and the sides, which are white.

C. MENDELI BELLA.—In this form the sepals and petals are white, faintly tinged with blush, the latter broad and much more frilled. The lip in front is of a rich rosy-lilac, netted with broad, white veins, the throat being golden-yellow and the edges white.

C. MENDELI BLUNTI.—It would appear that nearly all the forms of *Cattleya* have produced an albino form, and this is the finest of them all. There have, however, been numerous attempts to pass off an impure white flower upon the unwary for this plant. It is very rare, the whole flower being pure white, saving a yellow stain in the throat.

C. MENDELI MORGANIE.—In this form the flowers are of the purest white, the petals and lip well frilled, and having a narrow magenta-coloured streak in front; the base yellow, with a few streaks.

C. MENDELI JAMESIANA.—The sepals and petals are of a rich deep rose, the latter having a central streak of rich magenta at the points; lip large, the front lobe a solid mass of deep rich magenta, which is cleanly cut off by the rich deep yellow of the throat, which is bordered with white and beautifully frilled.

W. H. GOWER.

Phalænopsis Manni.—This is a very pretty species, which I think I was the first to import in a living state some sixteen or eighteen years ago. It bears a branching spike of many flowers, the sepals and petals of which are yellowish, transversely streaked with chestnut-brown. The lip is small, the lateral lobes erect and white, with purple lines and streaks, the central lobe fringed. It is remarkable as being one of the species from the mainland of India, I having imported it from Assam. It appears to be a free grower, but, like all the rest of the family, it requires to have its roots free. I have seen this plant doing well in Mr. Smee's collection at Hackbridge, and I saw it flowering recently in the Burford Lodge collection.—W. G.

Cattleya Eldorado.—Ethel's flowers have come at last, and this is one of them. It was introduced by M. Linden, of Brussels, and flowered first in Europe some twenty-three years ago. The variety sent is a very pretty one, and I saw nearly the same variety flowering last week with Mr. White, gardener to Sir Trevor Lawrence, at Burford Lodge, Dorking; the sepals and petals are rosy-lilac, and the lip, which in this species is more tubular than most of those of this section, is nearly white on the side lobes which enclose the column. The expanded middle lobe is of a rich golden yellow, broadly bordered in front with rich purplish-magenta. This plant is a native of the Rio Negro

district, and consequently requires greater heat during its season of growth than most of the *Cattleyas*. When resting it also enjoys more drought than is good for the majority of *Cattleyas*. I would advise my readers, however, to carefully watch that the plant does not suffer from drought, as I am fully convinced that under cultivation greater benefits are derived from a slight reduction in temperature at this season than by shrivelling the growths in too great a heat.—H.

Epidendrum sceptrum.—This is one of the plants which can usually be seen flowering in Sir Trevor Lawrence's beautiful collection at Burford Lodge, and it is a very showy plant when in full bloom. Just now it is nearly past for a time. The pseudo-bulbs are 1 foot or more long, and the raceme is as long or longer than its growths and many-flowered; the flowers last long in full beauty and vary much in colour. The sepals and petals are spreading, making a flower 2 inches across, golden-yellow, spotted irregularly with purplish-crimson. The lip is fringed in front, paler yellow (but sometimes purple), streaked round the crest with dull crimson. The plant was found in Venezuela by Linden, growing on rotten trees, at some 6500 feet altitude, and also by Schlim in New Grenada.—G.

Oncidium concolor.—A spike of this bearing seventeen flowers, and the sender says it has had over twenty blooms upon it, comes to me from Warwick. It is truly a charming and brilliant-flowered plant, the spike before me being nearly a foot long. The flowers are borne upon long petioles, and the large lip, sepals and petals are of a rich canary-yellow. It is really quite astonishing that such large and many-flowered racemes can be borne by so small a plant. I have found the plant thrive best in earthenware pans, well drained, and in a mixture of peat fibre and Sphagnum Moss. The plants should be hung up in the light in the Odontoglossum house in the summer months, but in the winter they may be removed to a position a few degrees warmer, and kept moderately dry until the flowers appear in the early spring. The plant has been in cultivation for upwards of forty years, and in my early days amongst Orchids it was very rare. It has now, however, become more plentiful, and there is no plant which I could recommend my readers to grow which would give so much pleasure. It comes from the Organ Mountains, in Brazil.—W. H. G.

The original plant of *Cattleya*.—Will you kindly tell me if the original plant on which the genus *Cattleya* was formed is now obtainable?—E.

* * The first *Cattleya* ever introduced to Britain was *C. labiata*, found by Mr. William Swainson in the Organ Mountains, Brazil, and brought to England in 1818. On this plant Lindley founded his genus *Cattleya* in honour of the late Mr. W. Cattley, of Barnet, an ardent collector and cultivator of rare plants, and one of the first amateurs in England to form a collection of Orchids. Mr. Cattley died in 1832, and his plants went to the collection of Mr. Knight (now Veitch's) at Chelsea. If this true old *C. labiata* exists wild now in Brazil, its locality is unknown, and it has not been imported for forty years or more. Sander has had men hunting for it for years, but it is now believed to be extinct. In cultivation the true plant is rare and valuable. It can only be obtained at a high price, and is known as the "old autumn-blooming *labiata*," or *C. labiata vera*. Botanically, however, all the varieties of *Cattleya*, such as *Mossiæ*, *Trianæ*, *Warneri*, *Mendeli*, *gigas*, *Gaskelliana*, *Dowiana*, *aurea*, *Percivaliana*, *Eldorado*, *Luddemanniana*, &c., are now considered as geographical forms or varieties of the old *C. labiata*. I suppose the smallest plant of *C. labiata vera* would cost at least £10 at Veitch's or elsewhere, and anything like a specimen £50 or so. It has a robust constitution, as is proved by its having lived on so long in our collections, since the last importation came nearly half a century ago.—F. W. B.

Cypripedium caudatum.—I recently received from Mr. Manda, of Swanley, of the firm of Pitcher and Manda, a beautiful flower of this species, bearing the name of *C. caudatum roseum*, but although

a very fine flower, I cannot see anything that connects the name of roseum with it, the colour not being sufficiently bright; the tail-like petals were 2 feet long. A flower of this species which I received from Mr. Fraser, late gardener to Mr. White at Arddarroch, measured 32 inches in the petals after drying, and it was about 36 inches long when fresh. I must say, however, that the flower sent by Mr. Manda appeared to have been cut when very young, or it might have been longer.—W. G.

Cypripedium bellatulum.—Flowers of this species come from G. Williams, H. Thomson, and H. Buchan, the flowers sent by the two first being very much alike, white, and somewhat thinly spotted. This is more evident when compared with the richly-coloured and heavily spotted flower from H. Buchan, with a rose tinge in the dorsal sepal and in the petals, all being profusely spotted with purplish-brown, and also the lip, which is freely dotted with purplish-brown. This belongs to the same section as *C. Godefroyæ*, but is quite distinct from it in its growth.

SHORT NOTES.—ORCHIDS.

Pleurothallis rubens.—This is a pretty plant in flower at Kew, one specimen carrying as many as thirteen spikes of yellow flowers standing out above the leaves. In full flower it is an interesting and showy Orchid.

Hartwegia purpurea (G. T. W.).—This is the name of the flower sent with spotted leaves, and stems instead of pseudo-bulbs. It is not much esteemed now by Orchid growers, and if you cannot grow the plant yourself, make a present of it to some botanic garden.—G.

Cattleya Mossiæ.—A magnificent form of this species comes from Mr. King, gardener to Major Fisher, and a C. Mendeli, which, although very pretty, is very pale, and may be classed with the light-coloured forms. It is not equal to C. Mossiæ, which is very large and richly coloured.—W.

Oncidium concolor.—This is still in bloom, though it is best in the spring months. The pure yellow flowers are large, and produced in a long, pendulous raceme, a good plant in full flower making a distinct break of colour in the Orchid house. It comes from the Organ Mountains and looks best in a basket suspended in the cool house. It is one of the finest things in Mr. Malcolm Cooke's garden at Kingston Hill.

Cypripedium Parishii (P. W. T.).—This is the name of your Lady's Slipper, and not *C. philippense* or *laevigatum*, as you suppose. It is a native of Burmah, and not the Philippines. In this plant the petals are bordered and tipped with purple, a colour not found in *C. laevigatum*, which was named by mistake, Mr. Bateman not being aware that it had been previously named *C. philippense* by Professor Reichenbach.—W. G.

Odontoglossum Pescatorei.—I have just received a flower of this measuring nearly 3½ inches across, the sepals and petals broad and full, making up quite a round flower. These are pure white, saving the lateral sepals, which are streaked with rose. The pandurate lip is large, white, stained at the base with rich deep purple, the crest bright orange-yellow.—W. H. G.

Disa tripetalata.—Although this cannot be said to rival the fine *D. grandiflora*, it is nevertheless a most elegant little species. It is now flowering in the nursery of Messrs. Seeger and Tropp, Lordship Lane, Dulwich, in company with *D. racemosa*, which it much resembles in habit, although less robust. The flowers are creamy-white, spotted with bright pink. It appears to be easily grown.—W.

Epidendrum auriculigerum.—This is a pretty species now flowering with Sir Trevor Lawrence. It is a very curious plant, but I cannot find the name anywhere. In growth and appearance it is like *E. prismatocarpum*, although not so strong and robust. The flowers are each about 3 inches across, the colour being yellowish green, the lip white stained in the centre with mauve. It appears to thrive in a medium cool house.—W. H. G.

Disa grandiflora (A. J., Southwark).—This is a very difficult plant to manage when it goes wrong at the time you name. I should not think that it had been kept in any great heat, or it would not be flowering so freely. I should rather think your wash was too strong. The plant should be grown in a cool house or cool frame, and the pots should be plunged. Air should be given night and day, and during the winter

the plants should also be kept cool. Grown in this way I saw them doing far better than I have ever seen them with the Comte de Germiny near Rouen, in Normandy; hundreds of blooms were open, and made a gorgeous display.—G.

KITCHEN GARDEN.

VEGETABLE MARROWS.

If not exactly indispensable, there is yet no vegetable that can be so thoroughly relied upon during a hot dry summer as the Vegetable Marrow. What proves fatal to the majority of summer crops seems to exactly suit Marrows, Gourds, and such like, plenty of bright sunshine being needed by these to check grossness and to cause a hard fruitful growth. In reality they are tropical plants, and it is not therefore at all surprising that they succeed best in sunny positions and during the hottest summers. Many growers, private gardeners especially, evidently quite overlook this fact of their being essentially heat rather than rich food-loving plants, or otherwise how are we to account for the elaborate preparations frequently made in the shape of large heaps of strong manure formed, perhaps, in a position where the sunshine reaches the plants during a portion of the day only? Even when fully exposed sites are



Long bush Vegetable Marrow.

selected, the plants when given such an extra rich root-run make far too gross a growth to be productive, a mass of haulm and leaves being the principal outcome of this treatment.

During a hot dry summer hundreds of tons of Marrows are sent to the London markets, and many of those gardeners whose lot it is to frequently see the numerous wagon-loads filing into the city ought ere this to be well aware that they could not have been grown on manure heaps. The plants which produce these enormous crops certainly have a fair share of manure. What vegetable grown near London does not? but there are no heaps of it. As a rule, the plants either have separate stations prepared, or else beds are formed for long rows of them, the latter plan predominating, the former answering well in private gardens where odd corners only can be given up to this crop. For a single plant a station a yard across may be got ready by throwing out the top pit of soil or the best portion of it, returning this on to the top of about 1 foot of half rotten manure. Beds 4 feet wide, with 4-feet spaces between and of any length (I have seen

them in Essex half a mile), can be formed in a similar manner, and if a rather greater depth of manure is employed, this will generate sufficient heat to give either seeds or plants a good start. Whether seeds are sown where the plants are to grow, or the latter are raised in pots under glass, the best time for forming the beds is about the middle of May, the seeds being sown directly the soil is warmed through or the plants put out 3 feet apart during the first week in June. Not unfrequently they are got out a week or more earlier, various contrivances, such as hand-lights, cloches, flower-pots, baskets, brown paper covers, and branches of Evergreen, being placed over them by way of protection from frosts. The latter precaution was particularly needed this season, quite a sharp frost, and which damaged many tender plants, being experienced during the first week in June. We have for years adopted the market growers' plan of growing Vegetable Marrows with good results, the only difference being in that we find it necessary to surround the plants with a little fresh loamy compost, our clayey loam not suiting them well at the outset. It must be a very dry summer indeed if the plants grown in these simply formed beds require any water. Ours after they are once established never get any other than rain, and I do not remember ever seeing market growers using the watering-pot among their crops.

In some parts of the midlands and the more northern districts, the rough-and-ready method of growing Marrows just described will not, as a rule, answer so well, raised beds being needed in this case, or otherwise the crops may either fail or only be at their best a short time before early frosts destroy the plants. In these and all other instances where the coldness of the situation militates against the Marrows when grown in the open, large raised beds may be formed for them with advantage, but these should not be solid heaps of manure. Rather ought they to be constructed of various decaying substances, including leaves, weeds, sweepings, trimmings of walks, with perhaps an addition of stable manure. These materials being well shaken up together, or mixed prior to being formed in a large square heap about 3 feet or rather less in depth, will go on steadily decaying and generating heat, and in addition to doing good service in growing Marrows will, when sorted over in the winter, be found of the greatest benefit to fruit trees or other crops in the kitchen garden. An early start being most desirable, plants should be put out in small mounds of loamy soil and covered with hand-lights, or if a frame can be spared, a few plants may well be started in these, the frame being duly removed and the haulm allowed to extend in all directions. Shallow beds formed of loose and somewhat poor materials may need a good soaking of water or liquid manure occasionally, but, as a rule, nothing of the sort is wanted. Shelter from cold winds should be afforded as much as possible, thatched hurdles being about as effective as anything that can be tried for the purpose. Sometimes these beds are surrounded by fagot wood, this sheltering the young plants somewhat, and later on left for the haulm to ramble over. Vegetable Marrows are also occasionally to be seen successfully employed for covering arbours in the kitchen garden, and they fruit well in such positions. During some seasons it is hardly possible to make a mistake with them, but if the plants are raised at least three weeks or a month before they can be put out, as they too often are, they become stunted and unhealthy, and are a long time in recovering. Time would often be gained if these too early-raised plants were thrown away and

others raised separately in 4-inch pots and put out when in the rough leaf.

Stopping the Marrow growths ought never to be resorted to. What most of the varieties require is good room and to be allowed to ramble. Thus let alone, those in the open ground especially soon set abundance of fruit, and so eventually would those on heaps, if the haulm could be kept thinly trained. The more closely the fruits are kept cut, the more freely will they be produced. For the market, good-sized Marrows are needed, but for private use they might with advantage be cut when quite small, or say in the case of the long-fruited forms, when they are about 5 inches long and 2 inches through. These cooked whole, or exactly as they are cut, and served entire are "Vegetable Marrow" indeed, and are appreciated by the daintiest epicure. Large fruits are frequently saved and cut when ripe, these being hung up or stored in a dry place for use during the winter. A very few of these, however, are sufficient to effectively stop all further productiveness of the plants. Not till August should any be left to grow to their full size unless they are considered of greater importance than a good supply of tender young Marrows, and which might be available at a time when green vegetables were scarce.

The list of really serviceable or popular forms of Vegetable Marrows is by no means a long one, and no harm would be done if this was still further reduced. Long White, of which there are several more or less good selections, is the variety most generally grown, this being good alike for exhibition, market work, and home consumption. If one variety only is grown, Long White should be that one. Long Green much resembles the foregoing in all but colour, and of this Prince Albert is a good selection. White Bush, also known as the Chusan, is of compact growth, the running growths in this case being very short, and this distinct form produces long white fruit very freely and quickly. It is not recommended for storing in a ripe state. Hibbert's Prolific each time I have tried it has been most disappointing; it was a failure in fact, but Moore's Vegetable Cream is more deserving of a trial, the fruit being medium-sized, handsome, and good in quality. Muir's Pen-y-Byd is, however, by far the best companion for the Long White, this variety producing small round fruit most freely, the flavour of these when cooked invariably giving satisfaction. Prior to the introduction of the last-named the Custard-shaped was grown for cooking in a small state, but this old free-bearing sort is now seldom met with.

W. IGGULDEN.

Broad Beans.—It is a remarkable fact that whilst aphides are so prevalent this season, infesting plants hardly before in my recollection at all foul, yet Broad Beans not unfrequently so blackened with the dolphin are this year with me and about this district exceptionally clean. It is not that we have had an unusually favourable time for Beans, as it was very dry during the earlier period of their growth and they came away slowly, but still later have done well. They will not pod early, but, judging by the bloom, very freely. Aphides have amongst other things attacked Pinks and Carnations with exceptional force this season. On a large bed of seedlings of the former, the growths being almost a mass of bloom, I observed scores of sparrows very actively engaged in eating off the aphides from the flower-stems. It afforded very interesting evidence of the value of birds as insect destroyers. Peas are generally very clean and doing remarkably well, a matter of great importance, as in this district Peas form a staple crop and afford a large amount of employment. Broad Beans

are not much grown. I should like to learn whether this freedom from black aphides is general on the part of the Broad Bean, or whether it is but local. We have had here some occasional rains, but none sufficient to penetrate to the plant roots; indeed, we could do well with twenty-four hours' rain and be none the worse. It is perhaps only the haymakers who would suffer, as the average of rain for the half year must be rather low. The temperature varies, but generally it is rather low than otherwise, a condition favourable to the Broad Beans; but then it should be equally favourable to other plants which are so unusually infested with aphides.—A. D.

GILBERT'S KING OF THE BRUSSELS SPROUTS.

THE Brussels Sprout is a cultivated variety of the common Cabbage, from which it differs in being taller and in having many small late-



Gilbert's Brussels Sprout. Engraved for THE GARDEN from a photograph.

ral auxiliary heads about the size of a Crab Apple, instead of developing one large head on the top of the stalk. It is simply a case of lateral instead of terminal development. The Brussels Sprout is not a very ancient vegetable. It is not like the Onion or the Cucumber, of which we possess historical evidence as old as the Pyramids, although they were doubtless known and cultivated long before that remote date. It is supposed to have originated by accident in the neighbourhood of Brussels, whence until a comparatively recent date seeds were imported to our British gardens. For the particularly fine and prolific variety here figured we are indebted to Mr. R. Gilbert, of High Park Gardens,

Burghley, who has for many years devoted much attention to this and other excellent vegetables. It is now twelve years ago since Mr. Gilbert raised and sent out the Burghley Brussels Sprout, and a very fine and vigorous strain it was, but it did not quite come up to the high standard that its raiser thought to be desirable. After having reared two such distinct and standard vegetables as are Chou de Burghley and the Universal Savoy, Mr. Gilbert still remained unsatisfied with his laurels as a raiser of new vegetables, and since the year 1872 he has most carefully and persistently selected seeds of his Improved Burghley Brussels Sprout, until he has at last produced the perfect variety we now illustrate by a careful engraving from a photograph. Mr. Gilbert's success has been the result of the most rigid selection from well-cultivated plants. One selection has not been deemed sufficient, but two or three of the very finest individuals in a batch or plantation have been carefully treated for seed for several successive years, so that the present results are very high.

Another most important matter is that seed has never been saved from the heads or tops of the plants, but from the finest side heads or "sprouts" only, since to leave the smaller and more open sprouts for seed as well as the finer ones leads to degeneration instead of improvement. Mr. Gilbert's selected Brussels Sprout has not as yet been exhibited in London, but received the unanimous award of a first-class certificate from the Stamford Horticultural Society as a very superior thing.

The specimen illustrated stood $3\frac{1}{2}$ feet in height—that is to say, 42 inches from the ground level, and, as is evident, was studded with sprouts from top to bottom, a length of fully 3 feet.

It is a pleasure to meet with cultivators of vegetables who grow them as carefully as most people do their Grapes, Peaches, or Pears. In this case Mr. Gilbert cannot be said to be favoured by climate, since I know by experience that if a bad bit of weather is to be found in England, or a biting hard winter, you may expect it in the midland counties and not often be disappointed. It follows that any superior strain of vegetables grown for seed in such a climate will be more likely to be robust and vigorous than that reared in milder localities and on warmer soils. We trust that our friend, Gilbert of Burghley, may long be spared as a pioneer in the way of improving this and other of our choicest vegetables. F. W. BURBIDGE.

Late Broccoli.—From observations I am induced to ask the question, Are we improving in these in any way, and more especially with regard to lateness? It is true we hear every season that this and that kind are improvements. I remember many years ago the good old Cattell's Eclipse and Wilcove's White used to keep up the supply into June, quite late enough, as Cauliflowers were in by that time. Having grown many so-called new kinds during the last ten years, I fail to see any improvement so far as lateness goes; in fact, I am not able to keep Broccoli longer than the end of May. This year I grew Latest of All; it was no later than a good true stock of Wilcove's White, and no im-

provement. Late Queen came into use about the same time. There is an improvement in dwarfness in these late Broccoli, and no doubt this favours hardness. —J. C. F.

MULCHING FRUITS AND VEGETABLES.

IN dry weather the value of a covering of some kind of manure over the roots of plants is very great. In the fruit garden Apples on the Paradise and Pears on the Quince will be much benefited by a mulch of good manure 2 inches thick spread on the surface as far as the roots extend. It is difficult to keep the roots sufficiently moist without something of the kind even when water is plentiful and can be easily applied. Watering at any time is not an unmixed good. In very dry weather unless the surface is mulched the water rapidly evaporates, leaving the surface soil in a harsh, unfavourable condition. Where the appearance of manure is objectionable it is an easy matter to draw away a little of the surface soil and scatter it over the manure. When the latter is applied this will keep the birds from scratching it about and making the garden untidy during very hot, dry weather. It is next to impossible to keep surface-rooting fruit trees in really good condition in a dry time without mulching. Strawberries are generally mulched down as soon as the blossoms are set, if not earlier, and a mulch of manure or even the lawn mowings scattered between the rows of Raspberries add much to the weight and value of the crop. Wall trees, especially those trees growing against south walls, often suffer from lack of moisture from June till the crop is ripening, and a mulch would keep the roots comfortable and the foliage healthy and free from red spider. But as soon as the crop is gathered the manure or whatever mulching has been used should be removed to let the sunshine warm the roots, and by its action ripen the foliage and harden the wood. Among plants cultivated for their flowers only, Roses, Phloxes, Hollyhocks, Carnations, Pansies, Asters, Stocks, &c., are much benefited by a surface covering of manure. It is possible, of course, to grow good flowers without mulching where the soil has been thoroughly cultivated, but there is a great saving of labour in the use of a few loads of manure spread over the roots, and when it is necessary to water during a prolonged drought the nutriment in the manure is carried down to the roots, adding size to the blossoms and health and vigour to the foliage. Well rotted manure forms the best material for mulching, but if this cannot be obtained in sufficient quantities for the purpose, I have used other materials, such as charred refuse, and in some instances coal ashes where the only object sought was to check evaporation, and 2 inches of loose surface soil stirred frequently with the hoe tends to keep the moisture in the land, and the roots cool. In many instances, if more hoeing and less watering were done, the plants would thrive better. Mere surface watering often does more harm than good, by the encouragement given to the production of surface roots only. The natural tendency of the roots is to go downwards in search of moisture in hot, dry weather. It is true in the case of fruit trees that this downward tendency, if it proceeds far, leads to disorganisation of growth and is destructive of fertility, simply because without warmth as well as moisture the wood will not mature sufficiently to produce fertile blossoms. In extreme cases there may be an entire absence of flowers, and under such conditions there can, of course, be no fruit. Hence the value of a mulch of manure on the surface over the roots of fruit trees in hot, dry weather to keep the roots within the influence of solar heat, so that the wood may be properly built up and matured.

A mulch of some kind, either in the shape of a covering of manure or a loose, freely-stirred surface, is absolutely necessary for most vegetables, but especially Peas, Beans, Cauliflowers, Lettuces, Celery, Globe Artichokes, Vegetable Marrows, ridge Cucumbers, &c. To have Radishes good and crisp in hot seasons they should be sown in drills, and the spaces between the rows covered with

short manure. In the use of mulch everybody will, of course, be guided by their own circumstances and the character of the soil they are dealing with. At the present moment there are many indications that the summer is likely to be dry, and without mulching many things will suffer. At the present time there are very few gardens with a sufficient water supply to meet a hot, dry summer, and where the water supply is abundant the means of distribution are totally inadequate. A few loads of manure will go a long way in mulching, and will keep things up to the mark with an occasional soaking of water. In this island home of ours we never have too much sunshine if the proper means are taken to keep the moisture within reach of the roots.

E. H.

STOVE AND GREENHOUSE.

THE GARDEN BALSAM.

IT is some 300 years since the garden Balsam (*Impatiens balsamina*) was introduced to this country from the East Indies, or from Cochin China, and it has maintained its popularity until this day. It was in all probability at the outset a simple single-flowered form, but from it have come many beautiful and fine double varieties of various shades of colour. It is frequently seen at exhibitions as a specimen plant, but rarely in such a form as it is capable of, for they are generally drawn, lanky, and leggy specimens, instead of being, as they should be, dwarf, compact, bushy, vigorous, bearing on the branches plenty of large double flowers. One sometimes sees gross plants, all foliage and no flowers, which is simply an evidence of defective management. Some time since I was at a large provincial flower show where there was a class for Balsams in sixes, and out of four or five collections there were scarcely half-a-dozen creditable specimens, and this is by no means an unusual experience. I hear gardeners say there is considerable difficulty in obtaining a good strain of seed of Balsams, and yet there is a good deal of seed saved in this country—still, probably not enough to supply the demand, and then foreign seed has to be sown. There may be exceptions to the rule, but as far as my own experience has gone, there is considerable difficulty in securing a good strain of Continental seed, and I think the main cause is that they endeavour to obtain too many varieties, and distinctness of character appears to be favoured more than doubleness in the flowers. I have seen fine market strains, but those who grow them confine themselves to a few varieties that are known to produce fully double blossoms. If a German or French collection of eighteen or twenty-four varieties of Balsams be obtained, it is pretty certain that several of them will be only poorly double. Those who grow Balsams for seed should grow a few varieties that are known to be double, and in this manner a good strain can be secured, but only by saving from the very finest flowers. Balsam seed will preserve its germinating power for several years if kept dry and from contact with the atmosphere, and I have heard gardeners say that old seed is much more likely to produce double flowers than new. I am assured that some successful growers keep their seeds two or three years before sowing it. Given a good strain of seed, the next important point is good cultivation. The value of this is seen when I am able to state that from the same packet of seeds has been obtained by one grower plants only fit for a dunghill; in the other, specimens worthy of the exhibition stage. The two results have been well described by a successful cultivator: "Very fine plants with stout, sturdy, tree-like stems, covered with fine, large, Camellia-like flowers,

interspersed with bold, dark green, shining foliage, being the produce of one cultivator, while, on the other hand (from the same packet of seed), the plants were slender and thin, with semi-double blossoms, altogether presenting a very meagre appearance. Now, it is very hard to convince some people that all this difference is purely the result of cultivation. Instead of searching for the cause at home, they set about blaming the seedsman." This is well put, for it is a fact that seedsman are often made the scapegoats for the offences of careless and unskilful gardeners.

A cultivator of the Balsam who has a great local reputation for the fine specimens he produces adopts the following as his method of cultivation, and the results are such as to justify the rules observed. He says: "Fifteen or sixteen weeks before I require the Balsam to be in bloom I fill with soil to within half-an-inch of the tops as many small pots as I require plants. I press with my fingers two good seeds into each pot a little apart, and place the pots in a hotbed within a few inches of the glass. When they have come up and have stems above the tops of the pots, I draw the weakest plant out, and fill to the top of the pot with some fine soil round the remaining plant, which soon fills it with roots. As the plants advance in growth I give them a shift into pots a little larger, keeping the ball well down, so as to cover a part of the stem; this enables new roots to be made. The plants are kept growing in a warm, humid atmosphere, and nothing suits them better than a manure hotbed, giving plenty of room and tilting the frame as they grow and approach the glass. The next stage is placing the plants in their blooming pots. The size of the pots depends upon the proportions of the plants; but, generally speaking, 8-inch pots will suffice for very fine specimens. Something depends upon when the grower desires to have his plants in bloom. They will scarcely show a flower-bud until the roots touch the sides of the pots, and when they do this they will commence to bloom. The old plan of pinching back the leader to promote the growth of side shoots, and removing the flower-buds to increase the size of the plants, is a vicious one, as it destroys all natural elegance and symmetry, and as the finest flowers are invariably produced on the main stem, many of them are sacrificed if the buds are removed."

I have seen very fine Balsams indeed in the open ground. They should have a light sandy soil, say a free sandy loam, and then they grow into very fine specimens. At Reading, Messrs. Sutton and Sons grow superb Balsams in their Portland nurseries. I have seen large, bush-like specimens carrying very large double flowers. And it might be a good plan for anyone who can grow their Balsams in the open ground to lift some of the best plants with balls of soil, and pot them for exhibition. All that would be required would be to select the most prominent sorts likely to be in flower together, and do it a couple of weeks or so before the show, so that they might become established a bit before the show day.

The Balsam being a somewhat gross feeder, a good potting compost can be made up of good fibrous loam and well decomposed manure from an old Mushroom bed in about equal parts, adding a third quantity of leaf mould and sand. With such a compost and ordinary care, wonderfully fine specimens can be produced. When the pots are pretty well filled with roots, some liquid manure, not too strong, can be given twice or three times a week with great

advantage. It need scarcely be added that the plants must be kept scrupulously clean.

R. D.

Rhododendron Maddeni.—There is a section of Himalayan Rhododendrons that produces pure white blossoms, which are usually borne when those of nearly all the other species are over. On this account they are especially valuable where a collection of these beautiful flowering shrubs are grown. Unfortunately, the nomenclature of this group is very confused, for the names Maddeni, Jenkinsi, calophyllum, tubulatum, and virginale are often used indiscriminately. As far as I know, there are only two forms; first, the sturdy-growing leathery-leaved one, usually known as *R. calophyllum*, and the other, a weaker and looser-growing plant, with thinner and more pointed leaves, generally called *R. Maddeni*, but which I should look upon as only a seminal variation, and not a distinct species. The best is the sturdy-growing kind usually known as *R. calophyllum*, whose flowers are larger than those of *R. Jenkinsi* and Maddeni. It can be readily raised from seed, for a plant which had been struck from a cutting flowered with me when not more than a foot high, and the blossoms were succeeded by seed-pods, which ripened and produced a great number of plants. These, though small, seem to show at least as great a difference from each other as in some of the so-called species. Plants of this group appear to be among the tenderest of the Himalayan Rhododendrons, for I have had *R. barbatum*, fulgens, arboreum, Falconeri, Thompsoni, blandfordiaeflorum, argenteum, nilaghiricum, and Hodgsoni pass unimpaired through weather that nearly killed all the members of the calophyllum section.—H. P.

Varieties of Abutilons.—From the various nurserymen's lists one would suppose that there is a great variety of Abutilons, but such is not really the case, for many of them are, if not identically the same as each other, at all events very much alike. The range in colour is not great, and given a good white, a light and a deep-coloured yellow, a pink or two, one or two of the purple flowers, and a few reds of various shades, a dozen of the very best could be so made up in which there would be little or no room for any other garden varieties. On the other hand, there are a few very beautiful and most distinct species of Abutilon, three of which have been at various times figured in *THE GARDEN*, viz., *A. igneum*, vitifolium, and vexillarium. Besides these we have *A. venosum*, with its beautifully reticulated blooms, and *A. striatum* somewhat in the same way, but smaller. The numerous dwarf-flowering varieties we now possess are due to the intercrossing of the orange-red *A. Darwini* and the pure white *A. Boule de Neige*. The latter, with the origin of which I am quite unacquainted, is still by far the best white that we possess, being free in growth, yet dwarf and free-blooming. A couple of good yellow kinds are Cloth of Gold and Canary Bird, the first mentioned being of a deep golden tint, while the other is much lighter in colour. Red flowers include Emperor, purplish crimson; Scarlet Gem, a dwarf bright-coloured variety; Royal Scarlet, light red; Lustrous, rich deep crimson; and Mr. Irving, bright glowing crimson. King of Roses, deep rose, and Silver Bell, delicate pink, are two of the best of their class; while Purpleum and The Premier are two desirable purples, the last-named being of a lighter tint than the other.—T.

Greenhouses of to-day.—The absence of hard-wooded plants from ninety-nine out of every hundred greenhouses is a loss. To realise this one has only to compare the average greenhouse of the present day, with its meagre contents, consisting of little beyond the possible half a dozen kinds of plants and their varieties all told, and the numbers of hard-wooded New Holland and Cape subjects, which were at one time associated with larger numbers of distinct soft-wooded kinds than are now met with. Take the plants that now go to make up even the leading London and other exhibitions, where are they as compared with what was to be seen a score of years and more ago? Take away the groups that are arranged

for effect and which are so popular, what is there left? Little that gives evidence of any particular skill. And the material of which the groups are composed, if examined, is seldom found to contain anything that can claim much merit in the cultivation. In fact the best of the exhibitions now held, if we except a very few in the provinces, have come to the level of those held on the Continent, which have always been more remarkable for the general effect of the whole rather than for anything unusual in the cultivation of the plants individually of which they were composed. Reverting to hard-wooded New Holland and kindred plants, which if grown to the extent they deserve, would add so much to the appearance and interest of cool plant houses, it may be well to say that, for general decoration, no one who understands them would be disposed to advise their being formally trained in the manner that is necessary to preserve the flowers when they have to be conveyed some distance to an exhibition. Little in the way of tying is required, provided that shoot-stopping has been attended to in the early stages of growth, so as to have the plants sufficiently bushy and well furnished. A stick each to a few of the principal branches, and in the case of some a single stick to the main stem, would be all that is either necessary or desirable.—T. B.

CHINESE PRIMULAS.

AT one of our local Chrysanthemum shows it is usual to see some finely grown and, for the time of year, well-flowered Primulas. They generally measure about 18 inches to 2 feet across, with the flower-trusses strong in proportion. These large specimens are, I believe, grown in a rather different way from that usually practised in the case of this flower. It would be a matter of some difficulty to obtain plants so large from seeds sown in spring, however liberal and skilful the culture might be. The ordinary practice consists in sowing in early spring for plants that will come into bloom by the beginning of winter, but to have specimens so large as those above mentioned, young plants must be ready to go into small pots at that time; therefore the seed must be sown very early in the year. But what I have found to be a much better plan is to sow later in the summer, so that the young plants are just large enough to pass the winter safely in a cool house. In March they can be put into small pots, and will be strong enough to go into 7-inch pots by July. A friend who had a large conservatory to furnish always made a practice of growing a number of plants in this way, as the ordinary sized ones did not make sufficient effect in such a large structure. Plants that have bloomed may, of course, be utilised again the second year, but I have never found them so satisfactory as regards quality of bloom, neither do they generally throw up their bloom trusses so well above the foliage. If, however, seedlings should happen to be rather scarce, these old plants will be found very useful, and they certainly flower with much freedom and at an early period of the winter season. An important point in connection with their culture the second year is to keep the foliage quite dry, and up to July they should get no more water than will suffice to keep the roots and foliage from shrivelling. On no account should they go into the open air to be exposed to climatal variations, but be kept in an airy greenhouse or in a frame where they can be sheltered from rain. If they are too liberally watered and only occasionally moistened overhead they will start into growth too soon, and will be throwing up their bloom trusses in late summer or early autumn, and will be out of flower just at the time when they are really useful. Therefore in the case of these old plants a period of rest after flowering is absolutely necessary. In the beginning of July they should be partly shaken out and repotted, treating them exactly as if they were young plants. If they are strong enough they may go at once into 7-inch pots.

One of the best lots of Primulas I ever had was sown rather too late in the season to make good blooming plants that year. I kept them in frames in small pots until the following July,

and then early in the month put them into 6-inch pots. They came into bloom in December and made a fine show all through the winter and early spring. Although the Chinese Primula will continue to bloom for a considerable period, it is not well to rely on one lot of plants, for the blooming season of Primulas extends over a period of six months, and it would not be reasonable to expect a plant of any kind to remain effective for so long. To have moderately sized plants that will come into bloom in December and last in good condition through the duldest months seed should be sown not later than the first week in April. By sowing at that time the plants will get well established in 5-inch pots by the end of the autumn, and although flower trusses will probably be formed before they are needed, they can be picked off as soon as they show, and will be followed by others that will make a beautiful display during the early winter months. In a general way two sowings will suffice to maintain a succession of bloom until the end of April, after which time Primulas are not much wanted, so many showy things coming into bloom then. If a second sowing is made about the latter end of May, a good succession of bloom will be maintained during that period of the year when bright flowers are scarcest.

An important point is the short time required to bloom Chinese Primulas. Many plants not nearly so effective require a couple of years' good culture to make them useful, but in about eight months from sowing Primulas may be had sufficiently large for ordinary decoration. For the earliest sowing artificial warmth is indispensable, but a temperature of 60° must not be exceeded, or the young plants will become so much enfeebled as to influence their future progress to a serious extent. Indeed, as soon as the young plants are well up it is not advisable to give them more warmth than is absolutely necessary to keep them just gently moving until the natural warmth of the season has a sufficiently stimulating effect. Too much care cannot be taken in the preparation of the compost for sowing in. It must be very light and perfectly sweet, so that there is no chance of its becoming close or sour at the critical moment of germination. Many a seedsman has been condemned through the use of soil that has not retained sufficient porosity through the germinating stage. The fact that Primula seed comes up with some irregularity makes care in this matter the more imperative, some time frequently elapsing between the appearance of the first and last of the seedlings. Therefore, and of course more particularly in the case of very choice seed, the pans in which it is sown should not be too hastily discarded if but few plants appear. These should be carefully taken out and the seed-pans looked to as before, so as to give those seeds that are more slow of germination time to come up. Peat should never be used in sowing Primula seeds, for in my experience, which I believe accords with that of many other growers of this flower, it is liable to cake on the surface, and the young plants cannot push their way through it. Some put the seedlings at once into small pots, but I think it is better to prick them out an inch apart in shallow boxes or pans, and then if carefully lifted with a ball of soil, they quickly fill the small pots with roots before the compost can get sour. For this first potting the soil should be light, say loam and leaf mould in equal parts with a liberal dash of sand, not potting very firmly. Kept rather close and not allowed to become quite dry, they will soon start away into free growth. Plants in 4½-inch pots are most serviceable and more easily managed in winter, but some like them rather larger, in which case they may be first shifted on into 2½-inch pots, and from them later on into 5-inch or 6-inch pots. For the final shift a little well-rotted manure may take the place of the leaf soil and less sand, or none, if the loam is really good. Potting, too, should be more firmly done. For plants of this description that are intended for winter bloom I think that frames are better than houses, as the plants can be kept nearer the glass and can be exposed to the air when the weather is favourable.

A few nights' exposure in summer and early autumn is of great advantage to Primulas. The dewy nights of August and the cool refreshing ones of the early part of September, with full exposure during the daytime in that month and in October, when the sun is not too hot, will do more to ensure the robust formation of flower trusses than any other kind of treatment the plants may be subjected to. From the middle of May onward they must get an abundance of light and air, and when June sets in, air should be left on at night, varying the amount according to the temperature. Some plants if they become a little drawn up can have their compactness restored by pinching back, but naturally this cannot be done with the Primula, the leaves of which spring from a common centre. If through a little too much confinement the foliage becomes lanky, the impress of the error is seen throughout the season, and no amount of exposure will ever quite restore the characteristic neatness of habit of the Primula. In the final potting the soil should be made tolerably firm, as this causes more roots to be made near the surface than when the compost is more open, and renders the work of watering in winter more safe. Moderation must, however, be the guide of the grower in this respect, as a too hard condition of the soil will hinder the active formation of the small roots, which have not the power to push through soil in a very compact state. When the loam is somewhat deficient in fibre, a little extra leaf-soil and sand should be added to ensure a certain amount of porosity. Primulas have to make their growth in such a short period, that it is very important that the soil should be in the best possible condition for promoting root-formation. Up to the middle of October I consider the plants are best in frames, as they can be protected from frost by mats, and the longer the application of artificial warmth can be put off the better. During the hottest months a little shade is beneficial in the middle of the day, but this must never be applied unless there seems to be really need for it. When the plants are grown in span-roofed houses running north and south there is no need for shading, but when they front south a little protection from the sun in a very hot time is decidedly beneficial. Primulas enjoy an even temperature in winter, for although they may not suffer if the thermometer drops within a degree or two of freezing point, they come along more freely, and the flowers are larger and better in colour if the minimum temperature is 45°. Considerable care in watering is necessary in dark, damp weather, or there will be loss from rot at the crown. The plants should be looked to early enough in the morning for the moisture to dry off by night. J. C. B.

Mitraria coccinea.—This plant appears to have been exhibited in flower for the first time at one of the Horticultural Society's exhibitions in 1849, having been introduced from the island of Chiloe by William Lobb during the previous year. Considering its great beauty, it certainly ought to be better known in English gardens than it is. There is probably no greenhouse plant flowering at this season which displays at once so much grace and brightness of colour. It forms a dense, dwarf, evergreen shrub with slender stems, bearing numerous small serrated leaves. It constitutes a monotypic genus belonging to Gesneraceæ. The flowers are tubular, about 1½ inches long and half an inch wide at the mouth, where the corolla divides into five rounded, slightly expanding lobes. The colour is of the brightest scarlet. The flowers droop in a somewhat Fuchsia-like manner, and are produced on long slender stalks. The flowering season commences about the beginning of June and extends over two or three months. This plant is easily grown and propagated, requiring a cool moist greenhouse. I have seen it growing freely in a house where the temperature occasionally falls to within a few degrees of freezing in midwinter. It will probably succeed out of doors in sheltered situations in the south of England and Ireland. For potting, a compost of peat, leaf-soil, and silver sand should be used. The group of islands of which Chiloe is the chief is situated a few miles from the mainland of South America,

opposite the southern extremity of Chili. Darwin, who visited the island in 1834 and gives an interesting account of it in "A Naturalist's Voyage," states that there are few places in temperate regions where so much rain falls, the sky being nearly always overcast. This indicates the necessity of a moist condition both at the roots and in the atmosphere; dryness, indeed, is the greatest bane to its successful treatment. I find that by standing the plants out of doors for a few weeks in late summer they flower more freely. A position which is shaded during the hottest part of the day should be selected. There is a pretty little engraving of *Mitraria coccinea* in THE GARDEN for Sept. 15, 1877, but the flowers are only one half natural size—according to plants now flowering here.—W. BEAN.

GLOXINIAS AT CHELSEA.

THE Gloxinia is a feature of interest now in Messrs. Veitch and Sons' nursery at Chelsea, where there are two houses filled with plants either in a flowering or seedling stage. The specimens in bloom present a splendid show of colour, the result not only of cultural skill of no ordinary kind, but of the perfection to which, like many another popular flower, the Gloxinia has now reached. One thing will strike the visitor—the richness of colour in the flowers, especially the shades of scarlet imparted by the variety *Vesuvius* and their perfect form. There are old and new varieties, the old to show the great strides accomplished by the hybridist in the filling out of the blooms, improved habit of the plant by the acquirement of a robust constitution, and the production of a mass of flowers, standing well up to show off their beauty of form and colour. Some of the plants carry over fifty flowers each, and one, the white *virginalis*, almost a hundred—a wealth of delicate bloom. The seed is sown in the spring, and the plants from this sowing flower the following autumn, while in about twelve months they will make good specimens. Some that are blooming for the second time are excellent examples of Gloxinia culture, so laden with bloom as to make when grouped together a solid sheet of varied colour. The old type of Gloxinia had a drooping flower, narrow starry segments, and thin stem, the habit of the plant itself being straggling and leafy. This is changed now. The colours are brighter, more varied, the flowers firm, broad, and robust, and the habit strong, with the leaves hiding the pot. The range of colouring is almost infinite. There is no sameness. Sometimes the flower is purely self colour; another time beautifully marked with delicate shades passing one into the other; and again with a broad distinct margin of white—a class to which much attention is being given. There are many named kinds, but to give a list would not be of much service. Suffice to point out a few of the finest to show the highest types of Gloxinia as now attained. *Duchess of Connaught* is a flower with a broad white margin, the body colour being deep scarlet, giving way down the tube to a mauve tint. Such kinds as this in which the colour is so decided are unusually effective in a house even when placed amongst brilliant self kinds. *Virginalis* is one of the purest of the white kinds; it would be wrong to call it pure white, but rather white with a pale greenish lemon colour in the tube, a very delicate and pretty contrast. *Sunbeam* is a brilliant scarlet, one of the brightest of all, and a glowing mass of colour, the flowers with that fulness of form which is better seen when placed against the narrow-petalled kinds. Of shades of purple there is a rich selection, and *Hermia* is one of the finest in this class; then we have a delightful variety of spotted kinds, which are not weak, as one might imagine a "spotted" flower, but of refined beauty, as in *Octavia*, a gem of its class, or *Cordelia*. The finest purple kind is *The Moor*, a noble flower of the deepest colour and very striking amongst the others. It is one all should have who require a rich self-coloured flower. Other good kinds are *Orion*, very bright; *Nestor*, brilliant scarlet; *Orestes*, bright rose, deepening towards the tube; *Brunette*, deep purple, shading off to a much paler tint at the rim. *Elaine*, a delicately coloured flower of great beauty

and of fine substance; *Delicata*, *Clarinda*, white, prettily spotted with purple; *Miranda*, purple; *Flambeau*, rich red; and *Vulcan*, crimson-purple, with a deep slate-coloured margin, are very distinct. This is, of course, but a few of the best. The diversity of colour is so great that everyone will find something to please, while the new seedlings tell us there is no going back, but steady progress. *Triton* is a new and noble flower, very large, massive, and regular, measuring quite 3 inches across. The blooms stand well up, and each is of a purple colour, veined with a deeper shade, and shading off to a still more intense tone. This seems to combine in one the merits of a first-class Gloxinia. *Gazelle* is lemon colour in the tube, deep crimson at the base of the segments, giving way to clear white at the margin; *Sylvia* is crimson, with a broad white margin, and mauve colour in the tube. These are a few of the newest, and all examples of the highest development of this beautiful greenhouse flower. There is no attempt at making an effect. The plants are all placed together without any Fern or foliage for relief, and though we may lose much as regards tasteful grouping, the visitor can at once see the brilliancy and delicacy of the colours and the intense richness of the carmine shades that are of special merit in this strain.

GARDEN FLORA.

PLATE 759.

THE FORSYTHIAS.

(WITH A COLOURED PLATE OF *F. SUSPENS*A.)*

THE two early flowering shrubs known as Forsythias are comparatively modern introductions from China and Japan, the rich treasure-lands whence we have derived so many of the finest garden plants hardy in our English climate. They are both among the worthiest of that multitude of plants which Robert Fortune was the means of introducing to this country, and had he never enriched India with the Tea plant his name would have been immortalised among us for the sake of these glorious eastern shrubs alone.

The Forsythias have a particular value because they bloom at a season when we most appreciate bright flowers, for seldom is winter past before they burst into a cloud of golden bloom, and continue bright until more genial weather hastens on the less precocious shrubs. Though natives of a warmer clime than ours, neither of the Forsythias are in the least tender, and even in America the severity of the winters does not harm them. They are, in fact, shrubs for every garden, even the smallest, for *F. suspensa* may be grown against a wall, with *F. viridissima* at its foot; the whole space need not occupy more than a square yard. If planted in a snug corner they begin to flower in March, and so continue the yellow glow of the winter Jasmine (*Jasminum nudiflorum*).

The two kinds differ in style of growth considerably, *F. suspensa* being a rambler or trailer (climber it can hardly be called), while the other grows in the usual shrub-like way, and is not nearly so graceful as *suspensa*, whose long, whip-like shoots, when covered with clusters of golden bells, make it one of the most beautiful of all shrubs. Its pendulous growth adapts it for a variety of places in

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew, March 21, 1890. Lithographed and printed by Guillaume Severeyns.



FORSYTHIA SUSPensa

a garden. For planting on a cliff of bold rocks, so that its branches can fall over towards the sun, there is no better shrub, and I recollect seeing one in such a position that every spring was wreathed in golden bloom. It is not wise to plant it on a small rocky mound in company with dwarf-growing plants, otherwise they would soon be overrun by the Forsythia, which when it finds a suitable soil grows very rapidly. A good substitute for a rocky cliff is a big tree stump placed bottom side upwards on a lawn, so that it stands about a yard high. Plant in deep, good soil a vigorous young Forsythia and an Ivy on the stump. The two will grow together and the combination will have a charming effect, for the Ivy will be a perfect setting for the yellow bloom. For quickly covering a wall it is only necessary to place a strong plant in good loamy soil, and nail the shoots out widely as they lengthen till they reach the top of the wall; then if the fastenings are strong the plant may be left entirely to itself, and it will quickly form a dense mass of pendulous shoots that only require thinning out as they become too dense. Any aspect of wall suits it, and even the north side of a wall on which very few flowering shrubs will thrive well may be clothed with Forsythia. I have seen a north wall 20 feet high and as much in width clothed with this shrub, and the only attention the plant needed was an occasional renewal of the fastenings, which, in a case of this kind, should be made of leather or basket Willow twigs. Sometimes a shoot of this Forsythia will root into an old wall and make a start in life independently of the parent plant. A case of this kind may be seen at the present time at Kew, on the public side of the wall forming the boundary to the Duke of Cambridge's residence. The parent plant was removed from the wall years ago, leaving its rooted progeny to derive its sustenance from the chinks of the old wall.

For the ordinary shrubbery *F. suspensa* is not so well suited as its relative, because it is apt to get in the way of other shrubs, but it may be placed as an isolated mass, so that it forms its own limit on the lawn. I have seen some pretty effects from planting it against the stem of a light-foliaged tree like the *Acacia* (*Robinia*), and for bowers, arbours, and the like it should be allowed to mingle with *Clematises*, *Honeysuckles*, and *Roses*. Of late years gardeners have found out that it is a capital plant for forcing into flower early, and with gentle heat it may be induced to bloom in the early weeks of the year, and its flexible shoots lend themselves admirably for tasteful floral arrangements. Mr. Moon has successfully caught the aspect of these shoots, though to see the effect of the flowering growths on a wall the picture should be turned upside down.

F. viridissima, the other species, is a sturdy, erect-growing shrub with green-barked shoots and Willow-green leaves, and vigorous bushes reach as high as 6 feet or more. The flowers are very similar in form and colour to

those of *F. suspensa*, and are generally produced about the same time. I do not call it a very elegant bush when out of flower, but planted in a mass, as it should be, the thin habit of growth is not noticed. It may be grown in any situation and in almost any kind of soil, but there is only one position for it, and that is, a properly planted shrubbery. There is not enough in it to recommend it as a lawn shrub singly or in a mass. An interesting feature about it is the deep purplish tint its foliage assumes in early winter before dropping off.

There is little need to speak about the botany of the Forsythias, as they are so distinct that no one would ever confuse one with the other. *F. suspensa* sometimes has trifoliate or three-lobed leaves, but the other never has. The names *F. Fortunei* and *Sieboldi* seen sometimes in nursery lists stand for *F. suspensa*, there being practically no difference between the plants so labelled and *F. suspensa*, though some assert that there is. *F. viridissima* is said to have been introduced from Japan in 1845, but I cannot ascertain when *F. suspensa* arrived, but certainly not before 1854, as Loudon in his "Arboretum" alludes to it, and states that its introduction would be a great gain. It was called by Thunberg *Syringa suspensa*, and by another botanist *Lilac perpensa*, as it is of the same order as the *Lilac*.

W. GOLDRING.

ORCHARD AND FRUIT GARDEN.

THE FRUIT CROPS.

It will not be long before we shall be having the reports from all the different counties of the fruit crop, and, judging from my own and others around as well as what I hear through friends I meet, they will be anything but encouraging, and must come as a damper on the ardent planter who pictures great wealth and large profits to be made out of fruit trees. That fruit will pay in favoured districts and in good and suitable soils I have not the least doubt, and we shall not always have bad springs, as seasons right themselves, and when we have winter again at the proper time instead of in the third and fourth months of the year, April and May will be balmy and warm. It was not my intention, however, at the outset of this to attempt to prophesy, but to give facts, and these are, as regards the fruit crop, that it is poor, as now one can see pretty clearly what will swell or fall off. Peaches and Nectarines, strange to say, are good, as somehow or other they managed to set and swell and pull through the cold. Blistered leaves there were in plenty, and aphids put in an appearance, but a careful picking over disposed of the first, and soft soap and quassia chips the latter. Apricots were in full flower at the time we had 22° of frost, which I quite expected would be fatal to them, but most fortunately it was very still and dry just then, and as we had a thick Hessian canvas covering on they in a great measure escaped, and we have now a fair lot. Plums are few and far between, as in the first place there was but little bloom on any of the trees, and on many none at all, which is the more remarkable, as the crop was not heavy last year, or we should not have expected much flower. Cherries

were a sight, as they were as white as a sheet, but frost and cold have so crippled the fruit that but few have been able to get through the stoning. The earliest dessert kinds are beginning to colour, but the few there are are small, pinched, and deformed, and as the flesh must through that be thin, the quality will be poor from lack of sweet juice. Pears are very partial, as some sorts have a crop and others none or only a few, but the swelling is so slow amongst them that they cannot be good. What I fear, and which I think is almost certain to happen, is that when warm weather and heavy rains come, these sadly checked Pears will crack, as then there will be a rush of sap, and as the skin of the fruit will not be in a condition to let it swell fast enough, splitting will follow. Apples flowered well, the blossom looked remarkably strong, and everyone felt sure of a fine crop, but here again disappointment came in, as the flowers fell wholesale, or rather they appeared to set, but came tumbling off after, till now there are but few fruits left on the trees. Some people attribute this failure to the effects of last season, but I do not think that last season has had anything to do with it, as the leaves all through the autumn were perfectly healthy, and the trees looked well and ripened their wood. This showed itself all through the present spring, for the buds were fine, and, as before stated, the flowers large and bold, but for all that, the hard dry cold of the past month has been too much, and the tender fruit could not swell. Currants are poor, and Gooseberries are anything but abundant, but Strawberries promise well, and yet it is not the weather for them, as they like warmth and moisture in the atmosphere when the berries are swelling. The mild winter suited Figs and they showed abundantly, but latterly quite half the fruit has turned yellow, and now the crop will be thin. It is, therefore, now certain that the year 1890 will not be a good one for fruit, and gardeners in most places will be sadly put to to keep up a supply.—J. SHEPPARD, *Woolverstone Park, Suffolk*.

— Seldom has there been a finer spring for the flowering of fruit trees, and with plenty of bloom and the trees but lightly cropped last year, our hopes of abundant crops rose high, but that they are doomed to partial failure is now certain, as the fruits have dropped in many instances, although the bloom appeared to set well. Plums, Damsons, and Cherries will be very thin and Pears only a light crop, although the bloom was magnificent. We have one notable exception that makes up for all the other failures, viz., the Apple. Never in my recollection have I seen Apples set so well, swell up so evenly, and look like making a splendid crop. Almost every bloom has set, and on such kinds as Golden Pippin, bunches of six and seven perfect fruits may be counted by scores, while Small's Admirable, Lord Suffield, and other free-bearing early Apples are already bending with the weight of crop. We have had what is a veritable godsend for this soil—a succession of heavy rains—and the trees look clean and the foliage healthy. All kinds of trees, large and small, pruned or unpruned, are alike, but if any are more remarkable than others, it is the little newly-planted trees that have set and are swelling an abundant crop. How far this may extend I cannot say, but if it is anything like general the Apple crop of 1890 will be memorable. I may add that our trees have never been attacked with the much dreaded foliage destroyers, that doubtless are accountable for the failures in many places. Pears that usually bear more regularly than Apples with us are by no means a good crop this

year, for although they flowered magnificently, the fruits are now very thin on the trees. Although the weather was very fine at the flowering time and the trees in good condition, I must admit that the cause is a mystery to me, as I think that the Pear thrives as well here as in any part of the kingdom. Plums and Damsons are exactly in the same plight as the Pears, for although the bloom appeared to set, the fruits soon turned yellow and fell off. Cherries of the sweet kinds are extremely variable, but Morellos promise to be abundant. Strawberries, if we get fine bright weather to ripen them, promise to be abundant, as the heavy rains that have fallen lately will ensure them from any danger of drought. Bush fruits may be set down as a good crop in this part of the south coast. Gooseberries are especially abundant; while Red, White, and Black Currants look well, and the bushes are bent down with the weight of crop. Raspberries look promising, and being such a moisture-loving crop, the present conditions are all in favour of the fruit swelling to a large size. Taken collectively, the fruit crops at present are not only disappointing, but perplexing, as the causes of failure in some kinds are quite inexplicable, some of my specially favourite trees, that had every attention that could be thought of, having failed just as completely as those that had no such special care.—J. GROOM, *Gosport*.

Disbudding Peaches.—I am quite at one with "M. T." in regard to this matter, and I believe that the earlier it is done after the fruit is set or the shoots start the better, as when left on the buds only give aphids more chance of establishing themselves, and do no good whatever, as what shelter can they afford? and in my opinion they do not assist in the swelling. There is, I think, pretty clear proof of this on shoots that are without wood buds at the end, as on these every Peach grower knows how free the set always is, but through having nothing to draw on the sap and feed them after, they do not stand, and yet at first they are ahead of the others. Instead of disbudding weakening a tree, it strengthens it, as every shoot left gains by the removal of the others. Then, why do the work piecemeal unless it be to discourage strong growth? This we all know is not exactly desirable with Peach trees, but if they are established plants and have a good crop to carry, shoots are seldom too strong; and should such show, the remedy is simple, as they may either be removed or stopped and the lateral laid in. Young shoots in the first flush of vigour may and do make such shoots, but where there is plenty of wall space to cover, I like to see them if in the right situation and let them go, as the more top the more root, the more quickly the tree becomes established. This is now generally acknowledged, and instead of the barbarity that used to be inflicted on young trained fruit trees, they have much more freedom, and are less interfered with by the hand or the knife.—S. D.

Scalded Peach leaves.—I have sent some Peach leaves. Could you kindly inform me what has caused the injury? I do not think they have been scalded by the sun. The house is not heated much, and it has air both by day and by night. The house has been syringed once a day, late in the evening.—O. G.

* * * You are quite right in saying this is not an ordinary sun scald, but it is a scald, nevertheless, most likely the result of heavy smoking with cheap and bad tobacco paper. When the leaves are very large, soft, and fresh, as yours must have been, they are easily injured, not only by smoking, but by syringing with deleterious materials, especially if the early morning bath of pure water and timely ventilation be neglected. Two years ago I saw a house of Peach trees completely defoliated by syringing from a watering-can which had been used for the application of one of the patent poisonous weed-killing mixtures, a careless man having put

it away without rinsing with pure water. This, however, looks like a careless fumigator's scorch, by no means uncommon this season. Do not attempt the removal of any of the injured leaves, but allow all to remain, as half a leaf is better than none. Encourage all lateral growths by syringing twice a day instead of once, as heretofore, and ventilate very freely. Thin the crop, also if at all heavy, as the check will most likely result in wholesale dropping, whilst this course may save a remnant.—W. COLEMAN.

NOTES ON STRAWBERRIES.

A FEW notes as to the earliness of some of the recent introductions may not be out of place. I have Laxton's Noble coming on in quantity at this date (June 16), and had a few nice fruits off plants on a south border three days earlier. I think for an early Strawberry, Noble will be difficult to beat in the open, as it is a heavy cropper and of good shape and size. There are other well-known old and tried varieties, such as President and Keen's, that are better flavoured, but these come in much later. I have not yet grown the early Crescent Seedling, shown at the last meeting of the Royal Horticultural Society from the society's gardens at Chiswick. This appears to be the earliest of all. I do not know its other qualities, but no doubt its earliness will bring it into favour. King of the Earlies here comes in at about the same time as Noble; in fact, I gathered from both the varieties on the same day. The fruits, though very small when compared with those of Noble, have an excellent flavour. From the habit of the plant and flavour, I think one of its parents must have been the old Black Prince. I do not think this Strawberry will be grown much where size is required, as even when the fruits are well thinned, those left only come under the medium size. I have this season got these early varieties on two different aspects to test their earliness, but our first fruits were ripe on a south-west border under a wall several days before those on a south border and fully exposed. I find a good plan to get a few early fruits is to elevate them upon a tile or slate. This is of great assistance, and will bring them on a week or ten days earlier than when they are on straw or any other material. Of course, this plan cannot be adopted where large quantities are grown, but it is useful for a few early plants. Another variety I have given a trial is Pauline, but for outside purposes I do not care for it, the fruits being of bad shape, and therefore not so useful for private establishments. It is very early. Plants secured from runners early in July last year are bearing heavily. I believe this variety is different to the older kinds, as it requires to be renewed every two years to do any good and to produce large fruit. I should advise planting yearly good strong runners specially prepared. The fruit of this variety is very distinct, being Cockscomb-shaped, some being very fine, with a slightly Pine flavour. For forcing I should think it will prove a useful variety, and I intend to give it a trial. Jas. Veitch, though classed as a second early, is now just ripening, and will only be a few days later than some of the earliest kinds. The plants have been grown on a sheltered border, and have been well watered and mulched during the last few weeks. This is undoubtedly one of our finest and best Strawberries. I have this season also had a few plants of a variety called Harris's A 1, and it is a very good early sort, much resembling Vicomtesse Héricart de Thury, but larger and of very good flavour. For forcing it is a useful kind, and for outdoor culture equally promising. I intend to give it a trial on a larger scale next

season. I should think it is a seedling from Vicomtesse, but of a more robust growth.—G. WYTHES, *Syon House, Isleworth*.

— There are a few varieties of Strawberries that succeed in most districts, but the majority vary surprisingly in usefulness in a single locality even, much more so in fact than is the case with most other hardy fruits. Different methods of cultivation may have some influence upon the habits of well-known popular varieties, but frequently the difference can be traced to the character of the surface and sub-soils. Much may be done in the way of improving soils, a good depth being needed for Strawberries, that are to long remain in one position, and a firm root run in all cases, while a good choice of varieties also largely contributes towards ultimate success. In the latter respect the would-be successful cultivator must depend principally upon his own experience gained after repeated trials of varieties, useful information also being gleaned from others who are in a position to speak authoritatively in the matter.

Of early varieties, Laxton's Noble promises to become exceptionally popular for growing in the open air, and might answer well in pots for warm greenhouse culture, but it is worthless for forcing. Hitherto the earliest varieties, notably Black Prince and Princess of Prussia, have not given complete satisfaction, owing to their comparative smallness, but Noble is large and early enough to please everyone, the colour being good and the quality fairly so. It is very robust without forming too many leaves, exceptionally productive, and probably will succeed where many other Strawberries have failed. Seeing that it has been tried this season in most private gardens, we ought soon to learn whether it pleases everybody or not. Alice Maud, a very productive old variety, is simply nowhere alongside Noble, and the good old Keen's Seedling is also eclipsed. Vicomtesse Héricart de Thury is likewise fully ten days later, and in point of size compares badly, yet it must not be got rid of. Only quite young plants of it, however, are of any service in the open, and it is for pot culture we grow it. We tried to dispense with it for pot culture, but next season it will be extensively forced again. The Vicomtesse sets well in a strong heat, swells to a fairly good size, colours well, and the quality is very superior. King of the Earlies is no good with us or in a neighbouring garden, and the place will know it no more. Auguste Nicaise may be classed among the early varieties, and is likely to become very popular for pot culture. It forms fine bold foliage, the crowns do not split up more than is desirable, and strong trusses of bloom are produced. The flowers can be set in a fairly strong heat, and extra large showy fruit result. As regards quality, it is not quite first-rate, but in our case no fault was found with it. On the contrary, orders were given to force it extensively next season. In the open it is somewhat shy fruiting, and it is more for pot culture that I would recommend it. La Grosse Sucrée we cannot keep alive in the open, though within four miles of this place it is the most extensively grown, both for forcing and open-air culture. Our clayey sub-soil is too much for it.

As a second early, Sir J. Paxton has no equal with us, yet there are gardens in this district, and many elsewhere, where it cannot be profitably grown. On a south border we gathered a fine dish of it on June 10, or nine days later than Noble was first picked in quantity, and the quality is particularly good. It is a very heavy cropper, a long succession of firm handsome fruit being obtained from a single bed, the season, as a matter of course, being much prolonged if other cooler sites are accorded the same variety. It also succeeds admirably in pots with us, the plants, whether forced moderately hard or brought in more slowly for the later supplies, invariably cropping well, the size, colour, and quality being most satisfactory. The fruit being very firm, it travels remarkably well. President also succeeds well with us in the open, being somewhat later than Sir J. Paxton and a fine cropper. This also is good for pot culture, but we have no need of it. Where Sir J. Paxton forms

little else but strong foliage, President may be found the most reliable variety, and where neither these nor any other popular variety will succeed, it is yet possible to do well with John Powell. This last has been found to do well on a hot gravelly soil, and is generally prolific and fairly good in point of quality. James Veitch, though by no means a novelty, is only just becoming popular in this district, and this fine Strawberry fully merits a fair trial in every garden. It is especially good for pot culture, those who supply the markets being strongly advised to grow it extensively. During the latter half of April and the month of May it can be had very large and handsome on pot plants. It is not so richly coloured as Sir J. Paxton, nor the quality quite so good, but, all the same, it gives great satisfaction to those who have it on the table. James Veitch is also a great cropper in the open, the plant possessing a good constitution without being too vigorous. The older and better-known Sir C. Napier will not survive a severe winter with us, the foliage formed being too thin in texture. On lighter soils it does much better, producing heavy crops of handsome fruits somewhat acid in flavour, and which travel well. This variety also succeeds well under pot culture if not hard forced. Souvenir de Kief, Kitley's Goliath, and Duke of Edinburgh are on trial, and at present I can only remark that the last-named promises to be a serviceable second early or main-crop variety.

We experience the greatest difficulty in keeping late sorts. British Queen we cannot do anything with, the stock quickly dying out, and this is much to be regretted, as it is one of the very best as regards quality. On some soils it is very productive, many acres of it being annually planted by market growers near London. The next best in point of quality will be found in Dr. Hogg, this variety doing fairly well with us and in most other gardens where tried. It is not a strong grower, and takes up less room than various other Strawberries, but it bears freely, and the fruits are large, firm, and rich in flavour. Loxford Hall Seedling, more robust than the last-named, is a good cropper, and the fruit late in ripening, quality very good. With market growers in Essex, Eleanor, or Oxonian, as it is also called, succeeds remarkably well, producing grand late crops of large fruit, the quality being fairly good. We can do nothing with it, and even if it crops well in private gardens, it is not often the quality is nearly so good as in the case of fruit grown in the open fields. It is true the latter remark applies to Strawberries generally, but in no other instance that has come under my notice is there such a marked difference in favour of the field crops. Laxton's Latest of All has been much eulogised by those who are in a position to speak of its merits as a late Strawberry, but our plants of this and Jubilee were far too weak to be allowed to bear fruit this season.—W. IGGULDEN, *Somerset.*

Early Peaches.—I think Amsden June Peach will be a most useful variety for early work where only a few dishes are required. This is one of the American varieties recently sent out, and it is one of the best early kinds I know. The trees bear freely and the fruits are of good size and flavour. I prefer it to Early Beatrice. I do not know how this variety will succeed in the open. It does remarkably well indoors, being of a free growth, and I should think it will make a good market Peach. Alexander is also a good early variety and better known than the above, and one that can be relied upon for early forcing. I prefer it to Early Beatrice, and the tree produces much finer fruit, which comes in after that of Amsden June. This is also of American origin. It is, I consider, one of the best, and of a splendid colour where fully exposed. Hale's Early is another good Peach, introduced, I believe, from the same source. This follows the Alexander and forces splendidly, always bearing well when the wood is well ripened. I consider it one that should be extensively grown. This comes in after the two first named, and though not so large as some, it is a useful early variety, forcing well, and doing well in the open. I have found Hale's Early one of the most reliable for outdoor work, and when

grown with Alexander, it will, I am sure, give a good return. When I grew this Peach in an unheated case, it did remarkably well and was much liked. It was our first early Peach after the forced Peaches were over.—GEO. WYTHES.

CUCUMBERS AND MELONS IN COLD FRAMES AND PITS.

BEDDING plants, for which there is still a great demand in the majority of places, have, up to very lately, filled all pits and frames to overflowing, but now that most of them are set at liberty it is time to think of turning them to profitable account. There is no way in which this can now better be done than by using them to grow Melons and Cucumbers in. For these, the frames require but little preparation, although if the plants get a gentle heat for the roots, it will help them considerably by giving a start. To afford the warmth, which is only needed for a short time, almost anything will do, as coarse weeds and such-like that have been cut some days and allowed to wither or dry a little. Tan, where it can be obtained cheaply, is worth getting, as it is an excellent material for hot-beds, and requires hardly any labour in preparing it, as by putting a little old and new together the fermentation is modified, and the bulk made safe for use at once without any further turning to let the steam out. For frames the bed should be made up about 6 inches larger all round, and 2 feet will be a good depth for it, and when the frame is in position a ridge of soil should be laid along through the middle. If the intention is to grow Cucumbers, fresh, light, fibry soil is the best, and any gatherings from the roadside, with grassy loam, chopped up and roughly mixed, will just suit the plants. The same will also do for Melons, but they require a firmer or closer root-medium, and anything used for them should therefore be trodden down, or the Melons will be found to run too much to leaf. For an ordinary-sized light two plants are quite sufficient, the one to be trained towards the front and the other behind. To fill up those parts, all that has to be done is to train two leading shoots from each plant, by running them in lines towards the four corners, and as soon as they get within a foot of the sides the ends should be stopped. This nipping out of the points will force them to break, and the laterals they send out will all, or nearly all, show fruit. As soon as they do this they should again be stopped, at one, or at most two joints beyond, and very quickly after the flowers on the young fruit will open. The thing, then, is to ensure a good set, and to bring this about it is necessary to fertilise the blooms, as no dependence can be placed on the pollen being carried by insects. It is very important that the fertilising or setting be all done in one day, otherwise one or two fruit will start and take the lead, and others will not move at all, as the strength of the plants seems absorbed in those that pull on them first. Frames and pits that are started without bottom-heat should be kept shut for a few days after the soil is put in, so as to get it warmed before the plants are turned out, as they may get a chill at the roots, and when turned out it is a good plan to keep them nearly close and shaded, as then the heat from the sun will assist the plants rooting. As soon as the start is fairly made then more air must be given during the forenoon, and shading, so far as the Melons are concerned, abandoned, as they delight in sunshine, but to aid them in their growth and swelling the fruit they should be closed about 3 o'clock, and kept so till about 7 or so next morning, when it will be necessary to tilt the lights slightly to prevent the leaves from scalding. Before shutting up the frames, the plants should either be syringed or sprinkled with tepid water, and never at any time allowed to become dry at the roots, as when that happens a severe check is given and red spider follows. Melons are rather subject to this insect, but by maintaining plenty of atmospheric moisture in the way referred to, it may be prevented or held in check and the plants kept healthy and strong. Some Melons are better adapted for frame culture than others, as they have a harder and more robust constitution, and a few

years ago one with a very long, almost unpronounceable name was sent out and recommended for planting out of doors, but it is not heard of at all now. Among the red-fleshed sorts I have had, Read's and Blenheim Orange do well in cold pits and frames, and in the green section, Victory of Bath, Bellamore Hybrid, Eastnor Castle, and several others, but now I keep to one raised by myself, as it is a very free-cropping, reliable kind.

S. D.

LATE-POTTED STRAWBERRIES.

MANY and diverse are the opinions on growing Strawberries in pots, and also as to the time they should be layered for next season's fruiting. Many good growers contend they should be layered for early work in June and finished by the middle of July, potting them on according to the time they were layered. According to my observations, no fruit varies as much as the Strawberry, according to soil and treatment.

I have often thought that many cultivators place too much faith in early layering and potting for forcing. These doubts arise from observations I have made for many years past. I well remember many years ago when a young man, and serving under Mr. Lynn, then gardener at Hedsor Park, Maidenhead, that one season the runners were difficult to obtain and the season was far advanced before sufficient runners could be had for layering. It was quite late in the season before the potting was finished. The plants were wintered as usual under wooden shutters. When the fruiting time came, I never saw a grander lot of fruit of such kinds as Sir C. Napier, Paxton, &c.

Last season I determined I would try the effect of early and late potting. I began layering as early as I could in June into small pots, continuing on through July. The early layered plants were potted into $\frac{4\frac{1}{2}}$ -inch pots, later ones into 6-inch and $8\frac{1}{2}$ -inch pots (some were layered into the pots they were to fruit in), and all were placed when potted on a south border for the autumn.

In August I obtained from a nursery some rooted runners for the open ground of the variety Unser Fritz. Some of these were potted into small pots and placed in a cold frame till established. They looked so fresh, that on September 14 I potted up some of them into $\frac{4\frac{1}{2}}$ -inch pots. These were stood on a warm border till December, when they were plunged in ashes in the open air and were never placed under glass till they were brought into the Peach house. From some of these I gathered as many and as good fruit as from some others that were potted at the end of July. Many of these late-potted plants in $\frac{4\frac{1}{2}}$ -inch pots produced from ten to fifteen good fruits. I can see no advantage in layering so early for late crops. If from a month to five weeks can be gained it is an advantage from a labour point of view in these high pressure times.

DORSET.

Vine leaf unhealthy.—I enclose you a Vine leaf from one of my unheated vineries. You will see that it is turning red at the edges. Can you tell me the cause of this, and also advise me what to do with the Vines? This occurred last year for the first time, although the Vines have been grown here for more than twenty years.—A CONSTANT READER.

** Some varieties, notably Barbarossa, West's St. Peter's, Gros Maroc, and Gros Colman, frequently, I may say generally, lay on these beautiful marbled colours towards autumn, and we think none the worse of them for assuming tints quite as natural to Vines as grey is to man after he has passed the meridian. The Vine in question, by no means unhealthy, has, however, shown signs of pre-maturity, and the cause can, I have no doubt, be pointed out by an expert, if such a person is living in your neighbourhood. When, for instance, the whole of an old Vine shows signs of premature ripening, the cause may be accredited to declining vigour, and declining vigour may be due to over-cropping, to injury to the old foliage in preceding years, to poverty in the border, which may have become too wet, but more likely too dry and deficient in some elements absolutely necessary to a free feeder.

When a small portion only exhibits this tendency, we sometimes find a flaw or defect in the stem impeding the flow of sap, or, it may be, a series of young canes with free open cells robbing the old ones. It may be, indeed, that the Vine at the present moment with deeply-seated roots of twenty years' growth may be suffering from want of water, not possibly near the surface, but in or even below the drainage. Lose no time in ascertaining the state of the roots, their position, and the condition of the border. If dry and poverty-stricken, give an abundance of tepid water through good mulching. If in poor compost and too deep, make arrangements for renovating in the autumn, and having followed Thomson's advice for twenty years, read his tenth edition, and stick to him, for you cannot do better. Your Vines I have no doubt require renovating. Get the best of loam and correctives, avoiding all animal manure. Meantime, see that the roots receive an abundant supply of tepid water. —W. C.

Muscats of Alexandria shanking. During the past few years I have taken great interest in Grape growing, and I have met with a shanking difficulty that I could not understand. The vine in which these Muscats grew contained two Muscat of Alexandria Vines and one Madresfield Court. The two Muscats were growing on the double rod and close spur system. Both grew equally well and showed about an equal number of bunches. When in the last stage of ripening one rod always failed, a part of its berries, in some cases, shanking so badly that I was obliged to cut the bunches off. The other rods bore magnificent fruit and without the least sign of shanking. The Vines are about 18 years of age, and have all along been well cared for. The mysterious point to me is, if one rod finishes its Grapes well, why not the other, when supported by the same roots. —W. COATES.

FLOWER GARDEN.

WILD PLANTS IN THE FLOWER GARDEN.

THE bedding-out season has come round again, and everywhere are to be seen circles of Geraniums with one or two trusses of scarlet flowers on very long footstalks waving about in the wind, rows or circles of Calceolarias, and all the other regulation bedding plants under the same conditions. All are planted so many inches apart, showing a certain amount of bare earth between the rows or circles. This will have to remain so for weeks or perhaps months, according to the weather, before these unsightly gaps of earth are covered over by the growth of the bedding plants, and the borders and beds present a pleasing and natural appearance. I say natural, because when by accident or the act of man any part of Mother Earth is denuded of her carpet of vegetation, Nature at once comes to the rescue and heals the wound in a marvellously short time. The ordinary style of bedding as adopted at the present day, I have no hesitation in calling the unnatural style. Carpet bedding—although I am no great lover of that—has this one advantage at least over the other, that the ground is usually covered at once. In good flower gardening I consider it altogether inadmissible to allow the bare soil to be seen between the circles or rows of plants at any time, and beds so planted that the soil cannot be hidden for weeks or months, and very frequently not during the whole summer, are, I venture to think, the very antithesis of good flower gardening. To avoid the exposure of the soil for a lengthened period among the bedding plants, I used to plant very thickly, but this I found had its drawbacks in the size and quality of the blooms produced and in the greatly increased number of plants required. Eventually I was taught a lesson by a child that I was not slow to take advantage of. How often in taking a ramble in the lanes of the country in the spring and summer months do we stop

suddenly to admire some tuft of foliage nestling perchance at the hedge root, or struggling for light and freedom amongst the taller and ranker Grass that surrounds it. Then, it may be, with the exclamation, "How beautiful!" we pass on, and when the ramble is over we set ourselves the task of ransacking a dozen catalogues in search of a list of hardy fine-foliaged plants to be forwarded to some nurseryman or florist, as "bedding out" season is nigh at hand. Now many of the types of foliage we have just been admiring in our rambles may have been of the most exquisite kind as regards colour, form, and habit, and yet the idea never enters our minds that these wildlings might be utilised with great advantage in our flower garden as a groundwork of the most pleasing description to our beds of flowering exotics, as a setting that no nurseryman or florist could excel even with all his grand array of named plants from foreign countries. We have been so accustomed from our youth to having our flower-beds filled in the regulation order, that it is most difficult to break away from it, and it was only an accident that induced me to change my style of spring and summer bedding. I have said that it was a child who taught me the lesson, and this is the way it came about. It was a girl from whom I took the hint. She had a small garden set apart for herself to dig, delve, and plant just as she thought fit, with no one to interfere with her in any way. Her father, a great lover of plants himself, had given her a *carte blanche* to get from a neighbouring florist what plants and bulbs she thought fit for her little eden. She had her own way absolutely with regard to arranging and planting, neither asking nor receiving advice of any kind. One day in the spring-time I was asked by her father just to have a look at her little garden, and let him know what I thought of it. Of course, I expected to find, as in most children's gardens, a jumble of all sorts, but I was agreeably disappointed. The centre portion of the child's garden consisted of six beds cut out on Grass—a circular one in the middle and the other five surrounding it. The garden was square, with a wooden fence and narrow border all round. This border was bright with a variety of spring bulbs and other flowers, but it is with the six beds we have to do in the meantime. These were all filled with bulbs, and all in full flower. But no soil was to be seen on the beds amongst the circles of beautiful flowers any more than was to be seen on the lawn that surrounded them, and why? Because the child, with infinite taste, had in the autumn taken the precaution to plant thickly over the whole area of the beds plants of the wild Chamomile (*Matricaria Chamomilla*), dibbling in the bulbs in circles or rings afterwards. The result was a groundwork or carpet of the deepest and loveliest green foliage imaginable, from which sprang the leaves and flower-stems of the bulbs, making a display so soft, so chaste, and so beautiful, that the eye never tired in gazing on it.

The centre bed was arranged thus: A small clump of dark blue single Hyacinths in the middle, then one ring of white Hyacinths and the next red, then came three rings of Tulips of different colours, and within 1 inch or 2 inches of the Grass was a belt of *Scilla sibirica*. The other five beds were edged with belts of *Scilla* same as the centre one, but the colours of the Hyacinths were arranged differently, each bed having its own distinctive feature, but all the bulbs growing out of a carpet of wild Chamomile, and all looking passing beautiful. On asking the child where she had got the idea from, she told me that one day she

was taking a ramble by the sea-shore, and at the side of a hedge not far from the shingle she came upon a large mass of the wild Chamomile not yet in bloom with a number of plants dotted amongst it of the common red Poppy (*Papaver Rhæas*) in full flower, and that she was so struck with the beauty of this natural flower garden that she made up her mind to imitate Nature in her own tiny garden next springtide, and she did it with the most pleasing results, which threw into the shade all the efforts of the ablest gardeners in the district. I induced the little maiden to allow the wild Chamomile to remain in rings when she lifted the bulbs when done flowering, and to plant her summer flowers between the rings of verdure, and thus form a complete covering for the ground, without waiting for weeks for the Geraniums and other plants to grow. When the flowers on the Chamomile appeared these were removed, and the plants were eventually pulled up as the flowering plants closed in, so that at no time of the year was the soil of the beds ever exposed. Cocoa fibre refuse is frequently used for the purpose of hiding the soil, but it has no claim to beauty; indeed, I think not so much as the soil itself, and can in no shape take the place of a covering of a living and green nature.

In my own case I at once adopted the idea of the young maiden, and used the wild Chamomile plant to a great extent. I also went in search of others which I used with very pleasing effect. In this paper I will only mention four with which I have had the greatest success. These are the wild Chamomile (*Matricaria Chamomilla*), Silver-weed Cinquefoil (*Potentilla anserina*), the common Yarrow (*Achillea millefolium*), and the Horned Poppy. The last grows abundantly in the sand and shingle on the Sussex coast, where not a particle of soil is to be found. But it can be grown in the flower garden with success by introducing a little sand into the beds. The flowers are bright yellow and extremely beautiful during June and July when seen waving in the wind on their long foot-stalks. Then the seed pods or "horns," reaching frequently over 18 inches in length, are amongst the wonders of the British flora. But it is with the foliage we have mostly to do at the present time. This is of a white or silvery hue, and the leaves are much cut, after the way of those of *Centaurea ragusina* or *Cineraria maritima*, and quite equal or perhaps superior to both as a bedding plant, as it is of a fine stocky habit of growth. I have procured a stock of this plant in two ways, by picking up the seedlings from the seashore and by collecting the seed-pods or "horns" when ripe in August and September. I have used this plant in the same way as described with the wild Chamomile, and with excellent effect. I tried it with alternate rows of *Verbena venosa* with great success, the violet flowers of which contrasting in a charming manner with the silvery leaves of the Poppy. Candour compels me to admit that this idea was filched from the arrangements of four corner beds I saw for two or three years in succession in the flower garden in Finsbury Park, North London. These were the inner corner beds, and were filled with alternate circles of *Cineraria maritima* and *Verbena venosa*, and when viewed from the main walk or a little distance off were, to my mind, in the highest degree beautiful and artistic, and in the latter quality far exceeded any other arrangement of bed in the garden, notwithstanding the grand display of colour and profusion of flowers. *Potentilla anserina* is a plant found by the roadsides and indeed almost everywhere. Its graceful silvery leaves are best seen in the spring months, the plant turning greener as the summer advances. It is therefore only admissible

to the flower garden as a set off to early flowering bulbs and other spring-flowering plants, but for this purpose it is most suitable, and this I am quite sure all will admit who try it. Small plants should be collected during the summer and preserved in a nursery not far removed from the flower garden and encouraged to root well, so as to be ready for removal to the flower beds in the autumn so soon as the Geraniums and other bedding plants are removed indoors. The common Yarrow (*Achillea millefolia*) I have used in the same way as described in the case of the wild Chamomile and with equally good results. This plant is to be found everywhere, and may be collected for flower gardening work in the same way as the last named plant. The beauty of the foliage of this commonest of common wayside plants will at once strike the observer when a clump of it is seen entirely freed from any mixture of Grass or other wild plants. This is not often seen in Nature, as the struggle for existence is so great that they crowd each other, as it were, out of observation, otherwise they would doubtless be far more sought after and valued by the lovers of Nature. Another thing in connection with this ground-work system, if I may be allowed to call it such, is that it enables one to do without such a vast quantity of flowering plants, which require the shelter of glasshouses for so many months, and I think it recommends itself to the amateur whose means are limited. With this system it is wonderful what can be done with a very few exotics. For instance, I have planted beds with very pleasing results, simply with alternate rings or belts of Horned Poppy, or wild Chamomile, and bronze-leaved Geraniums without a flower to be seen at all, and, of course, the ground completely hidden. This, of course, may be varied in a hundred ways, according to the taste of the owner of the garden. But my main contention is, whether right or wrong, that from beginning to end, from January till December, the soil in the beds and borders of a flower garden should never be visible, but clothed, as in Nature, with a mantle of various colours, or one colour if you choose. Then the eye will not be offended whilst the sense will be gratified. J. L.

Verbascum phoeniceum is excellent for grouping in the flower border, occupying far less room in proportion to the flowers produced than do most of the Mulleins. We have it in three colours, rose, purple, and white, the rose-coloured form being the least effective of the three. It lasts a long time in flower, but as it commences to bloom early, it can be treated as an annual and cleared off in time to plant the ground occupied by it with autumn-blooming annuals. It is now just past its best. Our plants were raised from seed sown last summer and transplanted in the autumn, and this treatment apparently suits them well. J. C. TALLACK.

Foxgloves.—Although considerable care may be taken in raising plants from seed and putting them out into good soil, yet I often find the best specimens are produced by self-sown plants, which stealing up amidst other things are at some time found to be strong and left to bloom in due course. Such plants as these carrying from five to seven large spikes make very charming objects, and not less striking that they stand out individually. I have often found that plants dibbled out early to secure large spikes the following year suffer appreciably from damp, especially after snow-falls, in the winter, whilst late-sown plants have proved to be too small to bloom and have developed into huge tufts of leafage. I do not think that such troubles are found where the soil is naturally light and porous. I prefer to see Foxgloves in woods or amidst natural surroundings, and there they find protection from excessive moisture. But a number of fine plants when in bloom are by no

means to be despised in any garden. There has lately broken a dwarf strain, the spikes commencing to bloom about 10 inches from the ground and rising up to about 3 feet in height. On these the flowers, though fine and richly marked or spotted, are densely set. They look very effective as front row flowers for those of the taller strain. The prettiest hues in the Foxglove are pure white, pink, and deep red, all being richly spotted on the lower side of the flower. Some prefer pure self flowers, but, on the whole, the spotted flowers are best, and the blooms are finer as well as more varied.—A. D.

THE PENTSTEMON.

THIS is really a handsome autumn-flowering plant if we take the garden varieties only that have been produced during the last forty or fifty years. There are few more useful plants, either for producing cut flowers or for the adornment of the flower borders after the more tender subjects have been destroyed by the early frosts. At such a time the Pentstemon holds up its



Pentstemon gentianoides (Hartwegi).

head bravely, defying the inclement weather. We may well ask, Whence came our beautiful garden varieties? We cannot answer this question positively. It is rather more than half a century since *P. Hartwegi* (syn., *gentianoides*) was introduced. The distinguished travellers Humboldt and Bonpland found it in Mexico, on the mountain of Toluco, at an elevation of 11,500 feet, near the region of perpetual snow. It was stated to be quite hardy when first introduced, and also easily propagated from seeds and cuttings. The remark that it was easily propagated from seeds would lead one to believe that this method was frequently adopted, and by a comparison of our present garden varieties with the original species there is strong evidence that no hybridisation has taken place between distinct species of the Pentstemon, but that they are merely seminal pro-

ductions from the one species. Besides the greatly improved form of the flowers and habit of the plants in the garden varieties, the variation of colour from the original reddish-purple species is very remarkable, but only such as would naturally result from selections of seedlings. Many of them are much paler in colour than the original; some, in fact, are almost white. There were many beautiful Pentstemons introduced from the Rocky Mountains at this time by Douglas, who was travelling in North America for the Royal Horticultural Society, but it is rather remarkable that many of them have not a tendency to vary from seeds, and few of them have such vigorous constitutions as *P. Hartwegi*. Before adding a few useful cultural remarks it may be as well to refer to some of the species discovered by Mr. Douglas in 1827, and flowered in the garden of the society at Chiswick.

P. SPECTIOSUS.—This has blue flowers and is one of the most beautiful. It was found by that persevering traveller on the banks of the Spoken River, in North-west America. It throws up a great number of flowering stems, which are crowded with sky-blue flowers, varying to red.

P. GLANDULOSUS.—Found in the "rocky channels of mountain torrents in the Rocky Mountains." The flowers are rose-coloured, and closely produced on stout, upright stems.

P. TRIPHYLLUS, also sent over in 1827, was found growing "on decomposed dry granite, or schist rocks, on the Blue Mountains." It is a slender-growing plant with pale rose-coloured flowers and dark veins.

P. CONFERTUS is a very distinct species with erect stems, 1 foot to 2 feet high, the flowers of small size, pale yellow, and produced in whorls.

P. DIFFUSUS.—Found "at the mouth of the Columbia River abundantly." It flowered most freely in the gardens from June until its growth was arrested by frost. The flowers are purple, closely produced, and form an elegant spike.

P. RICHARDSONI.—Found "growing on bare, dry rocks in the vicinity of the Columbia and its branches." It flowered at Chiswick on peat borders with American plants. It is a handsome species with purple flowers.

In 1829 Dr. Lindley noted all the above as growing in the gardens of the Royal Horticultural Society at Chiswick, besides the following also introduced by Mr. Douglas: *P. Scouleri*, *P. ovatus*, *P. acuminatus*, *P. venustus*, *P. pruinatus*, *P. deustus*, *P. attenuatus*. This is evidence of how much we were indebted to the society sixty years ago for the introduction of new plants.

Now as to the first, the garden varieties can be freely raised from seeds and by cuttings. If the seeds are sown in heat early in the year they will grow into flowering plants the following summer and autumn, and they make stronger plants than those produced from cuttings. I find a good time to put in cuttings is late in the autumn, say the end of September or early in October. They may be planted in sandy soil, and be covered with hand-glasses during the winter. They will produce roots very soon, and should remain protected by the glasses until the spring, when they may be moved a little further apart, and afterwards planted where they are to flower in April or May. We rather err in planting out too early in the spring even such hardy plants as the Pentstemon that have been wintered under glass. March is a fickle month, and one cannot tell what may happen. I planted out our entire collection of Pansies early in March this year, and they have been quite spoiled for an early and good bloom by an intense frost which followed immediately their planting out. The thermometer fell to 10° Fahr. I do not plant

out our Pentstemons early in the year, because the best bloom is wanted in September and October. I intend to plant them on the ground occupied by the Tulips when these have been taken up. The rich soil of the Tulip beds is suitable for all classes of florists' flowers; indeed, it is a good change for the Tulips to alternate them with Carnations and Picotees. The latter are removed in the autumn in time enough to prepare the beds for the Tulips the following season. I plant seedling Carnations now on the Tulip beds, and these flower freely next year. One necessary part of the culture of late flowering Pentstemons is the removal of the seed-pods, as if they are allowed to remain they exhaust the plants, and the blooming season will be much restricted. J. DOUGLAS.

Dianthus Grievei.—This hybrid Pink, now flowering on the rockery at Kew, has, with the exception of the dwarf alpine species, few equals in this large and generally ornamental genus. It is said to be a hybrid between *D. alpinus* and *D. barbatus*, and its habit, mode of flowering, and other characters clearly point to some such parentage. In height it is intermediate between the two species, the flowers almost as large as those of *D. alpinus*, with the huge heads of *D. barbatus*. The flowers vary in colour from the deep rose-purple of the dwarfier parent to the almost white or pale pink of the other. As a rock plant, both for compact habit and freedom of flowering, it is one of the most beautiful of the cultivated forms, growing freely in almost any soil. It may be readily increased either by division or cuttings. It is certainly a great improvement on either of its parents, for the rockery at any rate, as it has neither the ungainly habit of the one nor the shy-flowering propensity of the other.—K.

Seedling border Pinks.—Those who have to furnish for various purposes large quantities of cut flowers, especially sweet-scented ones, may do worse than raise a batch of seedling border Pinks. I am careful to refer to the commoner varieties or strains as border Pinks, because they differ very much from the pure delicately constituted laced or show varieties, which would hardly do to furnish flowers for cutting, and would lack those more decided hues found in the border section. Of course, from out of a batch of seedlings there will be many producing only single flowers. These are pretty, and being sweet also may not be desired for cutting. Still with a fair proportion of doubles, the singles may be pulled and destroyed. Seedling Pinks are invariably very robust growers, and soon cover the ground. Some of them stand rough usage, bearing well the treatment usually accorded by the market grower to the common white and pink forms, which are lifted, pulled to pieces, replanted deeply, and expected to root freely as they do with rapidity. But these, too, good as they are, afford poor range of colour. Even the popular Mrs. Sinkins is a white only, and it is rather in the direction of darker hues to which it is desirable attention should be given. In a batch of seedlings, many of the double flowers, though not large nor densely petalled, are of richer hues, and really furnish a remarkable quantity of flowers for cutting. The Anne Boleyn forms all give fine flowers, are mostly rather dwarf, and very free as well as sweetly perfumed. The best kinds may be readily increased by putting in pipings thickly under hand-lights or frames now. These will give an abundance of strong plants in the autumn.—A. D.

SHORT NOTES.—FLOWER.

A fine Ramondia.—Mr. Burbidge sends us a photograph by Greenwood Pim, F.L.S., of a fine plant of this in the College Garden, Dublin, bearing one hundred flowers.

Viola cornuta.—This is an old plant, but nevertheless a useful one for many purposes. It cannot claim admiration for its large size, nor for its long blooming period, but what it lacks in these two points it gains in profusion of bloom and hardiness. It is a

valuable plant for edging if planted in rough positions or placed to cover large stones. Within sight of where I write is a border of stones instead of a Box edging. This *Viola* is planted so as to grow up between these stones, and at the present time the plants are a mass of bloom, quite hiding the stones.—DORSET.

New Margaret Carnations.—I notice that a northern seed firm is offering the above, which they describe as "a wonderful strain of perpetual flowering Carnations," and they state it has the remarkable quality of blooming in the fourth month from the time of sowing. This is to me a new feature in perpetual Carnations, and if any reader of THE GARDEN has had experience of this strain, I shall be glad if they will record it. There is an additional value in the strain, as it is stated that eighty in every hundred seedlings produce double flowers. One would think the description applied to the annual *Dianthus*; but then "perpetual flowering" is used.—R. D.

CARNATIONS.

THOSE that have been planted out since last autumn promise a display that will surpass that of the last two or three years. Our plants were never stronger, and had we not duplicates for stock of some kinds in the nursery we should almost lament their great strength, as many of our finest plants have not a single shoot upon them for layering, the excess of vigour, the result of last autumn's early planting in good soil, having forced not only the terminal bud, but all the side shoots into the production of a flower. Where Carnations are grown in quantity there is much labour attached to them, especially in supporting the flower-spikes. Various means of lessening this labour have been suggested and several experiments tried, but after all nothing is better than a neat stick, and in woody districts, such as ours, where we can obtain an abundance of Hazel suckers of the thickness of an ordinary lead pencil and about 4 feet in length, nothing better could be desired. To such a stake it is possible to loosely tie the shoots, and it will easily support several flower-spikes, whilst being hardly visible itself. We stake as soon as the spike needs support, but leave the stick its full length until the flower-spike has reached its extreme height and the bud is showing colour. After this all the sticks are shortened to just below the bud, and the final tying is given. Hazel branches placed among the flower-spikes have been recommended, and the plan answers with seedling Carnations admirably. But with fine selfs, whose flower-spikes attain nearly 4 feet in length, and we have several such, the twigs are of no use, as so many branches are required for the purpose, and there is more wood to be seen than Carnations. It is with such kinds that the advantages of the neat stake are apparent. A stake with its own bark upon it is least seen, and is preferable to planed or green painted deal stakes.

Should the present warm weather continue, the flowering season, as well as being a good one, promises to be early, but the successional spikes from the side shoots will materially prolong it, and the flowers upon those shoots are almost as good as those of the terminal shoots. All the above relates to fine, vigorous, hardy selfs, but when we come to speak of the charming sweet-scented Cloves, it is only to tell a similar tale to that told by "Caledonicus" in THE GARDEN, June 7 (p. 531). Our Cloves have all perished by disease. Moreover, this experience of the past few years has been the same in two gardens widely separated, on two soils of a diverse character, the one heavy, the other light. What is this disease that decimates, in fact eradicates our tufts and young plants before they can grow into tufts? It comes as a spot in the leaf and extends, the stem decays, the plant withers up. Last spring I planted fifty plants of the old crimson Clove in good loam. They were strong healthy pieces with no trace of disease, but many perished outright; some produced a few weak flowers, and others made a few fresh and apparently healthy shoots. These were layered; they rooted, made good plants, and we managed to obtain about fifty. They were potted up, as being so short in the stem it was thought inadvisable to

plant them in the open, as the first thaw after a frost would have thrown them on the surface of the ground. But potting and a cold frame without coddling were of no avail; one by one they sickened and died, and by planting time in spring not one remained. Yet in the same bed on either side the Cloves, self Carnations grew, flowered, made good layers, and some were potted up and placed in the same frame, yet they had no disease. But some of the layers of these Carnations were planted where the Cloves had been after fresh preparation of the ground, and although they wintered safely and looked healthy in spring, their present appearance shows it was not wise to place them there. Although they are going to flower there are no shoots, and will not be, as disease has carried off the ground foliage, and is preventing the formation and healthy growth of fresh grass.

This disease is not entirely confined to Cloves, because some Carnations seem particularly liable to it, and I dug up and threw away all I had of one sweet free-flowering self on that account. Another kind that I did not wish to lose was last autumn badly infected with the same spot. I planted out half the layers and potted up the rest. Those planted were cut over closely with a knife right down to the crown, and they made a fresh and healthy growth. Those potted up were kept picked over, and so closely that at one time they had not a whole leaf upon them. They, too, grew away freely, and in April were planted with the others. All are now strong, with promise of abundant blossom. In wet seasons this spot is more prevalent and destructive, but in any season the Cloves seem to suffer. The Cloves, unlike most of the Carnations, need not be annually layered, as they will spread into great healthy tufts, such as one may see in the Embankment Gardens, and which have been often mentioned in THE GARDEN. Yet we, with a better soil and climate, fail to produce a flowering plant, much less a tuft, and I, like "Caledonicus," can only ask, Why? If this spot is a fungoid disease, eating into and destroying the tissues, cannot those who examine and study such things come to our aid, and tell us the nature of the disease, show how its ravages may be arrested, and its destruction brought about, or even its effect mitigated by the application of some one of the many things now in use which prove so useful in combating other diseases, destroying insect pests, and keeping the plants we cherish and admire in vigorous health? A. H.

THE WEEK'S WORK.

PLANT HOUSES.

GREENHOUSE.—**KALOSANTHES.**—There are no plants so much influenced in the colour of their flowers by the treatment they receive as *Kalosanthus*. As soon as the first florets are about to unfold, a place should be selected in the open air where the plants will not be exposed to the sun in the middle of the day; during the morning and again towards evening the sun will benefit them, but full exposure often turns the leaves an objectionable colour. When the flowers are fully expanded the plants can be moved to the greenhouse or conservatory, and should have plenty of air with a little shade when the weather is bright. Those that are intended to bloom next year should now be turned out of doors in an open situation and allowed to remain there until the middle or end of September, according to the locality. It is not well to expose them to danger of frosty nights. If the growth is not well matured in the way named, few of the varieties can be depended on to produce a full, even crop of flowers. Plants that were struck a year ago, if not already in the pots they are to remain in until they have bloomed next summer, should at once be put into them; 7-inch pots will in most cases be large enough for plants of the age in question; older examples should have proportionately more room.

PLEROMA ELEGANS.—Plants that have been given ordinary greenhouse treatment will now be

showing bloom, and may be placed out of doors until the first flowers are open, after which they will do good service in a conservatory, greenhouse, or a verandah where they can be shaded from the sun. Whilst the plants are out of doors they should be stood at the north side of a tree, hedge, or wall that will keep them from the sun, except in the early morning and evening. This is necessary, as the leaves, except when slowly inured to the sun, are apt to be injured by it.

PLEROMAS—YOUNG STOCK.—Young plants intended to flower next year should now be moved to the pots in which they are to bloom so that the plants may have time to get fully established before the end of the growing season. This *Pleroma* is a free grower and roots very freely. Plants that are now in 8-inch or 9-inch pots may be put into others 3 inches larger. Loam of good quality and with plenty of vegetable matter in it, with a good sprinkling of sand added, suits this plant, though it will succeed in peat, in which, however, it does not always flower so freely. After potting, keep the plants indoors for two or three weeks with a thin shade over them; this it is necessary to use in summer. They should then be stood out of doors, selecting a place where they will not be much exposed to the sun.

SMALL PLANTS FOR TABLE DECORATION.—In preparing stock of this kind first select plants with light and elegant foliage and a spare habit of growth; bushy subjects dense in growth never look well. Single-stemmed examples should alone be used, such as the narrow-leaved *Crotons*, *Aralias*, *Grevillea robusta*, *Lomatia elegantissima* and *L. silaifolia*, and *Palms*, as *Cocos Weddelliana*, *Chamaedorea graminifolia*, and *Geonoma gracilis*, may all be included amongst the best and most effective things that can be used for either table or room decoration generally. As a rule, green-leaved plants are preferable to variegated kinds, but where the latter are used the brighter-coloured they are the better.

CROTONS.—Of these, only shoots that are well coloured should be chosen. Now, when the plants have had time to make a considerable amount of growth, where well managed they will have plenty of the leading shoots in proper condition. Larger cuttings of *Crotons* may be struck than of many things. If put singly into small pots half filled with a mixture of sifted loam and sand, the top all sand, they may remain in the cutting pots until the roots have made much progress, when they can be moved into larger pots without any disturbance, and, if kept moving, will be large enough for use in a short time.

DRACÆNAS.—Only the narrow-leaved sorts of the stove varieties of *Dracæna* should be used, the broad-leaved kinds being too heavy for the purpose. *Dracænas* take longer to grow to the requisite size than the *Crotons*. Even the tops when struck take a year or more before they attain sufficient size. For this reason it is necessary to always have enough plants coming on to afford the requisite supply, especially when cuttings made from the old stems are used. As a matter of course, these take a longer time to grow than the tops. Tall plants that have lost their lower leaves should be headed down to within 2 inches of the bottom. The stems may be cut into pieces about an inch and a half long, and inserted in pots or pans filled with sand; in a brisk stove heat they will soon root and make top growth. It is not necessary to confine these stem cuttings under propagating glasses or in a cutting box. But cuttings made of the tops of the plants must be kept close, or they will lose their leaves. In all cases where *Dracænas* are headed down, the thick fleshy extremities of the roots which extend downwards should be removed. Preserve all the thin roots which are attached to them and treat as advised for the stem cuttings. Insert them with the blunt buds at their extremities just visible above the soil, that is, in a reverse position to that which they were in whilst attached to the old plants. By a daily use of the syringe, if care is taken to direct the water in a way that it will reach both the upper and under sides of the leaves, thrips and other insects will not obtain a lodg-

ment. *Dracænas*, unlike *Crotons*, must be shaded regularly in bright weather.

ARALIAS.—Of these, the most slender-leaved sorts, such as *A. Veitchi* and *A. elegantissima*, are the best adapted for table use, and also for any arrangements in which small, fine-foliated plants are required. They strike readily from cuttings made of the tops and the portion of stem that has not got too hardened. A couple of joints to each cutting made from the stems is sufficient, retaining the leaf attached to the upper joint. Confined and kept moderately moist in a brisk heat, the cuttings will quickly strike. Dispense with the glasses as soon as sufficient roots are formed to keep the leaves from flagging, and when a little top-growth has been made put the plants into 3-inch pots, using peat with a moderate amount of sand added. The old stools, if well cared for, will break and produce young shoots, which, if taken off with a heel when they are about 4 inches or 5 inches long, will strike without any difficulty.

GREVILLEA ROBUSTA.—This quick-growing and elegant-habited plant should be raised from seed annually. Plants that have been raised from seed sown after the beginning of the year should by this time want moving into 4-inch or 6-inch pots, which will be large enough for them this summer, and if only wanted for table decoration are as large as will be necessary.

PANDANUS.—Amongst these there are several useful in a small state for table and room decoration. Of the variegated sorts, *P. variegatus* and *P. Veitchi* are both established favourites. In the green-leaved kinds *P. Vandermeerschii* and *P. elegantissimus* are extremely elegant, their gracefully curved leaves giving the plants a distinct appearance. The variegated sorts produce suckers freely after the plants get large and strong. Some of the suckers often come green; these should not be used for propagation, as they seldom attain sufficient colour to be worth growing; whereas the suckers that have enough of the white colour in their leaves mostly retain it. It is better not to take the suckers off until they have attained a moderate size and have formed some roots at their base. Put them singly into pots sufficiently large to hold them, stripping a few of the bottom leaves off. A mixture of loam and sand is the best to pot them in at first. They should have a brisk heat, but not be kept too close or the stems may decay. As soon as the roots have made some progress stand the plants close to the glass to prevent their becoming drawn and to get them strong enough to bear a lower temperature. The green kinds require treating similarly, but they do not produce suckers so freely as the variegated sorts, and consequently are less common.

T. B.

FRUITS UNDER GLASS.

EARLY GRAPES.

HOUSES in which all the Grapes are quite ripe must be very freely ventilated and possibly shaded for a few hours during the hottest part of bright days. The syringe, too, must be freely used upon the foliage as the Vines are cleared, not only to keep it fresh and healthy, but also to induce a break of laterals as safety-valves to the main buds. Other parts of the house, including the walls and the floors, may be regularly damped, as Grapes at this season require more moisture than would be good for them later on.

Planting young Vines.—If the removal of old Vines is contemplated the relics of the crop may be cut and bottled, as the young ones struck this spring should be in their places by the end of the present month. Preparations for these include the removal of the whole of the inside border, correction of the drainage, and the formation of a ridge of compost along the front from 3 feet to 4 feet in width. This compost may be got ready in advance, exposed as much as possible to the influence of the sun, and when fairly dry and warm it must be packed up with steel forks, a matter of 6 inches being allowed for settling by the end of the year. The best Vines for summer planting are those which have been struck on square sods of turf, as the roots radiate in the way they should go,

and if carefully moved with a tan fork, lightly covered with dry compost, and settled with warm water they never feel the check. These, as a matter of course, must be prepared on the premises and well they repay the trouble, as home-struck Vines always start better than those obtained from a nursery, and invariably make the finest canes. If the Vines have been struck and grown in pots, the balls should be gently crushed in the hands and the points of the coiling roots set at liberty before they are let into the border, but Vines of home propagation very seldom do so well from pots as they do from turves, while trade plants from very hot houses and checked in transit frequently remain dormant until the end of the year. Vines planted in June will bear fruit the following year; those planted in July might do so, but unless very good it is best to cut them down in January and get the house well filled with fine wood.

Mid-season Vines upon which the fruit is beginning to colour must have the last supply of tepid liquid, an excess of this being prejudicial to the flavour when the Grapes are ripe. More water will be needed, but it must be plain, and the inside borders, as a matter of course, will be well mulched. Damp this regularly, also the walls and floors, and shut up quite close for two or three hours in the afternoon to swell the berries. Re-open the ventilators about 8 o'clock, keep them open all night, and shut them up again when the floors are moistened the following morning. Examine each bunch separately, and carefully remove a few of the smallest berries, also raise the shoulders where they show a tendency to binding. Let laterals grow, as they help the colour and preserve it when secured, but keep them clear of the glass, otherwise they will impede circulation, hold moisture, and form an early home for red spider.

Late Vines.—Lose no time in bringing the thinning of all late Grapes to a close, and immediately this is finished commence a regular system of feeding with warm diluted liquid guano and soot water as often as the roots will take it until the berries begin to change. Also increase the supply of fresh, but well-worked horse manure inside and mulch outside if the weather continues dry. This will keep the roots close to the surface, the best position for doing good service when the Grapes begin to colour. Encourage all intermediate laterals by leaving them to grow up towards the glass, but check the strongest by tying down and pinching out the points wherever there is room for a few leaves. Grapes subject to scalding must now be closely watched, especially in tempestuous and unsettled weather. Scalding can hardly be called a disease, as it can be produced or prevented at pleasure. The best preventive will be found in keeping the house and pipes warm through the night with top air for letting out moisture, and by reducing it to the temperature of a warm greenhouse by increased ventilation through the day. If this treatment does not save the bunches intact, provision must be made for lifting and relaying the roots, as scalding, shanking, sterility, and other functional ailments are intensified, if not originated by cold, wet compost impervious to the free passage of water, solar heat, and fresh air.

PEACHES.

When the fruit is cleared off the trees in the earliest house they must be well watered and copiously hosed, not once or twice, but repeatedly after hot days. If previously well managed, the pure element will keep them in good condition; but, otherwise, soapsuds or other mild insecticides may be necessary, as the foliage must be preserved. When the trees are clean, cut away all superfluous shoots, regulate those retained to ripen up, syringe in the afternoon, and gradually increase the supply of fresh air.

Succession houses in which the Peaches are ripening must be kept freely ventilated, great care being taken that rain does not spot the fruit. A constant circulation of warm air is essential to flavour and colour, and a certain amount of moisture is necessary to the preservation of the leaves and the full development of the fruit. To this end syringe all available parts of the trees, especially the stems,

old branches, and the walls, and water the floors on fine bright days. Gather fruit early in the morning. When dry and cool, lay each Peach on a piece of tissue paper and convey in flat padded boxes or baskets to the airy fruit room to remain undisturbed until wanted for use.

Late houses will now do quite well without fire heat, the main points being good syringing twice a day, copious feeding, and a profusion of fresh air. Pinch the points out of shoots which will be cut away when the fruit is gathered. Mount all that can be turned apex upwards upon small pieces of lath and follow up the thinning until the crop is reduced to the capabilities of the trees.

Fly, unusually troublesome this year, must be closely watched, and the first curled point must be the signal for smoking when the house is cool and the trees quite dry. Numerous mishaps in the form of scalding after fumigation having come under notice, it may be well to inquire whether the cheap materials now so abundantly offered are deleterious, or operators are more careless than of yore.

FIGS.

Maintain a nice circulation of dry, warm air until the first crop of fruit is picked, but do not let the roots want for fairly liberal supplies of warm liquid, as the second crop will now be well advanced. Syringe all available spaces once or twice a day and give the whole of the trellis a good washing as often as may be practicable after the crop has been closely picked. When the first crop is over aid the second by good top-dressing and mulching, syringing twice a day, and closing at 85° from sun-heat with plenty of moisture. Discontinue stopping, unless it be the extra strong shoots, which soon become robbers, not only of the existing crop, but of the young growths, which will produce the earliest Figs next spring.

CHERRIES.

Assuming that red spider has increased upon the foliage during the time the fruit has been hanging, steps must be taken for its removal immediately after the trees are cleared. Trees in pots may be laid on their sides and well hosed, or being badly affected they may be taken out of the house and plunged where they are to remain the remainder of the summer. If root-dry, soak in tubs of water before plunging, mulch, and never allow them to feel drought until they have finished their growth. Permanently planted and trained trees should always be grown under portable roofs, as the lights can be removed about the end of June, when the foliage gets the full benefit of dew and rain, insects make little progress, and the buds do not get too forward.

PLUMS.

Top-dress, mulch, and feed with good clarified liquid until the fruit becomes transparent in the skin. Also syringe with pure soft water, wetting every part of each drupe, timid sprinkling being the cause of spotting, sometimes noticed when the crop is ripe. Early sorts may be turned out of doors as they are cleared, not only for their own benefit, but also to the advantage of later varieties left behind.

Late Cherries and late Plums will make perfect progress in cold airy houses, that is, unheated structures, until their crops are ripe, but damp being the great enemy, the grower should have fire-heat to fall back upon in time of need.

W. C.

THE KITCHEN GARDEN.

CELERIAC.—Those who have prepared plants of any variety or varieties, for there are several quite distinct and good improvements on the old Turnip-rooted Celery, ought not to long delay getting these finally planted. The roots, if of good size, will be found very serviceable during the winter, as they are good either as a vegetable or for flavouring soups. Seeing that a thick or bulbous root is required, and not a mass of stalky leaves, it is unwise to put Celeriac out in trenches, the proper place for it being the surface of well-manured and not too heavy and rough soil. The ground is usually freely manured for early Cauliflowers, and as these are now fast being cleared off in most southern dis-

tricts at any rate, they might be closely followed by Celeriac. As a rule all that is necessary is to clear the ground of rubbish and to well loosen the surface with hoes in preference to digging. Thus treated the planting can be done at once, and the firm root-run is conducive to sturdy top-growth as well as the formation of good bulbs. The ordinary variety may be put out about 18 inches apart each way, but very much less room is taken up by the newer Prague, Erfurt, and Apple-rooted forms. These may be planted from 12 inches to 15 inches apart each way. Move the plants with a good ball of soil and roots, fix them firmly and water in. Also give water occasionally till they are well established, after which a mulching of some kind will do good.

EXHIBITION CARROTS.—If either Nantes Horn, Early Gem, Model, or Guerande have been sown on hot-beds for affording an early supply of young roots, very clean and superior samples can be had later on for exhibition purposes. When drawing for use at the present time leave a few of those with only moderately strong tops, these usually forming the handsomest and best coloured roots, at about 6 inches apart each way. When the bed is sufficiently cleared give a good watering and mulch with short Grass from the mowing machine. In this manner, cleaner and in other respects better Carrots can be obtained than are often possible from the beds in the open ground.

THE ONION MAGGOT.—As yet I have discerned no trace of the much-to-be-dreaded Onion maggot, and we may, therefore, reasonably anticipate further immunity from attack. As a rule the first batch of flies hatch and escape from the ground in April, and the maggots resulting from the eggs deposited by them on the stems of both autumn and spring-raised Onions commence their work of destruction during May, though more often than not at the end of that month. It being too late to adopt any preventive measures, as far as the flies are concerned, all that can and ought to be done is to frequently go over the beds and carefully remove any plants that show signs of flagging, this being the work of the maggot. It is quite useless to leave these affected plants, and if they are wholly removed and burnt, fewer maggots will escape, and as a consequence fewer flies put in an appearance in June and July, this being the time when the second batch are troublesome. Syringing the plants with petroleum used at the rate of 2 ozs. to the gallon of soft water, keeping this well stirred with the syringe as it is used, will do much towards keeping off the flies and destroying the eggs. Now is the time to commence applying this remedy.

MILDEW ON ONIONS.—What we have most to dread is mildew, this also being the case in other much sheltered gardens with clay or moisture-holding subsoils. The Tripoli varieties, both autumn and spring-sown, are the most liable to be overrun by it, and plants once infested by mildew make little or no further progress, the bulbs also ripening and keeping badly. Where this class of Onions is thus liable to mildew, the wisest course is to keep them well clear of the more valuable spring-sown crops of keeping varieties, a good open spot being selected for Onions generally. The best remedy at the present time is occasional overhead dustings of newly-slaked lime with a little soot mixed with it. The plants ought to be thoroughly coated with it. In the case of spring-sown beds these should be gone over frequently, and any plant slightly affected with mildew carefully removed and destroyed. If a plant cannot well be spared, try what can be done by removing the first affected leaf, and dust lime freely among the beds if there are any signs of the mildew spreading badly.

SUMMER SPINACH.—In many establishments there is a constant demand for Spinach, this being especially the case where it is valued on account of certain medicinal properties it is said to possess. Unfortunately, it is no easy matter to maintain an all-the-year-round supply of the true Spinach, the greatest scarcity being during the hottest summer months and September. A dozen plants of the

New Zealand Spinach, raised or put out 1 yard apart each way on a sunny border, will yield unlimited supplies of succulent mildly-flavoured shoots, this species revelling in hot weather, but by some it is considered a poor substitute for the true Spinach. If the latter must be had, the proper place for a late summer crop is a north or cool border, this being manured, dug, and pulverised well in advance of the time of sowing. The sooner seed is sown in these cool positions the better, and preference ought to be given to the Victoria, Monstrous Viroflay, or other large-leaved long-standing forms.

WINTER SPINACH.—It is too early to sow seed of the winter crops, but in many instances the preparation of the ground ought to be commenced now, if not already done. There should in all cases be good time allowed for the ground to become thoroughly sweetened, while if the soil is at all heavy there is still greater necessity to manure and dig it early in order to get it finely divided at seed-sowing time. We usually select a breadth of rather high ground and which has been previously cropped with late Broccoli. This being well manured and roughly dug up now will soon be baked by sunshine, and if a soaking rain falls in July, advantage is taken of this to break down the lumps and to make the first sowing of seed. The crop of winter Spinach is a most important one, and generally well repays for any extra trouble taken with it.

SOWING SEEDS IN DRY WEATHER.—At this time of year it is unwise to delay seed-sowing in the hope that rainfall may simplify the work of preparing the ground. If the soil is hard and lumpy this ought to be well watered, a coarse rose being used with the watering-pot a few hours in advance of fining it down. Thus treated it will usually crumble to pieces readily and the seeds can be got in well. Much also might be done by anticipating this surface dryness. After a soaking rain all lumps previously dried hard by sunshine will break down readily with the aid of coarse rakes, and this should be done whether seed is to be sown or plants put out several days or weeks hence. The surface being fine, but somewhat dry, drills for seed ought to be well watered, the seed being then sown and covered with fine soil, this being a far better plan than watering after the seeds are covered.

LATE PEAS.—A few dishes of late Peas, say, during October and the early part of November are always much appreciated, and but for the birds, notably sparrows and tomtits, these would be more often forthcoming than they are. Early frosts have also to be reckoned with, and as these are most severe in low, damp positions, the site for late Peas ought to be on somewhat high ground, while if the rows are well isolated they are less likely to be infested by birds. In the more southern parts of the country wrinkled-seeded or Marrow Peas may be sown as late as the middle of June with good prospect of their doing well, especially if they are kept well supplied with water when in a young state. Ne Plus Ultra, Magnum Bonum, Veitch's Perfection, Latest of All, Hair's Dwarf Mammoth, Sturdy and Omega are all suitable for present sowing in warm localities, while in colder districts, William I., any of the round-seeded earlies, and the dwarf Chelsea Gem and William Hurst may be sown for the purpose of securing a few late dishes.

MUSHROOMS.—Quite recently I have come across two beds of Mushrooms only just coming into good bearing order, the owners being very anxious to learn what was best to be done to them, when they should be watered, and how to prevent the Mushrooms from becoming so quickly stocked with maggots. The beds were made in sheds, and all that can be done in these and similar cases is to keep them as cool as possible; not, however, by admitting air, but rather by its rigid exclusion, sunshine on the roof, if slated or tiled, being also warded off. If the beds are at all dry then ought they to be gently, yet thoroughly moistened, and in any case a thick mulching of dry, soft litter of some kind should be given for the purpose of keeping the beds both cool and moist. The old stumps with their roots must be removed when the Mush-

rooms are fit to use, as these are apt to decay very quickly and spread destruction all round.

W. I.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

THE Drill Hall, Victoria Street, was filled with the flowers of the season on Tuesday last, and the attendance was large for the place. The great attraction was, of course, the Tea Roses, but Pæonies and other hardy things were there in plenty.

A first-class certificate was given to each of the following:—

PHILADELPHUS MICROPHYLLUS.—This is, of course, not new, neither is it old, but rare in cultivation as yet, though we may regard it as the gem of its race. It hails from New Mexico, and is a small grower, the leaves not so large as those of a Myrtle and the stems slender, but smothered with white flowers, a wreath of bloom, exquisitely lovely by reason of the graceful bend of the branches. It may be tender in cold northern localities, but is hardy in the south, and as a June-flowering shrub should not be overlooked. Shown by Messrs. Paul and Son, Cheshunt, and Messrs. J. Veitch and Sons, Chelsea.

SARCOPODIUM GODSEFFIANUM.—This is a provisional name, but whatever its name this *Sarcopodium* is a delightful gem, quaint, yet beautiful, and richly coloured, though it seems to vary in depth. The *Sarcopodiums* are close allies of the *Bulbophyllum*, and by some grouped with them. This species has the true *Bulbophyllum* character. It flowers without the leaves, and from the base of the small pseudo-bulb comes a single peduncle bearing one flower of fair size and curiously coloured. The lip is hinged so slightly, as to move at the least touch; but the most striking characteristic is the pointed dorsal sepal, which stands quite upright, and is netted over with very deep crimson lines on a yellowish ground, this yellow colouring deepening at the margin. The lower sepals are curved like the horns of a cow and crimson-brown in colour, while the petals stand out at right angles. It came from Messrs. Sander and Co., of St. Albans.

LÆLIO-CATTLEYA EXIMIA.—This is a hybrid that even amongst the many richly coloured forms of *Lælia* and *Cattleya* in cultivation would receive attention. It is a cross between *C. labiata* Warneri and *Lælia purpurata*, and the result is a combination of the two, with no loss in the rich colouring of either parent. It has the lip of the *Lælia*, and is quite 2 inches across, wholly of the deepest possible purple colouring, relieved by a few streaks of yellow, and yellow-crimson in the throat; the sepals and petals are rich rose and the flower compact in form. From Messrs. J. Veitch and Sons.

EPIPHRONITIS VEITCHI.—Here is a remarkable cross between two distinct genera, *Epidendrum* and *Sophranitis*, and the result is a triumph for the hybridist. The pollen parent is the *Epidendrum*, and we have a dwarf plant with flowers that resemble those of the *Epidendrum* in form, but with the intense richness in colour of the *Sophranitis*. The flowers are about midway between the two in size and of the deepest crimson, but yellow in the centre of the lip, where there are three stripes of the same rich colour. From Messrs. J. Veitch and Sons.

CATTLEYA GASKELLIANA (Cooke's variety).—We have never seen a more beautifully coloured variety than this. The plant shown by Mr. Cullimore, gardener to Mr. Malcolm Cooke, Kingston Hill, carried several flowers, all of the same delightful shade of lilac, exquisitely soft, but not weak, the only other colouring being in the lip, where at the base there is a suffusion of white, giving way to yellow at the entrance to the throat, the shades melting one into the other; the petals are broader than the sepals and frilled at the margin. The flower is bold in expression, and thoroughly useful.

An award of merit went to each of the following:—

MASDEVALLIA, NEW VARIETY.—It would not be

amiss to give a distinct flower like this a name. It is quietly and nicely coloured, and was one of several shown by Mr. Sydney Courtauld, Dorking.

LÆLIO-CATTLEYA CANHAMÆ.—Another hybrid *Cattleya*, not so fine as *eximia*. It is a cross between *Cattleya Mossiæ* and *Lælia purpurata*, and partakes more of the *Cattleya* than of the *Lælia* character. The sepals and petals are pale rose, the lip veined with purple, frilled and very pale in colour at the margin. From Messrs. J. Veitch and Sons.

DISA TRIPETALOIDES.—This has been fully described recently in THE GARDEN. Shown by Sir Charles Strickland.

CAMPANULA PERSICIFOLIA ALBA GRANDIFLORA.—This is a terrible name for a very fine form of the Peach-leaved Bellflower. A splendid mass of it came from Messrs. Paul and Son, Cheshunt, and it will be found described in "Notes of the Week."

PÆONY BERLIOZ.—A showy variety, the flower very large, full, and deep crimson-purple in colour. From Messrs. Paul & Son.

P. DANBERTON.—Another excellent flower, very double, and rose-magenta in colour, with the silvery reverse of the florets showing. From Messrs. Paul & Son.

ROSE J. D. PAWLE.—It is impossible to judge of a new Rose from a few blooms, so much depends on hardiness, vigour, and freedom of flowering. This has very large flowers of a deep velvety crimson colour, the broad outer segments being more crimson than the centre. It shows the "eye," which is a fault. From Messrs. Paul and Son, Cheshunt.

ROSE MRS. PAUL.—A seedling Bourbon variety, of good colour, displaying shades of rose. It is a very full flower, the outer segments rich rose, passing towards the inner petals to a pink hue. From Messrs. Paul and Son.

ROSE MARCHIONESS OF LORNE.—We saw this about two seasons ago on the plant, and then considered it a promising variety. It has fulfilled its promise. The flowers are excellent in the bud and strong in colour, but not of the kind to please everyone. The outer segments are of a purplish shade, this giving way to deep crimson, a brilliant, but somewhat crude contrast. There is a sweet fragrance, and all the essentials for a good garden Rose. From Messrs. Wm. Paul and Son, Waltham Cross.

CARNATION PRIDE OF GREAT BRITAIN.—This is a seedling variety of rich promise. It has an unusually strong growth and very large flowers of a pure self yellow colour, very full and handsome. When the plants are well grown, we should think the flowers would approach the size of those of *Souvenir de la Malmaison*; there is every sign of it. It was raised by Mr. Fry, and shown by Mr. H. J. Jones, Ryecroft Nursery, Lewisham.

RHODODENDRON AJAX. one of the Javanese hybrid greenhouse *Rhododendrons*, is a very beautiful flower, of a distinct and charming salmon shade. The florets reflex back slightly, thus showing off their colour and massiveness. From Messrs. J. Veitch and Sons.

BEGONIA, TUBEROUS, MISS EASTWOOD.—An excellent double-flowered variety, very full and of a beautiful rose shade. From Messrs. H. Cannell and Sons.

PELARGONIUM MIDSUMMER.—A zonal variety, carrying a fine truss of flowers, the individual pips large and pink in colour, but deep salmon in the centre. From Messrs. J. R. Pearson and Sons, Chilwell.

HARDY FLOWERS were shown in large numbers. Messrs. Paul and Son, Broxbourne, exhibited a rich collection, comprising for the most part Pæonies, the majority being of quite a dwarf habit, scarcely rising to a height of more than 2 feet. A few of the finest besides those certificated were *Alice de Julvecourt*, white, very full; *Rosamond*, brilliant rose, double; *Duchesse de Nemours*, a charming flower, white, with yellow shading in the centre; *La Perle*, dark rose; *Felix Crousse*, brilliant crimson; *M. Rousselon*, very dark pink; and *Taglioni*, rich crimson-purple. *Gaillardias*, the sulphur-

coloured *Cephalaria alpina*, *Delphiniums*, *Poppies* in great variety, *Potentilla Wm. Rollinson*, a brilliant orange-scarlet; *Arnebia echinoides*, *Clematis recta*, *Irises*, and other things were also shown (silver-gilt medal). A large show was made by Messrs. J. Veitch and Sons, who had the rich blue *Campanula dahurica* 'glomerata' and a fine selection of *Aquilegias*. We have nothing so fine in the boldly coloured kinds as *glandulosa*, but *Californian Scarlet* was very bright, a showy and useful flower. *Delphiniums* and *Irises* were also exhibited, and a distinct form of *Adiantum cuneatum*, but we prefer the type. Messrs. Veitch exhibited several baskets of hardy flowering shrubs, as *Kalmia latifolia* and its variety *major splendens*, a much larger form than the ordinary kind; the rare *Olearia macrodonta*, a beautiful silvery-leaved shrub; *Robinia hispida*, *Bomarea multiflora*, the lovely *Andromeda speciosa cassinæfolia*, the shoots hung with bell-like flowers of pearly white; *Styrax japonica*, and the little deep crimson-flowered *Erica cinerea coccinea minor* (silver-gilt medal).

Messrs. Barr & Son, Covent Garden, showed a rich selection of hardy flowers, comprising a variety of Pæonies, *Ixias*, *Irises*, including the dusky-coloured *Thunderbolt*, *Iceland Poppies*, and other flowers now in full beauty (silver medal). Messrs. H. Cannell & Sons exhibited an excellent variety of Pæonies, including the crimson *Pottsi*, *Lutea plenissima*, *L'Empereur*, a brilliant crimson, and double *Begonias* (bronze medal). Mr. E. F. Such, Maidenhead, had a collection of hardy flowers of well-known kinds. Mr. Laxton, Bedford, exhibited seedling Pinks from Mrs. Sinkins; the Rev. W. Wilks flowers of the Shirley Poppies, but we think the strain is not so pure as last season, the colours not being so decided; Messrs. Dubois & Co., Ghent, Belgium, *Spiræa astilboides floribunda*, but no better than the ordinary type; and Mr. O. T. Hodges, Lachine, Chislehurst, *Calendula pluvialis*.

ORCHIDS.—A basketful of *Phaius Humbloti* came from Messrs. Sander and Co., and a very dark form of *Cattleya gigas* from Mr. De B. Crawshaw, Sevenoaks. Mr. S. Courtauld exhibited new *Masdevallias*, one named *Courtauldiana* having a rosy-coloured flower. Messrs. J. Veitch and Sons showed *Thunia Veitchi*, a cross between *T. Bensoniæ* and *Marshalliana*, the flower very pretty, especially in the lip, where it is freely veined with rose-lilac. A plant of *Catasetum atratum* carrying a spike of male and female flowers was shown by Mr. M. Cooke; the flowers are deep greenish-brown, spotted freely with chocolate, a curious species. A plant of *Aerides Lobbi*, with other well-known Orchids, came from Mr. Crispin, Bristol.

Other exhibits were several interesting flowers from Mr. Lynch, The Cambridge Botanic Gardens. He sent *Melia Azedarach* and a variety of *Pentstemons*, comprising *P. confertus caruleo-pureus*, blue; the beautiful lavender-coloured *P. grandiflorus*, *P. digitalis*, *diffusus*, *pubescens*, *ovatus*, *secundiflorus*, and *Macleania insignis*, which has a dense head of tubular scarlet flowers. Messrs. J. Laing and Sons, Forest Hill, showed the sweet-scented yellow *Begonia*, a fine colour with a faint scent; and both Messrs. Pearson and C. Turner sent *Pelargoniums*, the latter of the show section. Messrs. Cutbush and Son had *Hedera lucida* and the variegated form, and the *Barnet* variety of *Stephanotis floribunda*.

ROSES.—Messrs. William Paul and Son sent several new kinds. Spenser (H. P.) is a large rose-coloured flower of promise, and *Media*, a pretty Tea in the way of *Mme. Hoste*, the flowers yellow, a distinct kind; *White Lady*, creamy white, with a distinct salmon tint in the centre, has the form of *Gloire Lyonnaise*, and is a promising Tea variety. The same firm showed a boxful of the deep-coloured *Duchess of Albany*, the sport from *La France*, and a hybrid Tea called *Pink Rover*, besides other kinds. Messrs. Paul and Son, Cheshunt, had a promising Tea variety, called *Kaiserin Friedrich*. Mr. Prince, of Oxford, showed three boxes of *Souvenir de S. A. Prince*, the flowers in beautiful character, and W. A. Richardson. Mr. George Bunyard, of Maidstone, had a selection of decorative garden Roses, including such kinds as the old *Hebe's Lip*,

Austrian Copper Brier, and Polyantha types, besides Damask Roses—a charming lot. Messrs. G. Cooling and Son, of Bath, also had a collection of Roses.

FRUIT.—A selection of early Strawberries came from Messrs. Paul and Son, amongst them Crescent Seedling, which was given an award of merit. A fine boxful of fruits of Lord Napier Nectarine came from Mr. J. Hudson, Gunnersbury House Gardens, Acton, and Mr. T. H. Crasp, Canford Gardens, Wimborne, sent splendid fruits, very rich in colour, of Stanwick Elruge Nectarine. Mr. Wythes, Syon House Gardens, had a promising seedling Melon, and the Countess variety came from Mr. J. Douglas. Other Melons were shown. Excellent pods of Duke of Albany Pea, the seed sown inside a cool house on January 13, and fit to pick on May 11, were shown by Mr. Palmer, Thames Ditton House Gardens. Mr. H. Field, Brunswick Gardens, Leamington, sent a new Tomato; and Mr. Osman, Metropolitan District Schools, Sutton, enormous sticks of Stott's Monarch Rhubarb.

EXHIBITION OF TEA ROSES.

The special feature of this meeting was the exhibition of Tea Roses in competition for prizes offered by the National Rose Society and members of the same body. The competition for the prizes offered was not only good, but the flowers were, with few exceptions, unusually fine and in true character. The great class was for twenty-four blooms, not less than twelve varieties, and here Mr. F. W. Flight, Tangford, Hants, was first, showing the lovely Mme. de Watteville, a variable Rose, but on the present occasion exquisitely coloured throughout. It promises to be a good year for this delicately beautiful variety, but its capricious behaviour in many places is against it. That recent Rose, The Bride, was also shown well, and there were many good blooms in the several classes; also Catherine Mermet, Rubens, and Madame Hoste. The second prize went to Mr. A. H. Gray, Bath. In the third prize box of Mr. R. L. Knight, Sittingbourne, occurred the finest bloom in the show of Tea varieties, a grand specimen of Souvenir d'Elise Vardon, to which was therefore given the silver medal of the National Rose Society. In the next class for twelve flowers, the Rev. H. A. Berners, Harkstead Rectory, Ipswich, was first, and amongst the flowers were beautiful blooms of Mme. de Watteville, perfect in that delicate rose colour characteristic of this variety; Amazon, a very rich yellow flower; The Bride, Jean Ducher, and Prince of Wales, a lovely flower, were also shown well by several exhibitors. The second award was in favour of Mr. O. G. Orpen, Colchester, who had the lovely Rubens in full freshness and beauty. There was a distinct falling off in the next class for six flowers, but Mr. E. Mawley, who was first, showed good flowers. In the class for six blooms, one variety, there were several exhibitors. We think such classes as this are the most interesting. One can see the full beauty of the flowers, which are not lost by contrast with other kinds, as in the class for several varieties. The Rev. F. R. Burnside exhibited six excellent flowers of Maréchal Niel, but we should have rather given the award to the lovely blooms of Comtesse de Nadaillac, strong in colour, perfectly fresh and finished, from Mr. A. H. Gray. A boxful of this Rose makes a delightful exhibit.

The following are the additional prizes, each offered by a member of the National Rose Society, and this helped to make the show of some extent. The class for six varieties was only open to amateurs, and again Mr. A. H. Gray was successful, having a beautiful bloom of Comtesse de Nadaillac, a flower that seems to develop its full character on his soil. The second prize went to the Rev. F. Page Roberts, Scole Rectory, Norfolk. The next class, reserved only for nurserymen, was for twenty-four varieties. Here Mr. B. R. Cant, of Colchester, was first with fine flowers of such kinds as Mme. Hoste, Rubens, Mme. de Watteville, Prince of Wales, and The Bride. Mr. G. Prince, Oxford, second. In the third prize box of Mr. F. Cant there was a bloom of the variety Moiré, a distinct and beautiful flower, outer petals flushed with rose towards the margin, the centre shaded yellow and buff—a charming contrast

of delicate colours. The same exhibitor showed Mme. A. Etienne, a charming flower, with a crimped rosy edge to the petals, this colour shading off to white in the centre. In the class for twelve varieties there was a splendid collection of flowers. Messrs. J. Prior and Son, Colchester, were first, showing the richly coloured Mme. Cusin, Anna Olivier, Mme. de Watteville, Mme. Hoste, and Catherine Mermet; Mr. Prince was second, and the flowers of Prince of Wales, Comtesse de Nadaillac, and La Princesse Vera were delightful. The last of those mentioned has rose outer petals, shading to white, a delicate and beautiful flower. The third prize box of Mr. B. R. Cant contained a bloom of Cleopatra, one of Mr. H. Bennett's pedigree Roses, and a noble flower. It is remarkable for its robustness in both leaf and flower, which is of a lovely shade of rose, gradually giving way to white, but brightened by a charming salmon tint in the massive centre. It has a sweet Tea fragrance, and deserves more than a passing note. The only open classes were for twelve bunches of Moss Roses, in which the first was Mr. Prince, and for a wicker basket of Tea Roses the best came from the Rev. H. B. Biron, although Miss Agnes Bloxam had a good arrangement, but too lumpy and stiff.

A special prize was offered by Mr. C. Grahame for twelve cut blooms of Hybrid Perpetual Roses, and these were the only Hybrid Perpetual kinds shown. Mr. J. Brown, gardener to Mrs. Waterlow, Reigate, had the finest, while a silver medal was given to the bloom of the Earl of Dufferin variety from Mr. E. West, Reigate.

We believe this is the first distinct exhibition of Tea Roses that has been held, and such exhibitions will tend to the cultivation of a lovely class of flowers described as being difficult to grow and so forth, for the reason that they have never until now received the same attention given to the Hybrid Perpetual varieties that have overshadowed them.

Rose exhibits not in competition are noted in the report of the Royal Horticultural Society.

REV. C. WOLLEY DOD ON HERBACEOUS PLANTS.

The lecture by Mr. Dod on hardy herbaceous plants for the flower garden at the Drill Hall, on Tuesday, was brimful of practical information. He stated that the flower borders should be furnished more or less with plants in flower for ten months in the year, from the time of the earliest Snowdrop to the last of the Michaelmas Daisies. To keep up the interest in the garden, he suggested frequent additions of new plants. The preparation of the soil was of primary importance, drainage being the first step, if necessary; to prove this, fill a hole about 2 feet deep or so with water, and if it did not drain away in two or three hours, drainage would be necessary. Another test to prove if the soil is suitable would be to plant Christmas Roses. If they did well and retained their leaves, most other plants would succeed. Flower borders set apart for herbaceous plants should never be dug, except say once in five years, when the whole collection should be taken up and rearranged. And in selecting positions for certain plants place them where they will grow best rather than where they will look best, for they will look best where they make the most vigorous growth. Some persons planted such things as Wood Anemones to cover the bare surface of herbaceous borders, but this is not desirable, as they exhaust the soil very much. Mixed borders, he said, ought to be from 7 feet to 8 feet wide and accessible from each side. An east aspect was said to be the best position for the general run of such plants and west the worst. It is of much importance that they be sheltered from wind. The best time for transplanting is the early autumn, but not later than the middle of October, for if it could not be done by the end of the month it would be better to leave the operation until the plants started into growth in the spring. After a time the plants wear themselves out, and do this sooner in heavy than in a light soil. He would also avoid all plants of a running habit for mixed borders,

such things as Anemone japonica, for instance. All such ought to have a position by themselves. He suggested trying experiments with new plants, such as the best method of propagation and different ways of culture. It was not necessary to imitate the natural conditions of plants too closely. Those anxious to obtain many plants of particular species should raise them from seeds, as seedlings produce much more vigorous plants. It was said to be best to sow the seeds as soon as they were ripe, and they germinated most readily when sown under glass, but artificial heat was not recommended. It was undesirable to disturb the soil near rare plants, as self-sown seeds would vegetate when plants could not be obtained by saving the seeds and sowing them. It was well to utilise the out-of-the-way corners of the garden, an irregular heap of stones covered with leaf-mould being excellent for growing the hardy Cyclamens. Mr. Dod had found siftings from stone quarries excellent to mix with the clay soil of his garden.

ROYAL BOTANIC SOCIETY.

FEAST OF FLOWERS.

THE experiment of holding a floral fête last year was such a signal success, that it was repeated on Thursday afternoon last; and in spite of a heavy downpour of rain, that lasted until just before the parade, there was again a large attendance, better distributed this season, to prevent the unseemly crushing of last year. There were dressed carriages, pony carts, and chaises, as before, with the addition of a flower-laden camel and two Brahmin bulls from the neighbouring Zoological Gardens. The sun shone out brightly during the procession of vehicles, and the fête was saved from being completely spoilt. Without sunshine such an affair as this is a failure. The Royal prize of twenty guineas offered for the best dressed exhibit was won by Mrs. Peters, whose "Victoria" was a mass of cream-coloured and yellow Roses relieved by crimson flowers. It was gaudy, but too heavy. This was the fault of most of the carriages. The flowers were lumped together, in a few instances without a single effort to make a graceful or tasteful effect. One carriage was decked with white Pelargoniums and pink Sweet Peas, a very tasteful arrangement, and a pretty little thing was a goat-chaise smothered with Sweet Sultan against dark leaves and spikes of Lilium longiflorum. A pony chaise one sheet of white Marguerites, scarlet Pelargoniums, and blue Cornflower was striking, but too strong in tone and lumpy. A dog-cart wreathed with Corn and white Sweet Peas was novel. The exhibits certainly showed far more taste than last season, and we saw no wretched maypole sticks to disfigure the gardens.

In the large tent there was a show of flowers and baskets of Roses, some pretty where similar shades were used, others unusually crude. Roses were exhibited by Mr. F. Cant, who had a large group of cut Roses of many kinds, especially beautiful being the variety Viscountess Folkestone (gold medal). A very tastefully arranged collection, containing charming Tea Roses, came from Mr. Rumsey, Waltham Cross, which was awarded a silver-gilt medal, but there was little to choose between the two groups. Both were of almost equal merit. Both Mr. James, of Norwood, and Mr. Butler, gardener to Mr. Gibbs, Regent's Park, received silver medals for foliage plants, and a bright relief was a collection of stove and greenhouse plants from Mr. Mould, Pewsey, Wilts (silver-gilt medal). Mr. Turner showed Pelargoniums, and Messrs. H. Cannell & Sons, Swanley, a rich group of Begonias (silver medals).

Messrs. Hooper and Co., Maida Vale, had Caladiums and Gloxinias, for which a gold medal was given; and hardy flowers were contributed by Messrs. Kelway and Son, Langport (gold medal), Messrs. Barr and Son, Covent Garden (silver medal), and Messrs. Cheal and Son, Crawley (bronze medal).

One of the finest groups of Ferns we have seen came from Mr. May, of Edmonton, and well deserved the silver medal awarded.

There were a few paltry exhibits. One was a

kind of laid-out garden, done with variegated leaves, a petty thing that might please a little child; but otherwise there was more taste in the various classes than last season.

National Rose Society.—The annual dinner of this society was held on Tuesday evening last, at the Hotel Windsor, the Dean of Rochester, the Rev. S. Reynolds Hole, presiding. There were also present Sir John T. D. Llewelyn, Bart., and many members of the society. The occasion was of more than usual importance, as the opportunity was taken to present the hon. secretary, the Rev. H. H. D'Ombrian, with a gold watch and chain, in recognition of the interest that he has taken in the society. The usual toasts having been proposed, the chairman said,

I have now the honour of proposing the toast of the evening, "Continued Success and Prosperity to the National Rose Society." I have had many happy hours in connection with the society. I number amongst its members some of my dearest friends, and I have for many years, as you have, done my best to encourage the growth and exhibition of the Rose. You will agree with me that the prosperity of the society is largely due to the energy and steady perseverance of its founder, who has gone on in his earnest way without being frightened by difficulties, and to him is owing in a great measure the present condition of the society. Then turning to Mr. D'Ombrian he said, You and I, my dear brother, have had much happy intercourse together for a long period of years, and I think I have not had nor shall have a happier one than this evening. Some of your rosarian friends had heard that you had met with a loss in having your watch stolen. Well, we thought it well that you should have a little time to meditate on your—well, shall I say want of caution; but as you have been sufficiently punished for it we desire to repair your loss, and I have therefore the pleasure of presenting you, on behalf of the rosarians of England, with this gold watch and chain, and hope that you may long live to use them.

The Rev. H. H. D'Ombrian in replying thanked his brother rosarians for the undeserved and unexpected mark of kindness, and said he would have done very indifferently but for the careful work of the co-secretary, Mr. Mawley. The health of Mr. Mawley was then proposed by the chairman, and other toasts having been responded to, the meeting was brought to a close. It was one of the most successful the society has held.

Richmond Show.—This was the finest held for many years. A prize list is given in our advertising columns.

The new Strawsonizer machine.—Some interesting experiments were tried with this wonderful machine last Friday before a large company of farmers, hop and fruit growers, gardeners, &c., on one of Earl Beauchamp's farms near Malvern. Mr. Strawson, the patentee, was present and personally conducted the experiments. He showed that the machine may be easily regulated with the greatest nicety, and worked with a minimum of labour. The original idea was that the machine should be an insecticide distributor, but, as well as being nearly perfect in that, it was found applicable for the distribution of all kinds of grain, lime, salt, nitrates, and artificial manures, each and all of which were practically and satisfactorily operated upon, scattering some of the ingredients evenly broadcast on the ground, while others were forced up in dust or spray into the Hops or trees. The hopper used for the dry ingredients was then changed for the one used for liquids and charged with insecticide, which the machine scattered over the land in a nearly invisible spray and afterwards in a dense shower, according to the adjustment. It was next tried to reach the branches of fruit trees, but this was the least satisfactory, as Mr. Strawson acknowledged greater power was required to reach the height of the tall Hop poles also. He also accepted the practical suggestions offered, which he was sanguine could be overcome, and he further promised to execute them in due course. The demonstration was a great success, and proved the utility of the machine as a valuable invention. The distribution is effected by the force of wind, derived

from a fan, and conducted through pipes into contact with the ingredients in their escape from the machine, the whole being worked by one horse. The fan and all other working parts derive their motive power from the movements of the machine, similar to an ordinary seed drill. From 1 gallon to 100 gallons can be distributed upon an area of 1 acre in the form of an even fine spray.—W. CRUMP, *Madresfield Court.*

OBITUARY.

DEATH OF MR. B. S. WILLIAMS.

THE announcement of the death of Mr. B. S. Williams, of the Victoria and Paradise Nurseries, Upper Holloway, will be received with profound regret by horticulturists throughout the United Kingdom, and we might say the world. Few men in his position gained so many friends, the outcome of his genial disposition and high character. Mr. Williams was at one time associated with all things of horticultural interest, but for the past two years he has been seen very little, and then only occasionally in his own nursery at Holloway. This was the result of a malignant internal disease, which slowly killed him, though at times there seemed hopes of recovery. Those who saw him even a year ago would have seen the great havoc disease had made on a once robust frame. This was aggravated by the death a few months ago of his wife, an event which dealt a severe blow to a weakened constitution. The career of Mr. Williams was one of steady progress, application, and perseverance, and the result is the large business now carried on at Holloway. He came of a gardening family, being the fourth son of Mr. James Williams, of Hoddesdon, near Broxbourne, in Hertfordshire. Here this old gardener still lives in the enjoyment of good health, though at the age of ninety-four, and has thus outlived his son, who was born on March 2, 1824. At the age of fourteen Mr. Williams commenced his gardening career with his father, who had charge of the garden of Mr. John Warner, famous in his day as an orchidist, and one who has left behind him many mementoes of his ardent love for the flower. After three years here he went to another garden, where he remained until he was twenty. About this time the florist's instinct showed itself in his affection for the Pansy, and the result of his ardent love for flowers, we all know, has made his name famous wherever horticulture has a foothold. He then went to the nursery of Messrs. Adam Paul and Son, at Cheshunt, gaining still further knowledge and experience, but this he left to return to his father at Hoddesdon, where he became foreman of the fruit and vegetable department. Having served under his father for some time he became Orchid grower to Mr. C. B. Warner, and then the name of B. S. Williams came to the front. It is with the Orchid that he will always be identified, and his enthusiastic love for it and success in its cultivation won him even at that time enviable renown. He grew the plant so well, that his name was often at the head of prize-winners amongst the many competitors at the Chiswick and Regent's Park shows, then in their fullest vigour. In those times, to win a first prize was a true indication of real cultural ability, by reason of the sharp contest for the awards. An era in his life commenced in 1856, when Mr. Williams started business for himself in the Seven Sisters Road, Holloway, having Mr. Robert Parker, once the head of the famous hardy plant nursery at Tooting, as his partner. This partnership did not, however, last longer than about five years, as then Mr. Williams left for Holloway, and began the business at the foot of Highgate Hill, then an almost country spot, and not, as now, hedged in with buildings. All know the success of the enterprise at Holloway, due to his thorough knowledge of plants generally, of which he was a constant exhibitor. He was before the public as an exhibitor for about forty years, both in the United Kingdom and abroad, usually with conspicuous success. He was a constant exhibitor at the great Manchester Whitsuntide gatherings, and helped forward many good

charities, as the Gardeners' Benevolent Institution, and was present in March, 1887, at the first meeting of the Gardeners' Orphan Fund, a charity he has seen strongly established. It will show the influence he had when it is mentioned that in 1866 he was made a member of the International Exhibition of 1866, and for years he was a member of the Floral Committee of the Royal Horticultural Society.

This is not all. He has done something more than build up a large business, as the many horticultural works he has left behind testify. Mr. Williams began his literary work in 1851, contributing articles on "Orchids for the Million" to the *Gardeners' Chronicle*, and the outcome of this was the "Orchid Manual," which, though commenced in a modest form, is now a bulky volume, in every good horticultural library. It is the standard book of its kind, and will ever keep Mr. Williams in memory. Six editions, the last in 1885, have been published, and his works have, except the first edition of "The Manual," been published by himself. Three editions have been published of the "Choice Stove and Greenhouse Plants," and then we have his "Select Ferns and Lycopods," another good book of its kind. In 1881 he commenced the "Orchid Album," and frequently contributed cultural notes to the "Select Orchidaceous Plants" of Mr. R. Warner.

A useful, honourable, and successful life has thus closed, and we lose one whose sympathies in horticultural charities and natural kindly heart had made hundreds of warm personal friends.

The funeral will take place at Highgate Cemetery next Monday, the 30th inst., at 12.30.

Death of Mr. W. H. Baxter.—This well-known gardener died on the 19th inst., at the age of 75, in the town with which he has been for many years connected. His association with the Oxford Botanic Gardens was of long standing, and he did much by his knowledge of plants to raise their position. He relinquished this charge through failing health about 1887, and received for his service a well deserved pension, but he continued to act as superintendent of the university parks until six months ago. He was early in his career associated with Mr. J. C. Loudon, to whom he gave much assistance in the preparation of the series of works by that celebrated author. Mr. Baxter's son, Mr. R. S. Baxter, is now curator.

Death of Mr. J. Treherne.—We have just learnt of the death of Mr. Treherne, who was well known as the director of the landscape gardening department of Messrs. Veitch and Sons' nursery, a post he filled for over thirty years. He had been an invalid for the past three years, and died on Sunday last, at the age of 72.

Melon leaves unhealthy (*An Enthusiastic Amateur*).—Your Melon leaves are covered with thrips and red spider.

Names of plants.—*Robert Twiss*.—Impossible to name from such a scrap.—*Westward Ho*.—1, Eurybia Gumii; 2, Ephedra monostachya; 3, Grevillea rosmarinifolia; 4, Viburnum plicatum.—*J. S. Derby*.—1, send better specimens and fertile; 2, Feea spicata; 3, better specimen; 4, Nephrodium venustum; 5, Diplazium grandifolium; 6, Myriopteris frigida; 7, apparently Goniophlebium meniscifolium; 8, a Trichomanes, probably Luschathianum; specimen bad.—*T. W. D.*—1, Oneidium flexuosum; 2, O. crispum; 3, O. Gardneri; 4, Cyrtopodium superciliale; 5, Vanda tricolor.—*W. B. G.*—1, Aralia Makoyalei; 2, Bertonia superbissima; 3, Maranta Makoyana; 4, Sonerila Hendersoni; 5, Pandanus Veitchii.—*Jungfrau*.—1, Lomaria Patersoni; 2, Asplenium flabellifolium; 3, Nephrolepis pectinata; 4, Polystichum capense; 5, Microlepia strigosa; 6, Pteris straminea.—*Pitcher*.—1, Nepenthes Mastersiana; 2, N. Rafflesiana; 3, N. Sedeni.—*H. T.*—1, Hoya bella; 2, Eranthemum sanguinolentum; 3, Anthurium Rothschildianum; 4, Phlebodium sporodocarpum.—*Saunders*.—Cannot name florist forms of Azaleas.—*A. M.*—1, Boronia serrulata; 2, Blandfordia aurea; 3, Leschenaultia formosa.—*Clivia*.—The flowers sent are fine varieties of Clivia miniata.—*B. L.*—The Rose is Hebe's Lip; the other Dianthus plumarius.—*G. R. T.*—Iris sibirica.

WOODS AND FORESTS.

PLANTING FOREST TREES.

THOUGH, as a rule, the principal aim of every planter on a large scale is profit, yet by a judicious selection and distribution of his trees he may at the same time afford the necessary shelter to the homestead, the pasture and stock, as well as to his crops. The ultimate benefits of such planting are nowhere more visible than in the woods themselves, where the vigorous growth of the trees in the interior often presents a striking contrast to that of the stunted and weather-beaten specimens upon the windward margins of the plantations. Many attempts to clothe with wood the summits and sides of hills have failed, from the planting having been confined to the most exposed parts. The proprietor has not unfrequently been guided more by his map and his rule and compasses than by consideration of the important conditions of soil and situation. By allowing the planter to obtain a footing upon the more fertile soil below, he would, by degrees, have been able to push upwards until he had reached the limits of profitable cultivation, and this in situations where the planting of the higher grounds first would have failed, for in most cases where a few inches of soil can be found a combination of planting and layering will enable him to grow remunerative coppicing, even where standards of large size cannot be reared. Almost every selected site of any considerable extent will present great varieties of soil and surface, and it should be the duty of the planter to distribute his species so that each may occupy the spot best adapted to its habits and requirements. In order, too, that they may present no harsh outlines, the various kinds of trees in the same plantation should so gradually approach and intermix with each other as to make it appear that each species was gaining ground and taking possession of the soil. As a barrier against the prevalent winds, the Mountain Ash, Wych Elm, Sycamore, Beech, and Hornbeam may be planted; and to ensure a compact and dense front, a belt of Norway Spruce, which may afterwards be kept headed down to any required

height, should be formed. In rearing plantations upon very exposed sites, an admixture of scrub or underwood with the standard trees is of the greatest importance. This checks evaporation, and at the same time fixes the fallen leaves, so that they decay *in situ* instead of drifting. Upon the higher ground and upon chalk ridges the Larch and Scotch Pine may be mixed with Birch and Beech. The Alder, also, though best adapted to moist and even wet situations, grows freely at a great height. The serrated outlines of spiral-topped trees, such as the Larch, are so harsh when they meet the horizon, that these trees require to be planted in large masses. In mountain districts they harmonise with the peaks. The lower rocky slopes and the sides of dells are generally suitable for the Ash, the Silver and the Spruce Firs, and various kinds of Pine; thin and sandy soils suit the Stone Pine, the Scotch Pine, and the Spanish Chestnut. Where rabbits abound, plant the Corsican Pine (*Pinus Laricio*), as they will seldom touch this while other food can be found. The plains and valleys with a moderately dry soil will be found well adapted to the Elm, Lime, Plane, and Horse Chestnut, while most situations suit the common British Oak, the Spruce, Willow, Poplar, and Alder. To obtain the maximum of profit from his woods, the planter must exercise great judgment in selecting his trees and in preparing the land.

A. B.

Raising covert shrubs.—Writing on this subject in THE GARDEN, June 7 (p. 542), "Y." tells us that "if anyone wants in these days to set up a Holly or a Yew hedge quickly, it costs him about one guinea a yard to start with, &c." In giving this estimate, I think there must be some mistake. Holly and Yew are both slow growers, and require a good deal of time and attention to form good bushy plants during their nursery treatment. Extra strong and well-furnished plants, however, of both kinds from 3 feet to 5 feet high can be bought at prices ranging from 2s. 6d. to 7s. 6d. each, and as each plant would occupy a space of about 1 yard, it is hard to understand how the hedge could cost a guinea a yard. Of course, trenching the ground, preparing the bed for the hedge,

and setting the plants, as well as their carriage, have to be taken into account, but even then the hedge could never cost a guinea a yard. "Y.'s" suggestions with regard to raising hardy covert plants on the estate are sound and practical, and I daresay where there is a home nursery and convenience, a great deal might be done in that way with the view of keeping down expense. All estates of any great size, however, should have a home nursery where young plants can be bought and planted for a time, when they will then be found to be very handy for making up blanks where plants have died out. If this were acted upon, probably "Y.'s" thousands of pounds to finish his preserves would dwindle down to hundreds.—J. W.

The American Larch (*Larix americana*).—This Conifer was introduced to this country early in the 18th century; but even at the present time it is but rarely found in any plantation, wood, or forest in this country. It is a slender tree with heavy close-grained wood, horizontal branches, and with more slender and usually shorter leaves than the *Larix europæa*. Compared, however, with the European Larch, the American species is inferior in quality of timber, and is a less beautiful tree; but the common Larch in its present diseased condition cannot be depended upon to produce good, sound, and perfectly matured timber, and can only be profitably cultivated with a view to quick returns in the shape of hop poles, fencing rails or palings, pit props, railway sleepers, temporary buildings, or other ordinary rural purposes; therefore, until we can obtain a new and healthy progeny of the European Larch, I would recommend the American variety, as a useful and profitable, though coarse-wooded tree for the climate of Great Britain and Ireland. It is equally hardy, as rapid in growth as the common kind, and quite as accommodating as to soil and situation, and would produce equally quick returns in poles, &c.; though, as I have stated, the wood is somewhat coarser. Its cones and foliage are smaller than those of the common Larch, and its branches longer and less regularly disposed. There are several forms or varieties of it, all of which are hardy and useful enough in ornamental planting. This tree is also called in America the Black Larch, Tamarack, and Hackmatack.—J.

